



DC/DC CONVERTERS FOR HIGH RELIABILITY AND INDUSTRIAL APPLICATIONS



2 GRADES OF PRODUCTS



Hi-Rel grade converters are designed for demanding applications in extreme environments such as aerospace, military and high-end industrial applications. The modules are potted with a military qualified thermal conductive compound and packaged in a five sided metallic case.

- **Tcase** : -40°C to +105°C
- **Tstorage** : -55°C to +125°C
- **Encapsulation** : Hi-Rel grade qualified potting
- **Burn-in**
- **Control function**
- **Low output ripple voltage**
- **Option** for -55°C start-up and MIL-STD-883C screening

Wide Input

The wide input series is designed for use in distributed power architecture where variable input voltage and transient are prevalent making them ideal particularly for avionics, defense, marine applications.

9 to 45 Vdc
16 to 40 Vdc
16 to 80 Vdc
120 to 480 Vdc

Ultra Wide Input

Designed for multi batteries and transients compliance.

4,5 to 33 Vdc
9 to 60 Vdc
10 to 100 Vdc

Where optimum trade-off between cost and performances is of the essence, industrial grade DC/DC converters is the solution of choice. GAIA Converter proposes two classes of modules, one with standard 2:1 input range and one with wide 4:1 input range.

- **Tcase** : -40°C to +95°C
- **Tstorage** : -45°C to +105°C
- **Encapsulation** : Industrial grade potting
- **Qualified** for industrial grade applications
- **Option** for high isolation up to 3KVdc

Standard Input

The standard input series is designed for relatively narrow input voltage variations.

This series represents the lowest cost approach for a given output power.

4,5 to 5,5 Vdc
18 to 36 Vdc

Wide Input

The wide input series is designed for use in distributed power architecture where variable input voltage and transient are prevalent making them ideal particularly for transportation, railways or high-end industrial applications.

4,7 to 16 Vdc - 9 to 36 Vdc
16 to 40 Vdc - 18 to 75 Vdc
36 to 140/175 Vdc

Ultra Wide Input

Multi batteries and robustness against transients. 12 - 160 Vdc

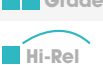
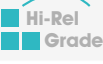
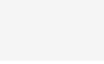
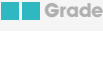
Technical Specifications

Parameter	Hi-Rel (M) Grade	Industrial (I) Grade
Input characteristics		
Efficiency	83-92%	80-87%
Output characteristics		
Set point accuracy (at 75% load)	(+/-) 2%	(+/-) 2%
Line regulation (Ui min to max)	(+/-) 0,5% max	(+/-) 1% max
Load regulation (25% to full load)	(+/-) 2% max	(+/-) 2% max
Ripple output voltage		
for 3.3 and 5 Vdc output voltage	40 mVpp max	50 mVpp max
for 12 Vdc output voltage	50 mVpp max	100 mVpp max
for 15 and 24 Vdc output voltage	60 mVpp max	150 mVpp max
General characteristics		
Start up		soft start
Protections		permanent short circuit, temperature, current
Circuit restart		auto recovery
Isolation voltage		1500 Vdc
Isolation resistance		100 Mohm
Switching frequency		Fixed
Storage temperature	-55°C/125°C	-40°C/105°C
Operating temperature (case)	-40°C/105°C	-40°C/95°C

Please consult product datasheet on our website for complete specifications.



ISOLATED DC/DC CONVERTER MODULES

Family	Grade	Package	Power	Permanent Input Range	Output
MGDxx-04	 Hi-Rel Grade  Industrial Grade	Dil 24	4 W	4.5-5.5V, 18-36V, 9-36V, 16-40V, 36-140V	Single, Bi, Triple
MGDDx-06/08	 Hi-Rel Grade  Industrial Grade	1" x 0.75"	6/8 W	12-160V 4.5-33V, 9-60V	Dual
MGDxx-10	 Hi-Rel Grade  Industrial Grade	1.6" x 1"	10 W	4.5-5.5V, 18-36V, 4.7-16V, 9-36V, 16-40V, 36-140V	Single, Bi, Triple
MGDSx-18	 Hi-Rel Grade  Industrial Grade	1.6" x 1"	18 W	4.5-5.5V, 4.7-16V, 9-36V, 16-40V, 36-140V	Single
MGDxx-20	 Hi-Rel Grade  Industrial Grade	2" x 2"	20 W	4.5-5.5V, 18-36V, 4.7-16V, 9-36V, 16-40V, 36-140V	Single, Bi, Triple
MGDDx-20 MGDDx-21	 Hi-Rel Grade  Industrial Grade	1.5" x 1" 1.25" x 1"	20 W	12-160V 4.5-33V, 9-60V	Dual
MGDxx-25	 Hi-Rel Grade  Industrial Grade	2" x 2"	25 W	9-36V, 16-40V, 18-75V	Single, Bi, Triple
MGDSx-26	 Hi-Rel Grade  Industrial Grade	2" x 2"	25 W	9-36V, 16-40V	Single
CGDx-30	 Hi-Rel Grade  Industrial Grade	3" x 2"	30 W	18-36V, 4.7-16V, 9-36V, 16-40V, 36-140V	Up to Six
MGDxx-35	 Hi-Rel Grade  Industrial Grade	3" x 2"	35 W	9-36V, 16-75V, 36-140V	Single, Bi, Triple
MGDDx-40	 Hi-Rel Grade	1.5" x 1.3"	40 W	4.5-33V, 9-60V	Dual
MGDxx-60	 Hi-Rel Grade  Industrial Grade	3.25" x 2"	60 W	14-55V, 36-140V, 12-160V	Single Dual
MGDSx-75	 Hi-Rel Grade  Industrial Grade	1/4 Brick	75 W	9-45V, 16-80V, 155-480V	Single
MGDD-80	 Hi-Rel Grade	2" x 1.6"	80 W	9-60V	Dual
MGDSx-100	 Hi-Rel Grade  Industrial Grade	3.25" x 2"	100 W	14-55V, 36-140V, 10.7-100V	Single
MGDSx-150	 Hi-Rel Grade  Industrial Grade	1/2 Brick	150 W	9-45V, 16-80V, 120-480V	Single
MGDSx-155/ 124/164/204	 Hi-Rel Grade  Industrial Grade	1/4 Brick	150 W/ 120/160 200 W	9-45V, 16-80V, 155-480V 9-36V, 18-75V	Single
MGDS-200	 Hi-Rel Grade	2/3 Brick	200 W	9-45V, 16-80V	Single
MGDSx-254	 Industrial Grade	1/4 Brick	250 W	9-36V	Single

NON ISOLATED DC/DC POINT OF LOAD MODULES

Family	Grade	Package	Power	Permanent Input Range	Output
MPGS-14A	 Hi-Rel Grade	1" x 0.75"	260 W 14 A		Single





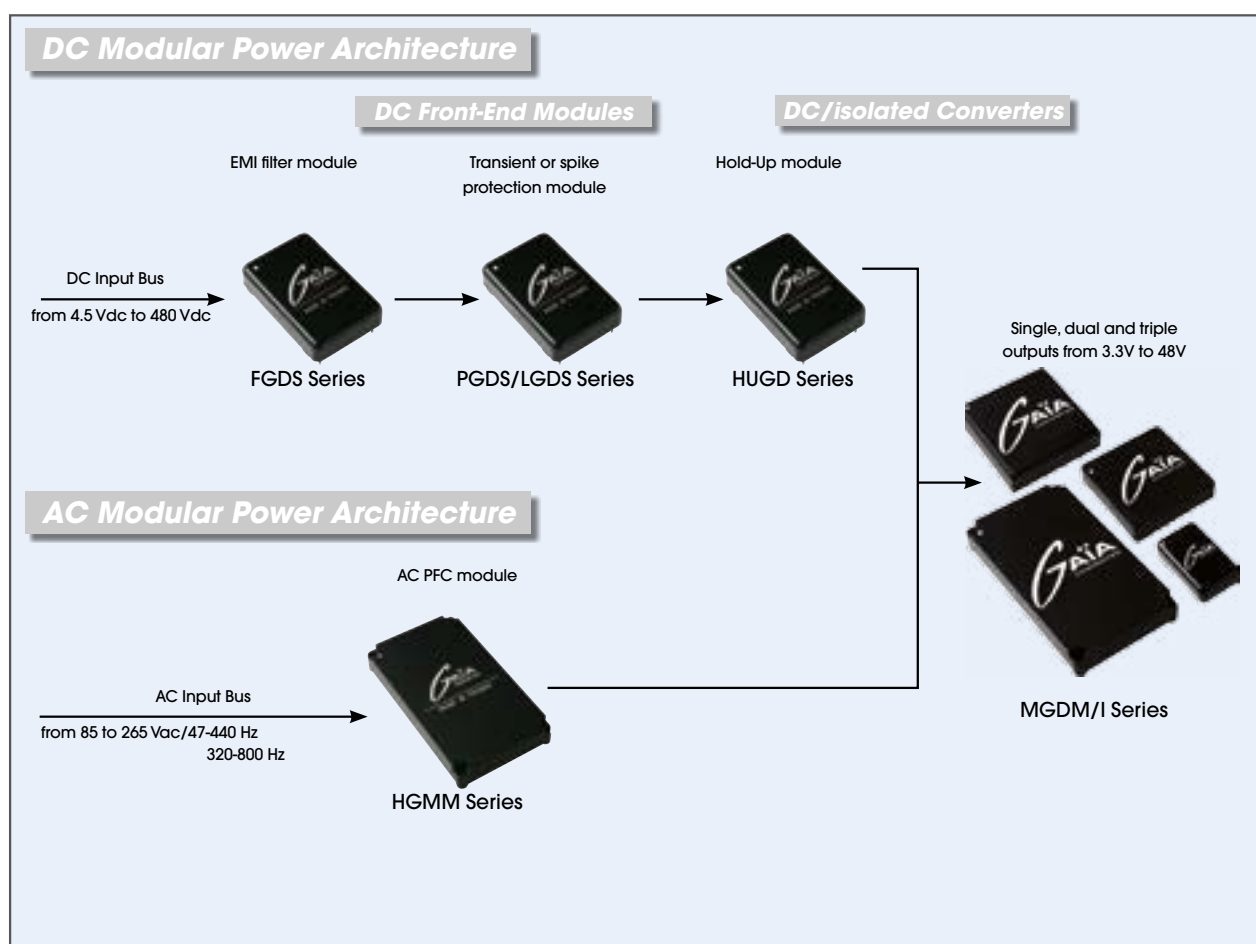
FRONT END MODULES

Family	Grade	Standards	Package	Power/Current
EMI FILTERS				
F6DS - 2 A - 50 V	Hi-Rel Grade	MIL-STD-461, DO-160	Dil 24	50 W / 2 A
F6DS - 6 A - 100 V	Hi-Rel Grade	MIL-STD-461, DO-160	1" x 0.75"	150 W / 6 A
F6DS - 10 A - 50 V	Hi-Rel Grade	MIL-STD-461, DO-160	1.6" x 1"	150 W / 10 A
F6DS - 12 A - 100 V	Hi-Rel Grade	MIL-STD-461, DO-160	1.25" x 1"	175 W / 12 A
F6DS - 20 A - 50 V	Hi-Rel Grade	MIL-STD-461, DO-160	1.6" x 1"	300 W / 20 A
HOLD UP MODULES				
HUGD - 50	Hi-Rel Grade	MIL-STD-704, DO-160	1.6" x 1"	50 W
HUGD - 300	Hi-Rel Grade	MIL-STD-704, DO-160	1.6" x 1"	300 W
AC / DC POWER FACTOR MODULES				
HGMB - 35	Hi-Rel Grade	MIL-STD-704, DO-160	3.25" x 2"	35 W
HGMB-50	Hi-Rel Grade	MIL-STD-704, DO-160	3.25" x 2"	50 W
HGMS - 150	Hi-Rel Grade	MIL-STD-704, DO-160	1/2 brick	150 W
HGMS - 350	Hi-Rel Grade	MIL-STD-704, DO-160	1/2 brick	350 W
TRANSIENT PROTECTION MODULES				
PGDS - 50	Hi-Rel Grade	MIL-STD-704, MIL-STD-1275	1.6" x 1"	50 W
LGDSI - 50	Industrial Grade	EN50155, RIA12	1.6" x 1"	50 W
LGDSI - 75	Industrial Grade	EN50155	1.6" x 1"	75 W
LGDS - 100	Hi-Rel Grade	MIL-STD-1275, DEF-STAN-61.5.6	1.6" x 1"	100 W
LGDS - 300	Hi-Rel Grade	MIL-STD-704, MIL-STD-1275	1.6" x 1"	300 W

GAIA Converter Modular Power Architecture feeds your exact need with one of the most comprehensive range of DC/DC, AC/DC converters and bus adaptation modules. Whether you need basic power or advanced power management, you will find everything you need with GAIA Converter to meet your sophisticated power supply requirements.

This “building block” approach using off-the-shelf products provides unprecedented advantages to ease design, simplify qualification and reduce time to market.

Modular Power Architecture



- **The Experience of a Leader in Hi-Rel Environments**
- **The Most Comprehensive Range of Products with more than 3500 References from 4W to 350W Power**
- **Local Support Worldwide**
- **ISO9001 v 2008 Quality certified**

GAIA Converter was founded in 1993. Since that time the company has provided one of the most comprehensive range of modular power components in the market place. GAIA Converter has also brought to the market its well known concept of Modular Power Architecture to allow simple design of complex power supplies. With more than 5000 standard power component references serving the Hi-Rel industrial, transportation, aerospace and military markets, GAIA Converter is recognized as one of the world's leaders for "power module" solutions. Strongly focused on power modules, GAIA Converter can concentrate all its efforts to propose innovative solutions and a complete comprehensive suite in this field. More than 300 new products are completed every year by our engineering team to cope with new technologies and market trends.

GAIA Converter dedicates significant R&D investment on a continuous basis in order to maintain a state of the art product range. The GAIA engineering team not only designs products with a competitive advantage but is also devoted to solving the customers' power problems.

The company's advanced design and development

capabilities include :

- Circuit behavior simulation
- Thermal management
- Advanced packaging techniques
- Proprietary magnetic and ASIC design
- Environmental test
- Reliability evaluation

The skill and innovative spirit of our design team is supported by a full suite of computer aided engineering tools. These tools include electrical simulation, mechanical design, thermal analysis and optimization, reliability prediction, circuit board layout and manufacturing instructions. This CAE system is used extensively to ensure design performance, traceability and integrity from prototyping to mass production.

With a presence in 25 countries around the world through subsidiaries and local distributors, GAIA Converter is a global company. In three major markets (The Americas, Europe and Asia), Gaia Converter maintains a strong presence with Sales and Technical Support Offices for its distributor network and customers.

GAIA Converter's manufacturing philosophy is based on fully automated lines with no manual operation. These automated lines include the latest fast SMD pick and place machines, automatic pin insertion tools and automatic potting machines. The extensive use of statistical methods guarantees high quality products.

GAIA Converter products have a long and successful record of projects around the world from Aerospace, Military, Transportation and Hi-End Industrial applications and among them:

AEROSPACE/MILITARY APPLICATIONS INCLUDE :

- **Commercial aircrafts :**
 - Airbus : A320/A330/A340/A380/A350
 - Boeing : B737NG/B777/B787
 - Bombardier : CRJ 100/200/700/900
 - Embraer:ERJ 135/140/145/170/190/195
 - Dassault : F50/F900/F2000/F7X/F8X
 - Various: Learjet 60/85, Gulfstream G550/650
- **Military aircrafts :**
 - Fighters : M2000, Rafale, Typhoon, JAS39, Tornado, F-16 Falcon, F/A-18 Hornet, F-35 JSF
 - Cargos : C130 Hercules, C160, C27J, A400M
 - Missions : Awacs, Nimrod MR4A, P3C Orion
- **Commercial & military helicopters :**
 - Eurocopter : HAPEC120/135/155/175, NH-90
 - AgustaWestland : A109/129, AW139, EH101
 - Bell : B206/212, V22, B407/427/430, AH-64
 - Sikorsky : S76, S92, UH-60, RAH-66
- **Military Ground Borne :**
 - Tanks : Leclerc, Leopard, Puma, Bradley
 - Vehicles : LandWarrior, Humvee, VBCI
 - Groundborne : COMM, MMR, MLS,...
- **Naval :**
 - PAN, SNLE, FREMM Frigate, Aegis Destroyer
- **Missiles, Torpedoes & UAV's :**
 - Milan, Eryx, Stinger, Crotale, MLRS, Aster, Exocet, Marte, Sea Wolf, Meteor, Taurus KEPD, Stingray, MU90

TRANSPORTATION APPLICATIONS INCLUDE :

- **Intercity trains and locomotives :**
 - Alstom : TGV, TGV2N, KTX, ET423, AGV
 - Siemens : ICE2, ICE3, ES64, S252
 - Ansaldo : ETR400/500, E402, TAF
 - Bombardier : AGC, Talent, ICN
 - GE Transport : AC6000, Dash
 - Various: locomotives T13, ES65, Euro4000
- **Urban subways & tramways :**
 - Subways : Meteor, MF77, MF2000, M7, Lisboa, NY
 - Tramways : Citadis, Combino, Sirio, Flexity C/E, Icentro, Eurotram
- **Local Rolling stock :**
 - LRV : Arlanda, Gatwick, Frankfurt, OrlyVal, CdGVal
 - Buses/trolleys : Civis, Cristalis, Cito, Agora
- **Signaling equipments :**
 - Positioning systems, TPWS, ETCS
 - ERTMS, Video, Data transmission, GPS-R

INDUSTRIAL APPLICATIONS INCLUDE :

- **Power station & energy controls :**
 - Power generation : VHV, MHV, LV
 - Propulsion node, Heat exchangers
- **Security systems**
 - Pumps and valves controls, gas and stream controls, petrochemical regulators
- **Environmental control systems :**
 - Seismic acquisition, hydro controls
 - Oil drilling, down hole instrumentation
 - Deep sea exploration



GAIA Converter has always operated a quality system in accordance to ISO 9001 standards and has been certified to the latest ISO 9001 v2015 standard. This standard is now used as a platform for developing a greater appreciation of the quality required by

our customers. Our success in this area is recognized by independent approval Authorities such as Underwriters Laboratories (UL) and has resulted in approved and preferred supplier status at major electronics companies. However quality is not a static objective and GAIA Converter is continuously improving in this field and is particularly active with :

Design for Product Reliability :

In order to provide reliable products, GAIA Converter has always maintained stringent specifications with the aid of the most advanced theoretical and experienced feedback tools including :

- **Stress analysis** : GAIA Converter products undergo stress analysis and charged factors for each single component used in our products.
- **MTBF** : GAIA Converter calculations are done according to the MIL-HDBK-217F, RDF 2000, IEC-6280-TR methods with conservative quality and environmental factors.
- **Accelerated stress analysis** : all GAIA Converter's new designs are submitted to accelerate stress (thermal and shocks, thermal cycling and humidity) to analyze reliability.

- **Failure Analysis** : every product returned for failure during operation is carefully analyzed and failure root causes are monitored.

Manufacturing with Statistical Method for Prevention :

To manufacture high-quality products, the monitoring at the end of the production process is not enough.

Quality has also to be " designed-in " during process and production process. This is achieved by means of appropriate measurements and tools; among them GAIA Converter has implemented :

- **Statistical Process Control (SPC)** : for key process parameters all along the manufacturing flow GAIA Converter can establish very quickly deviations from process goal. This allows control over parameters and ensures process durability.
- **Average Outgoing Quality (AOQ)** : All products manufactured are 100 % tested for acceptance or rejection. The results of this inspection are recorded and monitored carefully.
- **Statistical Product Monitoring (SPM)** : All product parameters are recorded to statistically monitor the average deviation.

Customer Audit Quality :

GAIA Converter welcomes customer quality audits or independent quality audits on behalf of customers.

We have already been audited by independent organization such as Qualifas acting for European Aerospace companies, LCIE acting for UL approval, and major electronics companies from around the world.





HI-REL GRADE POWER MODULES



www.gaia-converter.com



FRONT-END MODULES

DC EMI FILTER 2A



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

FGDS-2A - 50V / ■

Option **IT** : Screening -55°C start-up temperature
Option **IS** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

9-50 Vdc transient : 80 Vdc / 100 ms
: 100 Vdc / 50 ms

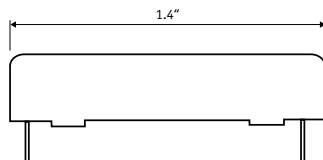
INPUT SPECIFICATIONS

INPUT CURRENT

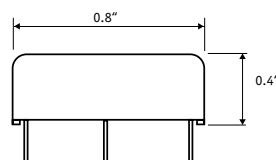
2A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : Ø 0.03"



Plastic case black solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	+Output (Vo)
3	Ground (Gnd)
4	-Output (Go)
5	-Input (Gi)

KEY FEATURES

- EMI filter for Avionics/Defense
- MIL-STD-461C/D/E/F compliant
- DO-160C/D/E/F/G compliant
- Input immunity to MIL-STD-1275A/B/C/D
- Input immunity to MIL-STD-704A/D/F

GENERAL CHARACTERISTICS

- Nominal power up to : 50 W
- Wide input range 9-50 Vdc
- Input current up to 2A
- Galvanic isolation input/output : non isolated

FRONT-END MODULES

DC EMI FILTER 6A



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

FGDS-6A - 100V / ■

Option **1**: Screening -55°C start-up temperature
Option **1S**: Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

4.5-100 Vdc

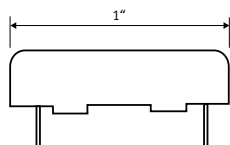
INPUT SPECIFICATIONS

INPUT CURRENT

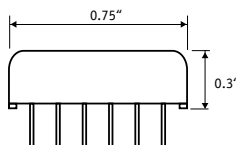
6A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : square pin 0.025"



Metallic case black anodized coating gold plated pin

1	12
2	11
3	10
4	9
5	8
6	7

Bottom view

Pin	Single Output
1,6	Ground in (Gndin)
2,3	- Input (Gi)
4,5	+Input (Vi)
7,12	Ground out (Gndout)
8,9	+ Output (Vo)
10,11	- Output (Go)

KEY FEATURES

- EMI filter for Avionics/Defense
- MIL-STD-461D/E/F compliant
- DO-160C/D/E/F/G compliant
- Input immunity to MIL-STD-1275A/B/C/D
- Input immunity to MIL-STD-704A/D/F

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Wide input range 9-100 Vdc
- Input current up to 6A
- Galvanic isolation input/output : non isolated

FRONT-END MODULES

DC EMI FILTER 10A



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

FGDS-10A - 50V / ■

Option **/T** : Screening -55°C start-up temperature

Option **/S** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

9-50 Vdc transient : 80 Vdc / 100 ms
: 100 Vdc / 50 ms

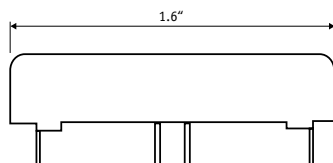
INPUT SPECIFICATIONS

INPUT CURRENT

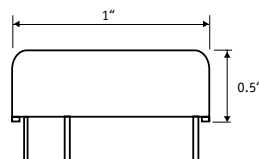
10A

PACKAGE AND PIN-OUT

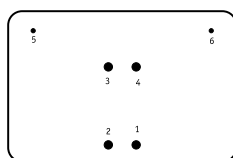
Dimensions in inches



Pin dimensions : 1, 2, 3, 4 : Ø 0.05"
Pin dimensions : 5, 6 : Ø 0.03"



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	- Input (Gi)
3	- Output (Go)
4	+ Output (Vo)
5	Ground (Gnd)
6	Ground (Gnd)

KEY FEATURES

- EMI filter for Avionics/Defense
- MIL-STD-461D/E/F compliant
- DO-160C/D/E/F/G compliant
- Input immunity to MIL-STD-1275A/B/C/D
- Input immunity to MIL-STD-704A/D/F

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Wide input range 9-50 Vdc
- Input current up to 10A
- Galvanic isolation input/output : non isolated

FRONT-END MODULES

DC EMI FILTER 12A



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

FGDS-12A - 100V / ■

Option **1**: Screening -55°C start-up temperature
Option **S**: Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

4.5-100 Vdc

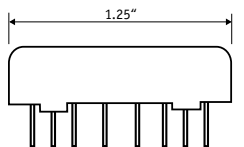
INPUT SPECIFICATIONS

INPUT CURRENT

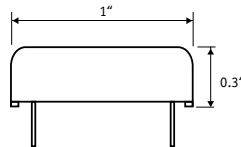
12A

PACKAGE AND PIN-OUT

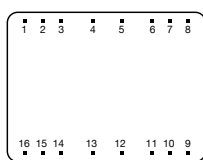
Dimensions in inches



Pin dimensions : square pin 0.025"



Metallic case black anodized coating gold plated pin



Bottom view

Pin	Single Output
1, 2, 3	- Input (Gi)
4, 5	Ground (Gnd)
6, 7, 8	- Output (Go)
9, 10, 11	+ Output (Vo)
12, 13	Ground (Gnd)
14, 15, 16	+Input (Vi)

KEY FEATURES

- EMI filter for Avionics/Defense
- MIL-STD-461D/E/F compliant
- DO-160C/D/E/F/G compliant
- Input immunity to MIL-STD-1275A/B/C/D
- Input immunity to MIL-STD-704A/D/F

GENERAL CHARACTERISTICS

- Nominal power up to : 175 W
- Wide input range 9-100 Vdc
- Input current up to 12A
- Galvanic isolation input/output : non isolated

FRONT-END MODULES

DC EMI FILTER 20A



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

FGDS-20A - 50V / ■

Option **IT** : Screening -55°C start-up temperature

Option **IS** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

9-50 Vdc transient : 80 Vdc / 100 ms
: 100 Vdc / 50 ms

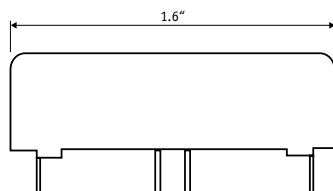
INPUT SPECIFICATIONS

INPUT CURRENT

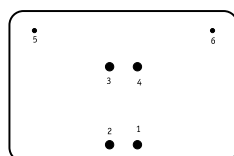
20A

PACKAGE AND PIN-OUT

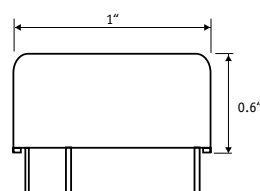
Dimensions in inches



Pin dimensions : 1, 2, 3, 4 : Ø 0.05"
Pin dimensions : 5, 6 : Ø 0.03"



Bottom view



Metallic case black anodized coating solder plated pin

Pin	Single Output
1	+Input (Vi)
2	- Input (Gi)
3	- Output (Go)
4	+ Output (Vo)
5	Ground (Gnd)
6	Ground (Gnd)

KEY FEATURES

- EMI filter for Avionics/Defense
- MIL-STD-461D/E/F compliant
- DO-160C/D/E/F/G compliant
- Input immunity to MIL-STD-1275A/B/C/D
- Input immunity to MIL-STD-704A/D/F

GENERAL CHARACTERISTICS

- Nominal power up to : 300 W
- Wide input range 9-50 Vdc
- Input current up to 20A
- Galvanic isolation input/output : non isolated

FRONT-END MODULES

DC TRANSIENT/DROP-OUT PROTECTION 50W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Transient suppressor & brown out for Avionics/Defense
 - MIL-STD-704A/D/E/F, EN2282, AIR2021E
 - DO160C/D/E/F cat A, B and Z
 - MIL-STD-1275A/B/C/D
- Dedicated for Avionics/Military Applications

GENERAL CHARACTERISTICS

- Transient suppressor 60 Vdc, 80 Vdc, 100 Vdc
- Power range : from 4 W to 50 W
- Galvanic isolation input/output : non isolated
- Protections : input undervoltage lockout

PART NUMBERING

SINGLE OUTPUT

PGDS-50 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

For leaded process add - L after reference - Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

N : 17-37 Vdc brown out : 10 Vdc / 15 s transient : 80 Vdc / 100 ms
C : 12-37 Vdc brown out : 6 Vdc / 1 s transient : 100 Vdc / 50 ms

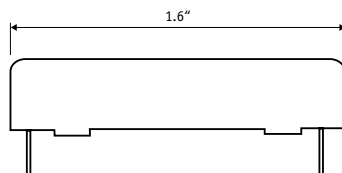
OUTPUT SPECIFICATIONS

OUTPUT VOLTAGE

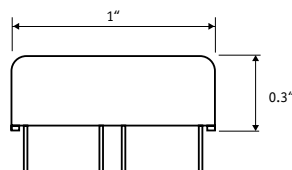
K : 28 Vdc

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : Ø 0.03 "



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	Input measure (VIMES)
3	On/Off
4	-Input (Gi)
5	Common (Go)
6	Output (Vo)



FRONT-END MODULES

DC TRANSIENT PROTECTION 100W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

LGDS-100 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature
Option **S** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

P : 9-42 Vdc transient : 202 Vdc / 350 ms

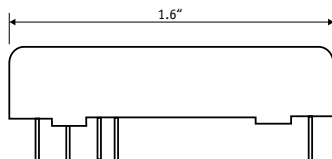
OUTPUT SPECIFICATIONS

OUTPUT VOLTAGE

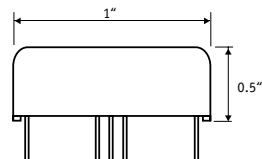
K : 28 Vdc

PACKAGE AND PIN-OUT

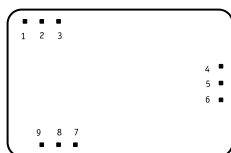
Dimensions in inches



Pin dimensions : square pin $\square$ 0.025"



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1,2,3	+Input (Vin)
4	Drive
5	Common (Gin)
6	Do not connect
7,8,9	Output (Vo)

KEY FEATURES

- Transient suppressor for Avionics/Defense
 - DEF-STAN-61,5 issue 6
 - MIL-STD-704A/D/E/F, EN2282, AIR2021E
 - DO160C/D/E/F cat A, B and Z
 - MIL-STD-1275A/B/C/D

GENERAL CHARACTERISTICS

- Transient suppressor 60, 80, 100, 202 Vdc
- Power range : from 4 W to 100 W
- Galvanic isolation input/output : non isolated
- Protections : output over current, over temperature
- Additional functions : adjustable inrush current drive

FRONT-END MODULES

DC TRANSIENT PROTECTION 300W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Transient suppressor for Avionics/Defense
 - MIL-STD-704A/D/E/F, EN2282, AIR2021E
 - DO160C/D/E/F cat A, B and Z
 - MIL-STD-1275A/B/C/D

GENERAL CHARACTERISTICS

- Transient suppressor 60 Vdc, 80 Vdc, 100 Vdc
- Power range : from 4 W to 300 W
- Galvanic isolation input/output : non isolated
- Protections : output over current, over temperature
- Additional functions : adjustable inrush current drive

PART NUMBERING

SINGLE OUTPUT

LGDS-300 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature
Option **S** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

☉ : 9-42 Vdc transient : 100 Vdc / 50 ms

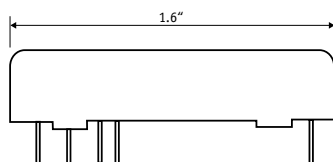
OUTPUT SPECIFICATIONS

OUTPUT VOLTAGE

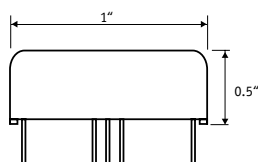
K : 28 Vdc

PACKAGE AND PIN-OUT

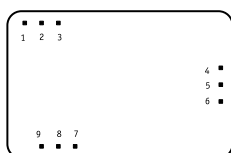
Dimensions in inches



Pin dimensions : square pin 0.025"



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1,2,3	+Input (Vin)
4	Drive
5	Common (Gin)
6	Do not connect
7,8,9	Output (Vo)

FRONT-END MODULES

DC HOLD UP 50W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

HUGD-50 / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

For leaded process add - L after reference - Contact factory for availability

INPUT SPECIFICATIONS

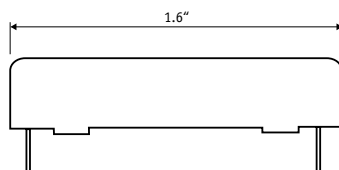
INPUT RANGE

9-45 Vdc

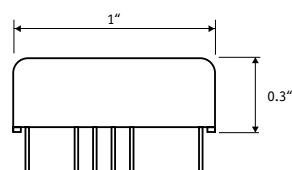
transient : 50 Vdc / 100 ms

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : Ø 0.03 "



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	Power Fail Set (Vth)
3	Voltage Current Level (Vci)
4	-Input (Gi)
5	Common (Go)
6	Output (Vo)
7	Voltage Capacitor
8	Power Fail Signal (PF)
9	Capacitor charged signal (CC)
10	Capacitor discharged signal (CD)

KEY FEATURES

- Unique product for hold-up solutions
- Compliant with DO-160, MIL-704
- Reduce capacitance size by 80%
- Compatible with 9-36 or 16-40 Vdc converters

GENERAL CHARACTERISTICS

- Power range : from 4 W to 50 W
- Galvanic isolation input/output : non isolated
- Charger switching frequency : 200 KHz
- Protections : reverse polarity
- Additional fonctions : monitoring signals, programmable charging current limitation, programmable power fail threshold

FRONT-END MODULES

DC HOLD UP 300W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Unique product for hold-up solutions
- Compliant with DO-160, MIL-704
- Reduce capacitance size by 80%

GENERAL CHARACTERISTICS

- Power range : from 4 W to 300 W
- Galvanic isolation input/output : non isolated
- Charger switching frequency : 700 KHz
- Protections : reverse polarity
- Additional fonctions : monitoring signals, programmable capacitor charge voltage from 31 to 80 Vdc, programmable power fail threshold

PART NUMBERING

SINGLE OUTPUT

HUGD-300 / ■

Option **T** : Screening -55°C start-up temperature
Option **S** : Screening and serialization

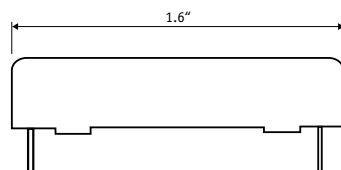
INPUT SPECIFICATIONS

INPUT RANGE

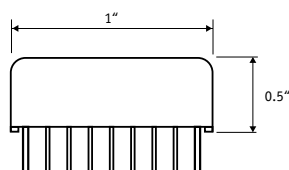
8-100 Vdc

PACKAGE AND PIN-OUT

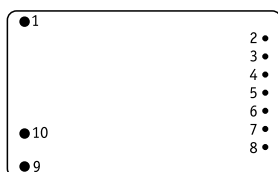
Dimensions in inches



Pin dimensions :
Pins : 2, 3, 4, 5, 6, 7, 8 : Ø 0.03"
Pins : 1, 9, 10 : Ø 0.06"



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Outpout
1	+Input (Vi)
2	Power Fail Set (Vth)
3	Capacitor Charge Voltage Set (Vcset)
4	Common (Go)
5	Common (Go)
6	Power Fail Signal PF)
7	Capacitor discharged signal (CD)
8	Capacitor charged signal (CC)
9	Output (Vo)
10	Voltage Capacitor (Vc)

FRONT-END MODULES

AC ISOLATED PFC 35W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

HGMB-35 - ■ - ■ / ■

Option **1** : Screening -55°C start-up temperature

Option **1S** : Screening and serialization

For leaded process add - L after reference - Contact factory for availability

KEY FEATURES

- Dedicated for 115 Vac airborne applications
- Standard 3" x 2" package
- Active PFC : MIL-STD-704, DO-160, ABD100 compliant
- Low input current harmonic distortion < 10%

GENERAL CHARACTERISTICS

- Nominal power up to : 35 W
- Galvanic isolation input/output : 1 500 Vrms
- Switching frequency : 160 KHz
- Protections : output short circuit, output over voltage
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off

INPUT SPECIFICATIONS

PERMANENT INPUT RANGE

W : 95-140 Vac transient 71-180 Vac / 100 ms frequency 320-800 Hz

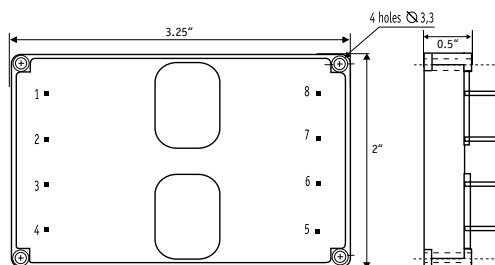
OUTPUT SPECIFICATIONS

DUAL OUTPUT

17 : 2 x 17 Vdc / 2 x 1.05 A

PACKAGE AND PIN-OUT

Dimensions in inches



Bottom view

Pin dimensions : $\square$ 0.035"

Metallic case black anodized coating solder plated pin

Pin	Bi-outpout
1	Phase
2	Neutral
3	On/Off
4	On/Off Ref
5	Common 1 (Go1)
6	Output 1 (Vo1)
7	Common 2 (Go2)
8	Output 2 (Vo2)

FRONT-END MODULES

AC ISOLATED PFC 50W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Dedicated for 115 Vac airborne applications
- Standard 3" x 2" package
- Active PFC : MIL-STD-704, DO-160, ABD100 compliant
- Low input current harmonic distortion < 10%

GENERAL CHARACTERISTICS

- Nominal power up to : 50 W
- Galvanic isolation input/output : 1 500 Vrms
- Switching frequency : 225 KHz
- Protections : output short circuit, output over voltage
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off

PART NUMBERING

DUAL OUTPUT

HGMB-50 - ■ - ■ / ■

Option **7** : Screening -55°C start-up temperature

Option **8** : Screening and serialization

For leaded process add - L after reference - Contact factory for availability

INPUT SPECIFICATIONS

PERMANENT INPUT RANGE

W : 95-140 Vac transient 71-180 Vac / 100 ms frequency 320-800 Hz

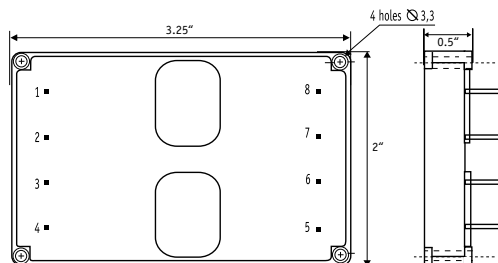
OUTPUT SPECIFICATIONS

DUAL OUTPUT

17 : 2 x 17 Vdc / 2 x 1.45 A

PACKAGE AND PIN-OUT

Dimensions in inches



Bottom view

Pin dimensions : $\square$ 0.035"

Metallic case black anodized coating solder plated pin

Pin	Bi-output
1	Phase
2	Neutral
3	On/Off
4	On/Off Ref
5	Common 1 (Go1)
6	Output 1 (Vo1)
7	Common 2 (Go2)
8	Output 2 (Vo2)

FRONT-END MODULES

AC NON ISOLATED PFC 150W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

HGMS-150 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

Leaded process add - L after reference

KEY FEATURES

- Dedicated for 115 Vac applications
- Standard half brick package
- Active PFC : MIL-STD-704, DO-160, ABD100 MIL-STD-1399 compliant
- Low input current harmonic distortion < 10%

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Galvanic isolation input/output : non isolated
- Switching frequency : 250 KHz
- Protections : output short circuit, over power, over temperature
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off, reference voltage, companion module drive control

INPUT SPECIFICATIONS

INPUT RANGE

W : 95-140 Vac transient 71-180 Vac / 100 ms frequency 320-800 Hz

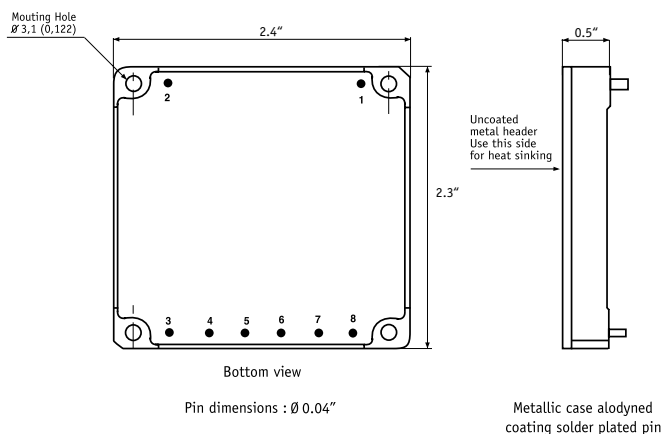
OUTPUT SPECIFICATIONS

SINGLE OUTPUT

T : 375 Vdc / 0.4 A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin	Bi-outpout
1	Phase
2	Neutral
3	Output(Vo)
4	On/Off
5	Ref
6	Do not connect
7	Drive
8	Common (Go)

Metallic case alodined
coating solder plated pin

FRONT-END MODULES

AC NON ISOLATED PFC 350W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Dedicated for 115 Vac applications
- Standard half brick package
- Active PFC : MIL-STD-704, DO-160, ABD100 MIL-STD-1399 compliant

GENERAL CHARACTERISTICS

- Nominal power up to : 350 W
- Galvanic isolation input/output : non isolated
- Switching frequency : 250 KHz
- Protections : output short circuit, over power, over temperature
- Trim adjustment : consult factory
- External synchronization range : no synchro
- Additional functions : on/off, reference voltage, companion module drive control

PART NUMBERING

SINGLE OUTPUT

HGMS-350 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

Leaded process add - L after reference

INPUT SPECIFICATIONS

INPUT RANGE

W : 95-140 Vac transient 71-180 Vac/100 ms

X : 95-140 Vac transient 71-180 Vac/100 ms

Y : 85-265 Vac

frequency 320-800 Hz

frequency 47-440 Hz

frequency 50/60 Hz

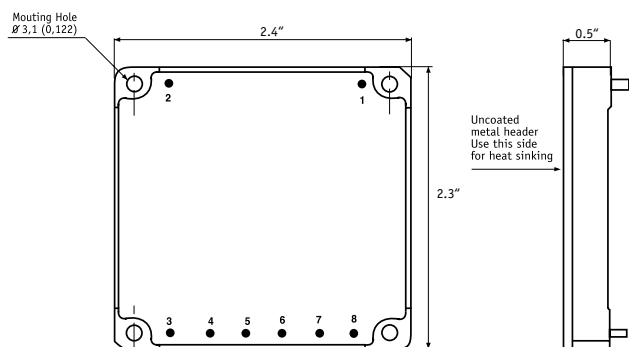
OUTPUT SPECIFICATIONS

SINGLE OUTPUT

T : 375 Vdc / 0.9 A (420 Vdc for **Y** input)

PACKAGE AND PIN-OUT

Dimensions in inches



Bottom view

Pin dimensions : Ø 0.04"

Metallic case alodined
coating solder plated pin

Pin	Bi-output
1	Phase
2	Neutral
3	Output(Vo)
4	On/Off
5	Ref
6	PFCsh
7	Drive
8	Common (Go)

DC/DC CONVERTERS

DC NON ISOLATED CONVERTER 260W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MPGS-14 - E - B / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

E : 4.5-36 Vdc transient 42 Vdc/100 ms

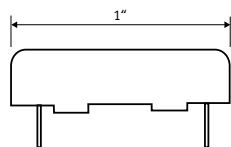
OUTPUT SPECIFICATIONS

SINGLE OUTPUT

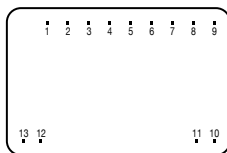
B : 3.3 Vdc / adjustable 1.2 to 24 Vdc

PACKAGE AND PIN-OUT

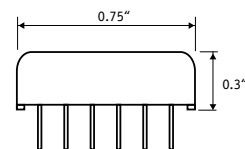
Dimensions in inches



Pin dimensions : square pin 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Single Output
1	Tracking
2	CM / Share
3	ITrim
4	Sync
5	SD / UVLO
6	Vtrim
7	Sense +
8, 9	Ground (Gnd)
10, 11	Output (Vo)
12, 13	Input (Vi)

KEY FEATURES

- Point of load buck converter
- Single output
- Adjustable soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 260 W or current 14A
- Galvanic isolation input/output : non isolated
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 1.2V to 24V
- External synchronization range : 200 to 460 KHz
- Additional functions : on/off, sense, parallelization

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 4W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-04 - ■ - ■ / ■

BI OUTPUT

MGDB-04 - ■ - ■ / ■

TRIPLE OUTPUT

MGDT-04 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **S** : Screening and serialization

For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

C : 4.5-5.5 Vdc

H : 9-36 Vdc transient 40 Vdc/100 ms

J : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 1 A

C : 5 Vdc / 0.8 A

E : 12 Vdc / 0.33 A

F : 15 Vdc / 0.26 A

BI OUTPUT

C : ± 5 Vdc / ± 0.4 A

E : ± 12 Vdc / ± 0.165 A

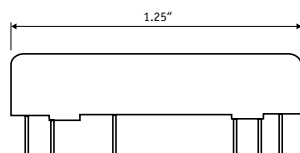
F : ± 15 Vdc / ± 0.13 A

TRIPLE OUTPUT

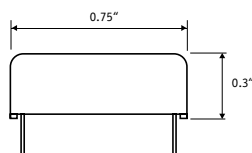
CF : 5 Vdc & ± 15 Vdc / 0.5 A & ± 0.05 A

PACKAGE AND PIN-OUT

Dimensions in inches



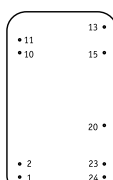
Pin dimensions : $\varnothing 0.02$ "



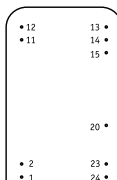
Metallic case black anodized coating solder plated pin



Single output model



Bi output model
Bottom view



Triple output model

Pin	Single Output	Bi Output	Triple Output
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	+Input (Vi)	+Input (Vi)	+Input (Vi)
10	No pin	Common (Go)	No pin
11	Common (Go)	Common (Go)	Common (Go)
12	Common (Go)	No pin	Common (Go)
13	Output (Vo)	Output - (-Vo)	Output 2- (-Vo2)
14	Output (Vo)	No pin	Output 1+ (+Vo1)
15	No pin	Output + (+Vo)	Output 2+ (+Vo2)
20	On/Off (option)	On/Off (option)	On/Off (option)
23	-Input (Gi)	-Input (Gi)	-Input (Gi)
24	-Input (Gi)	-Input (Gi)	-Input (Gi)

KEY FEATURES

- Low profile 0.3" package
- Single, bi or triple outputs
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 4 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 8W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

MGDD-08 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature
Option **S** : Screening and serialization

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

N : 9-60 Vdc transient : 80 Vdc / 1 s
E : 4.5-33 Vdc transient : 45 Vdc / 0.1 s

OUTPUT SPECIFICATIONS

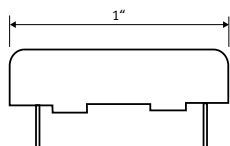
DUAL ISOLATED OUTPUT*

C : 2 X 5 Vdc / 2 x 0.8 A
E : 2 x 12 Vdc / 2 x 0.33 A
F : 2 x 15 Vdc / 2 x 0.26 A
I : 2 x 24 Vdc / 2 x 0.16 A

* Possible unbalanced power
up to 10% / 90%

PACKAGE AND PIN-OUT

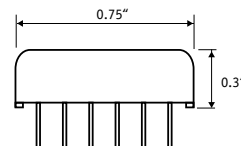
Dimensions in inches



Pin dimensions : square pin $\square$ 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Dual Output
1	Syncho / On Off
2	UVLO
3	- Input (Gi)
4	VIF
5	+ Input (Vi)
6	+ Output 2 (Vo2)
7	- Output 2 (Go2)
8	+ Output 1 (Vo1)
9	- Output 1 (Go1)
10	Vtrim

KEY FEATURES

- Ultra wide input 9-60 Vdc , 4.5-33 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 8 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation
- Trim adjustment : 80% to 110%
- External synchronization range : 270 to 360 KHz
- Additional functions : on/off, input current ripple reduction, adjustable undervoltage lockout

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 10W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT	MGDS-10 - ■ - ■ / ■
BI OUTPUT	MGDB-10 - ■ - ■ / ■
TRIPLE OUTPUT	MGDT-10 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **VS** : Screening and serialization - Option **M** : On/Off function

For leaded process add - L after reference. Contact factory for availability

KEY FEATURES

- Low profile 0.33" package
- Single, bi or triple outputs
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 10 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option

INPUT SPECIFICATIONS

INPUT RANGE

C : 4.5-5.5 Vdc

H : 9-36 Vdc transient 40 Vdc/100 ms

J : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 2 A

C : 5 Vdc / 2 A

E : 12 Vdc / 0.8 A

F : 15 Vdc / 0.65 A

BI OUTPUT

C : ± 5 Vdc / ± 1 A

E : ± 12 Vdc / ± 0.4 A

F : ± 15 Vdc / ± 0.325 A

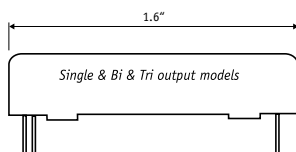
TRIPLE OUTPUT

CE : 5 Vdc & ± 12 Vdc / 1 A & ± 0.2 A

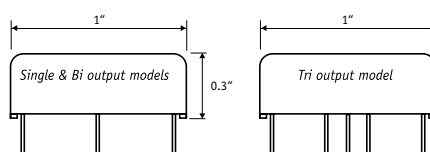
CF : 5 Vdc & ± 15 Vdc / 1 A & ± 0.15 A

PACKAGE AND PIN-OUT

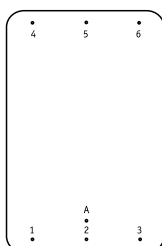
Dimensions in inches



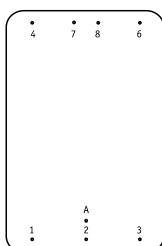
Pin dimensions : $\varnothing 0.03$ "



Metallic case black anodized coating solder plated pin



Single & Bi output models



Tri output models

Bottom view

Pin	Single Output	Bi Output	Triple Output
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	Gate*	No pin	No pin
3	-Input (Gi)	-Input (Gi)	-Input (Gi)
4	Output (Vo)	Output+ (+Vo)	Output 1 (V1)
5	No Pin	Common (Go)	No pin
6	Common (Go)	Output- (-Vo)	Common (Go)
7	No pin	No pin	Output 2+ (+V2)
8	No pin	No pin	Output 2- (-V2)
A	On/Off (option)	On/Off (option)	On/Off (option)



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 20W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

MGDD-21 - ■ - ■ / ■

Option **/T** : Screening -55°C start-up temperature
Option **/S** : Screening and serialization

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

N : 9-60 Vdc transient : 80 Vdc / 1 s
E : 4.5-33 Vdc transient : 45 Vdc / 0.1 s

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

B : 2 X 3.3 Vdc / 2 x 2 A
C : 2 X 5 Vdc / 2 x 2 A
E : 2 x 12 Vdc / 2 x 0.825 A

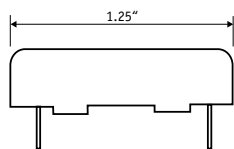
DUAL ISOLATED OUTPUT*

F : 2 x 15 Vdc / 2 x 0.65 A
I : 2 x 24 Vdc / 2 x 0.42 A

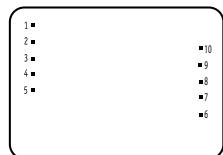
* Possible unbalanced power
up to 10% / 90%

PACKAGE AND PIN-OUT

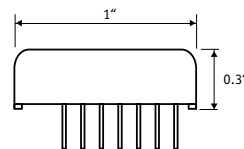
Dimensions in inches



Pin dimensions : square pin $\square$ 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Dual Output
1	Synchro / On Off
2	UVLO
3	- Input (Gi)
4	VIF
5	+ Input (Vi)
6	+ Output 2 (Vo2)
7	- Output 2 (Go2)
8	+ Output 1 (Vo1)
9	- Output 1 (Go1)
10	Vtrim

KEY FEATURES

- Ultra wide input 9-60 Vdc, 4.5-33 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 20 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation
- Trim adjustment : 80% to 110%
- External synchronization range : 270 to 360 KHz
- Additional functions : on/off, input current ripple reduction, adjustable undervoltage lockout

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 40W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

MGDD-40 - ■ - ■ / ■

Option **T**: Screening -55°C start-up temperature
Option **S**: Screening and serialization

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

N: 9-60 Vdc transient: 80 Vdc / 1 s
E: 4.5-33 Vdc transient: 45 Vdc / 0.1 s

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

B: 2 X 3.3 Vdc / 2 x 4 A
C: 2 X 5 Vdc / 2 x 4 A
E: 2 x 12 Vdc / 2 x 1.65 A

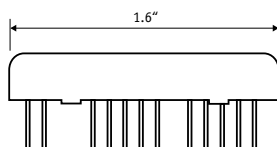
DUAL ISOLATED OUTPUT*

F: 2 x 15 Vdc / 2 x 1.30 A
I: 2 x 24 Vdc / 2 x 0.85 A

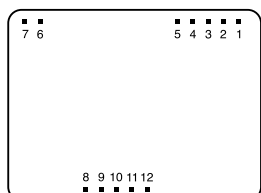
* Possible unbalanced power
up to 10% / 90%

PACKAGE AND PIN-OUT

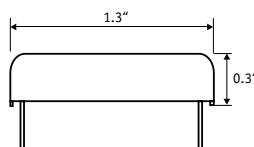
Dimensions in inches



Pin dimensions: square pin 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Dual
1	Synchro-SD
2	UVLO
3	- Input (Gi)
4	- Input (Gi)
5	VIF
6	+ Input (Vi)
7	+ Input (Vi)
8	+ Output 2 (Vo2)
9	- Output 2 (Go2)
10	+ Output 1 (Vo1)
11	- Output 1 (Go1)
12	Vtrim

KEY FEATURES

- Ultra wide input 9-60 Vdc, 4.5-33 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to: 40 W
- Galvanic isolation input/output: 1 500 Vdc
- Switching frequency: 330 KHz
- Protections: input undervoltage lockout, output current limitation
- Trim adjustment: 80% to 110%
- External synchronization range: 270 to 360 KHz
- Additional functions: on/off, input current ripple reduction, adjustable undervoltage lockout

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 75W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-75 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **TS** : Screening and serialization

Leaded process for low input H and O series add - L after reference

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-45 Vdc

O : 16-80 Vdc

S : 155-480 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT*

B : 3.3 Vdc / 15 A

C : 5 Vdc / 15 A

E : 12 Vdc / 6.25 A

SINGLE OUTPUT*

F : 15 Vdc / 5 A

I : 24 Vdc / 3.125 A*

26 : 26 Vdc / 2.85 A*

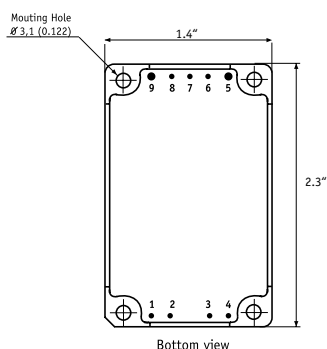
SINGLE OUTPUT*

J : 28 Vdc / 2.7 A*

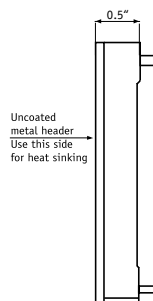
* MGDM-75-S Series exist in 26 Vdc output while MGDM-75-H Series and MGDM-75-O Series exist in 24 Vdc and 28 Vdc output.

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 4, 7, 8 : Ø 0.04"
Pins : 5, 9 : Ø 0.06"



Uncoated metal header
Use this side for heat sinking

Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	Synchro (Sync)
3	On/Off
4	+Input (Vi)
5	+Output (Vo)
6	Sense + (S+)
7	Trim (Trim)
8	Sense - (S-)
9	-Output (Go)

KEY FEATURES

- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 75 W
- Galvanic isolation input/output : 1 500 Vdc (2 200 Vdc for S input)
- Switching frequency : 420 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 420 to 480 KHz
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 80W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

MGDD-80 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature
Option **S** : Screening and serialization

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

N : 9-60 Vdc transient : 80 Vdc / 1 s

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

B : 2 x 3.3 Vdc / 2 x 8 A
C : 2 x 5 Vdc / 2 x 8 A
E : 2 x 12 Vdc / 2 x 3.3 A

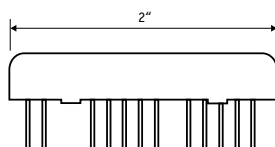
DUAL ISOLATED OUTPUT*

F : 2 x 15 Vdc / 2 x 2.6 A
I : 2 x 24 Vdc / 2 x 1.7 A

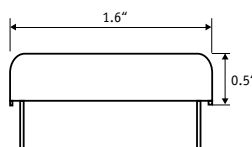
* Possible unbalanced power
up to 10% / 90%

PACKAGE AND PIN-OUT

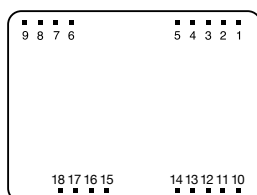
Dimensions in inches



Pin dimensions : square pin $\square$ 0.025"



Metallic case black anodized coating gold plated pin



Bottom view

Pin	Dual
1	Synchro-SD
2	UVLO
3	BS
4, 5	- Input (Gi)
6, 7	VIF
8, 9	+ Input (Vi)
10	Vtrim
11, 12	- Output 1 (Go1)
13, 14	+ Output 1 (Vo1)
15, 16	- Output 2 (Go2)
17, 18	+ Output 2 (Vo2)

KEY FEATURES

- Ultra wide input 9-60 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 80 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation; over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 270 to 360 KHz
- Additional functions : on/off, input current ripple reduction, adjustable undervoltage lockout, over temperature shut down.

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 150W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-150 - ■ - ■ / ■

Option **/T** : Screening -55°C start-up temperature
Option **/S** : Screening and serialization
Lead process add - L after reference

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-45 Vdc
O : 16-80 Vdc
I : 120-480 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

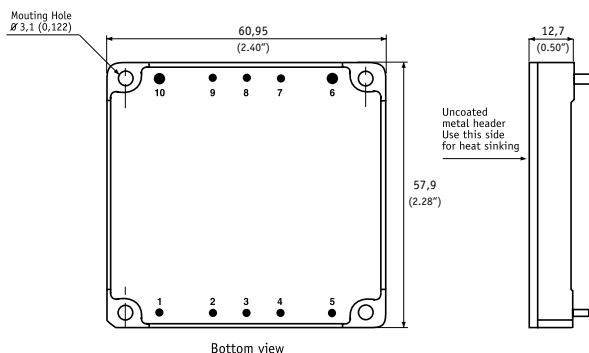
B : 3.3 Vdc / 30 A
C : 5 Vdc / 30 A
E : 12 Vdc / 12.5 A

SINGLE OUTPUT

F : 15 Vdc / 10 A
I : 24 Vdc / 6.25 A
J : 28 Vdc / 5.3 A

PACKAGE AND PIN-OUT

Dimensions in mm and (inches)



Pin	Single Output
1	-Input (Gi)
2	Synchro (Sync)
3	Share
4	On/Off
5	+Input (Vi)
6	Output (Vo)
7	Sense + (S+)
8	Trim (Trim)
9	Sense - (S-)
10	Common (Go)

KEY FEATURES

- Standard half brick package
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Galvanic isolation input/output : 1 500 Vdc (2 200 Vdc for T input)
- Switching frequency : 420 KHz (210 KHz for T input)
- Protections : input undervoltage lockout, input overvoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 10% to 110%
- External synchronization range : 420 to 480 KHz (220 KHz to 235 KHz for T input)
- Additional functions : on/off, sense, parallelization

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 150W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-155 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature

Option **TS** : Screening and serialization

Leaded process for low input H and O series add - L after reference

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-45 Vdc

O : 16-80 Vdc

S : 155-480 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

C : 5 Vdc / 30 A

E : 12 Vdc / 12.5 A

SINGLE OUTPUT

F : 15 Vdc / 10 A

I : 24 Vdc / 6.25 A

26 : 26 Vdc / 5.8 A

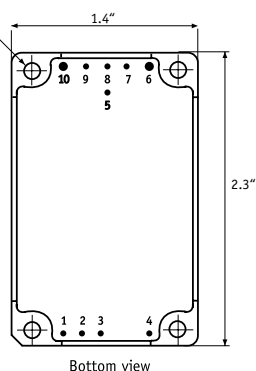
SINGLE OUTPUT

J : 28 Vdc / 5.3 A

PACKAGE AND PIN-OUT

Dimensions in inches

Mouting Hole
Ø 3.1 (0.122)



Bottom view

Pin dimensions :
Pins : 1, 2, 3, 4, 5, 7, 8, 9 : Ø 0.04"
Pins : 6, 10 : Ø 0.06"



Metallic case alodined
coating gold plated pin

Pin	Single Output
1	-Input (Gi)
2	Synchro (Sync)
3	On/Off
4	+Input (Vi)
5	Share*
6	+Output (Vo)
7	Sense + (S+)
8	Trim (Trim)
9	Sense - (S-)
10	-Output (Go)

*Only on high input series

KEY FEATURES

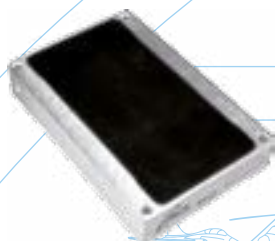
- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Galvanic isolation input/output : 1 500 Vdc (2 200 Vdc for S input)
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : 330 to 370 KHz
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 200W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-200 - ■ - ■ / ■

Option **T** : Screening -55°C start-up temperature
Option **TS** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-45 Vdc

O : 16-80 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 35 A

C : 5 Vdc / 35 A

E : 12 Vdc / 16.5 A

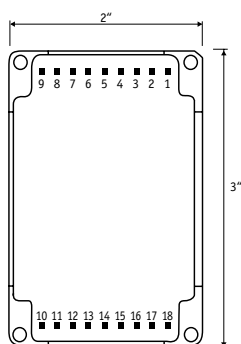
SINGLE OUTPUT

F : 15 Vdc / 13.3 A

I : 24 Vdc / 8.4 A

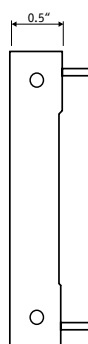
PACKAGE AND PIN-OUT

Dimensions in inches



Bottom view

Pin dimensions : $\square$ 0.025"



Metallic case alodined
coating gold plated pin

KEY FEATURES

- Unique product with heat dissipation on side
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 200 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 270 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 10% to 110%
- External synchronization range : 285 to 310 KHz
- Additional functions : on/off, sense, parallelization, reference voltage, input current ripple reduction

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 200W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDS-205 - ■ - ■ / ■

Option **/F** : Synchronization function
Option **/S** : Screening and serialization
Option **/T** : Screening -55°C start-up temperature

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-45 Vdc

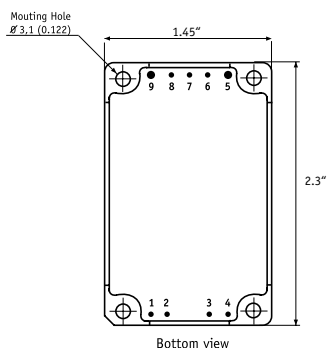
OUTPUT SPECIFICATIONS

SINGLE OUTPUT

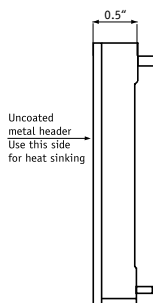
E : 12 Vdc / 16.65 A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 4, 7, 8 : $\varnothing$ 0.04"
Pins : 5, 9 : $\varnothing$ 0.06"



Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	On option : Synchro (Sync)
3	On/Off
4	+Input (Vi)
5	+Output (Vo)
6	Sense + (S+)
7	Trim (Trim)
8	Trim (Trim)
9	-Output (Go)

KEY FEATURES

- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 200 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : synchro on option
- Additional functions : on/off, sense



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 18W

KEY FEATURES

- Small surface 1" x 1.5" package
- Single output
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 18 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option

PART NUMBERING

SINGLE OUTPUT

MGDS-18 - ■ - ■ / ■

Option **W** : On/Off function
Option **S** : Screening -55°C start-up temperature
Option **6** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

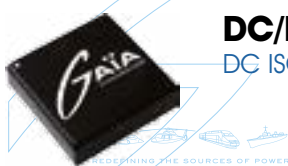
INPUT RANGE

C : 4.5-5.5 Vdc
H : 9-36 Vdc transient 40 Vdc/100 ms
I : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 4 A
C : 5 Vdc / 4 A
E : 12 Vdc / 1.5 A
F : 15 Vdc / 1.2 A



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 20W

KEY FEATURES

- Standard 2" x 2" package
- Single, bi or triple outputs
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 20 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off

PART NUMBERING

SINGLE OUTPUT

MGDS-20 - ■ - ■ / ■

BI OUTPUT

MGDB-20 - ■ - ■ / ■

TRIPLE OUTPUT

MGDT-20 - ■ - ■ / ■

Option **S** : Screening -55°C start-up temperature
Option **6** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

C : 4.5-5.5 Vdc
H : 9-36 Vdc transient 40 Vdc/100 ms
I : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

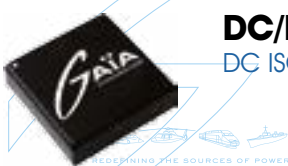
B : 3.3 Vdc / 4 A
C : 5 Vdc / 4 A
E : 12 Vdc / 1.6 A
F : 15 Vdc / 1.3 A

BI OUTPUT

C : ± 5 Vdc / ± 2 A
E : ± 12 Vdc / ± 0.8 A
F : ± 15 Vdc / ± 0.65 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 2 A & ± 0.4 A
BF : 3.3 Vdc & ± 15 Vdc / 2 A & ± 0.3 A
CE : 5 Vdc & ± 12 Vdc / 2 A & ± 0.4 A
CF : 5 Vdc & ± 15 Vdc / 2 A & ± 0.3 A



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 25W

KEY FEATURES

- Standard 2" x 2" package
- Single, bi or triple outputs
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 25 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 250 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option

PART NUMBERING

SINGLE OUTPUT

MGDS-25 - ■ - ■ / ■

BI OUTPUT

MGDB-25 - ■ - ■ / ■

TRIPLE OUTPUT

MGDT-25 - ■ - ■ / ■

Option **W** : On/Off function - Option **S** : Screening -55°C start-up temperature
Option **6** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-36 Vdc transient 40 Vdc/100 ms
I : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 6 A
C : 5 Vdc / 5 A
E : 12 Vdc / 2 A
F : 15 Vdc / 1.65 A

BI OUTPUT

C : ± 5 Vdc / ± 2.5 A
E : ± 12 Vdc / ± 1 A
F : ± 15 Vdc / ± 0.825 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 2.5 A & ± 0.5 A
BF : 3.3 Vdc & ± 15 Vdc / 2.5 A & ± 0.4 A
CE : 5 Vdc & ± 12 Vdc / 2.5 A & ± 0.5 A
CF : 5 Vdc & ± 15 Vdc / 2.5 A & ± 0.4 A





DC/DC CONVERTERS

DC ISOLATED CONVERTERS 26W

KEY FEATURES

- Standard 2" x 2" package
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 25 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 1 MHz
- Protections : input undervoltage lockout, output short circuit
- Trim adjustment : 80% to 110%
- External synchronization range : 1.05 to 1.15 MHz
- Additional functions : on/off, sense parallelization

PART NUMBERING

SINGLE OUTPUT MGDS-26 - ■ - ■ / ■

Option **A** : Screening -55°C start-up temperature
Option **S** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

I : 9-36 Vdc transient 40 Vdc/100 ms
J : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 6 A
C : 5 Vdc / 5 A
E : 12 Vdc / 2 A
F : 15 Vdc / 1.65 A



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 30W

KEY FEATURES

- Low profile 0.33" package
- Highly configurable DC/DC converter
- Up to 6 outputs and 3 independent line regulations
- Soft start
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 30 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit, output overvoltage, over temperature
- Trim adjustment : 95% to 105%
- External synchronization range : no synchro
- Additional functions : on/off, sense

PART NUMBERING

SINGLE LINE OUTPUT CGDM - ■ - ■ - 0 - 0 / ■

DUAL LINE OUTPUT CGDM - ■ - ■ - 0 - 0 / ■

TRIPLE LINE OUTPUT CGDM - ■ - ■ - ■ - ■ / ■

Option **A** : Screening -55°C start-up temperature
Option **S** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

I : 9-36 Vdc transient 40 Vdc/100 ms
J : 16-40 Vdc transient 50 Vdc/100 ms

OUTPUT SPECIFICATIONS

OUTPUT

3 : 3.3 Vdc
5 : 5 Vdc
12 : 12 Vdc
15 : 15 Vdc

OUTPUT

5B : +/- 5 Vdc
12B : +/- 12 Vdc
15B : +/- 15 Vdc



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 35W

KEY FEATURES

- Standard 3" x 2" package
- Single, bi or triple outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 35 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 500 KHz
- Protections : input undervoltage lockout, output short circuit, output overvoltage
- Trim adjustment : 95% to 105%
- External synchronization range : 550 to 600 KHz
- Additional functions : on/off, reference voltage, adjustable undervoltage lockout

PART NUMBERING

SINGLE OUTPUT MGDS-35 - ■ - ■ / ■

BI OUTPUT MGDB-35 - ■ - ■ / ■

TRIPLE OUTPUT MGD-35 - ■ - ■ / ■

Option **A** : Screening -55°C start-up temperature
Option **S** : Screening and serialization
For leaded process add - L after reference. Contact factory for availability

INPUT SPECIFICATIONS

INPUT RANGE

I : 9-36 Vdc transient 40 Vdc/100 ms
J : 16-75 Vdc transient 80 Vdc/100 ms

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 7 A
C : 5 Vdc / 7 A
E : 12 Vdc / 2.9 A
F : 15 Vdc / 2.3 A

BI OUTPUT

C : ± 5 Vdc / ± 4 A
E : ± 12 Vdc / ± 1.7 A
F : ± 15 Vdc / ± 1.3 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 4 A & ± 1.1 A*
BF : 3.3 Vdc & ± 15 Vdc / 4 A & ± 0.9 A*
CE : 5 Vdc & ± 12 Vdc / 4 A & ± 1.1 A*
CF : 5 Vdc & ± 15 Vdc / 4 A & ± 0.9 A*

*Indicated values are maximum current on each output with total power not exceeding 35W





MGDD-60 Series



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 60W

KEY FEATURES

- Ultra wide input 12-160 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 60 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 270 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 285 to 310 KHz
- Additional functions : on/off, input current ripple reduction, reference voltage, adjustable undervoltage lockout

PART NUMBERING

DUAL OUTPUT

MGDD-60 - ■ - ■ / ■

Option **A** : Screening -55°C start-up temperature
Option **B** : Screening and serialization

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

A : 12-160 Vdc transient 10.5 Vdc/1 sec

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

C : 2 X 5 Vdc / 2 x 5 A
E : 2 x 12 Vdc / 2 x 2.5 A
F : 2 x 15 Vdc / 2 x 2 A
I : 2 x 24 Vdc / 2 x 1.25 A

* Possible unbalanced power up to 10% / 90%



MGDM-100 Series



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 100W

KEY FEATURES

- Standard 3" x 2" package
- Single output
- Soft start
- No load to full load operation
- No optocoupler for high reliability

GENERAL CHARACTERISTICS

- Nominal power up to : 100 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 260 KHz
- Protections : input undervoltage lockout, input overvoltage lockout, output current limitation, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 270 to 300 KHz
- Additional functions : on/off, sense, adjustable undervoltage lockout

PART NUMBERING

SINGLE OUTPUT

MGDS-100 - ■ - ■ / ■

Option **A** : Screening -55°C start-up temperature
Option **B** : Screening and serialization

INPUT SPECIFICATIONS

INPUT RANGE

M : 10.7-100 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 20 A
C : 5 Vdc / 20 A
E : 12 Vdc / 8.5 A

SINGLE OUTPUT

F : 15 Vdc / 6.5 A
26 : 26 Vdc / 4 A





INDUSTRIAL GRADE POWER MODULE



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FRONT-END MODULES

DC SPIKE PROTECTION 50W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

LGDSI-50 - ■ - ■

KEY FEATURES

- Spike suppressor for Railway/Industrial
 - EN61000-4-5 level 4
 - EN50155 level 1800V & 8400V
 - RIA 12

GENERAL CHARACTERISTICS

- Power range from : 4 W to 50 W
- Galvanic isolation input/output : non isolated
- Protections : input reverse polarity
- Additional functions : on/off

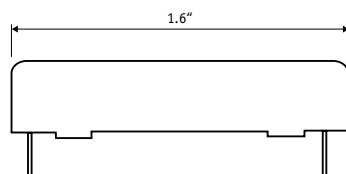
INPUT SPECIFICATIONS

INPUT RANGE

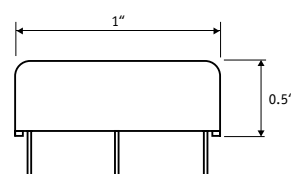
J : 10-36 Vdc transient : 40 Vdc / 1 s & 85 Vdc / 20 ms spike : 1800 Vdc / 50 μ s
Q : 36-154 Vdc transient : 165 Vdc / 1 s & 385 Vdc / 20 ms spike : 1800 Vdc / 50 μ s

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : $\varnothing$ 0.03 "



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	On/Off
3	-Input (Gi)
4	Common (Go)
5	Output (Vo)

FRONT-END MODULES

DC SPIKE PROTECTION 75W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Spike suppressor for Railway/Industrial
 - EN61000-4-5 level 4
 - EN50155 level 1800V & 8400V
 - RIA 12

GENERAL CHARACTERISTICS

- Power range from : 4 W to 75 W
- Galvanic isolation input/output : non isolated
- Protections : input reverse polarity
- Additional functions : on/off

PART NUMBERING

SINGLE OUTPUT

LGDSI-75 - ■ - ■

INPUT SPECIFICATIONS

INPUT RANGE

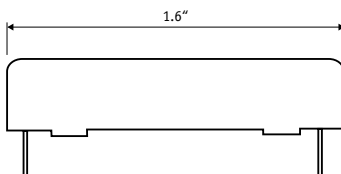
Q : 43-154 Vdc

transient : 165 Vdc / 1 s

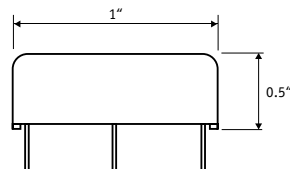
spike : 1800 Vdc / 50 μ s

PACKAGE AND PIN-OUT

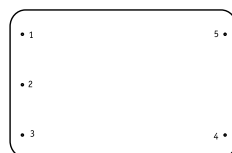
Dimensions in inches



Pin dimensions : $\varnothing$ 0.03 "



Metallic case black anodized coating solder plated pin



Bottom view

Pin	Single Output
1	+Input (Vi)
2	On/Off
3	-Input (Gi)
4	Common (Go)
5	Output (Vo)

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 4W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT	MGDSI-04 - ■ - ■ / ■
BI OUTPUT	MGDBI-04 - ■ - ■ / ■
TRIPLE OUTPUT	MGDTI-04 - ■ - ■ / ■

Option : On/Off function
Option : High isolation 3 000 Vdc

INPUT SPECIFICATIONS

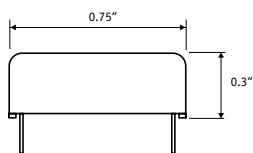
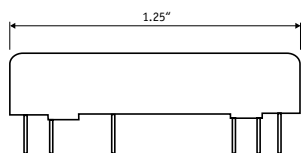
STANDARD INPUT	WIDE INPUT
C : 4.5-5.5 Vdc I : 18-36 Vdc	H : 9-36 Vdc J : 16-40 Vdc Q : 36-140 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT	BI OUTPUT	TRIPLE OUTPUT
B : 3.3 Vdc / 1 A C : 5 Vdc / 0.8 A E : 12 Vdc / 0.33 A F : 15 Vdc / 0.26 A	C : ± 5 Vdc / ± 0.4 A E : ± 12 Vdc / ± 0.165 A F : ± 15 Vdc / ± 0.13 A	CF : 5 Vdc & ± 15 Vdc / 0.5 A & ± 0.05 A

PACKAGE AND PIN-OUT

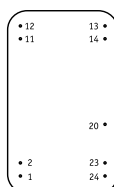
Dimensions in inches



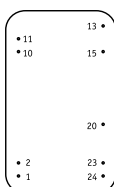
Pin dimensions : $\varnothing 0.02$ "

Metallic case black anodized coating solder plated pin

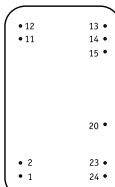
(For 36-140 Vdc and triple output versions : length is 1.4", width is 0.8" and height is 0.4")



Single output model



Bi output model
Bottom view



Triple output model

Pin	Single Output	Bi Output	Triple Output
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	+Input (Vi)	+Input (Vi)	+Input (Vi)
10	No pin	Common (Go)	No pin
11	Common (Go)	Common (Go)	Common (Go)
12	Common (Go)	No pin	Common (Go)
13	Output (Vo)	Output - (-Vo)	Output 2- (-Vo2)
14	Output (Vo)	No pin	Output1+ (+Vo1)
15	No pin	Output + (+Vo)	Output 2+ (+Vo2)
20	On/Off (option)	On/Off (option)	On/Off (option)
23	-Input (Gi)	-Input (Gi)	-Input (Gi)
24	-Input (Gi)	-Input (Gi)	-Input (Gi)

KEY FEATURES

- Low profile 0.3" package
- Single, bi or triple outputs
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 4 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 6W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

DUAL OUTPUT

MGDDI-06 - ■ - ■ / ■

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

R : 12-160 Vdc

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

C : 2 X 5 Vdc / 2 x 0.6 A

E : 2 x 12 Vdc / 2 x 0.25 A

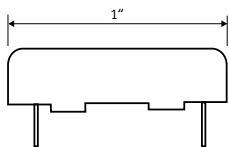
F : 2 x 15 Vdc / 2 x 0.2 A

I : 2 x 24 Vdc / 2 x 0.125 A

* Possible unbalanced power
up to 10% / 90%

PACKAGE AND PIN-OUT

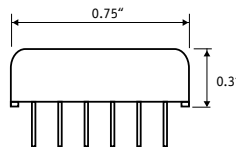
Dimensions in inches



Pin dimensions : square pin 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Dual Output
1	On Off
2	UVLO
3	- Input (Gi)
4	VIF
5	+ Input (Vi)
6	+ Output 2 (Vo2)
7	- Output 2 (Go2)
8	+ Output 1 (Vo1)
9	- Output 1 (Go1)
10	Vtrim

KEY FEATURES

- Ultra wide input 12-160 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 6 W
- Galvanic isolation input/output : 2 250 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation
- Trim adjustment : 80% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, input current ripple reduction

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 10W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT	MGDSI-10 - ■ - ■ / ■
BI OUTPUT	MGDBI-10 - ■ - ■ / ■
TRIPLE OUTPUT	MGDTI-10 - ■ - ■ / ■

Option **W** : On/Off function - Option **H** : High isolation 3 000 Vdc

INPUT SPECIFICATIONS

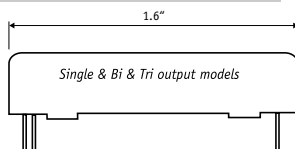
STANDARD INPUT	WIDE INPUT
C : 4.5-5.5 Vdc	D : 4.7-16 Vdc
I : 18-36 Vdc	H : 9-36 Vdc
	J : 16-40 Vdc
	Q : 36-140 Vdc

OUTPUT SPECIFICATIONS

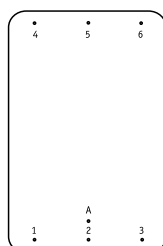
SINGLE OUTPUT	BI OUTPUT	TRIPLE OUTPUT
B : 3.3 Vdc / 2 A	C : ± 5 Vdc / ± 1 A	CE : 5 Vdc & ± 12 Vdc / 1 A & ± 0.2 A
C : 5 Vdc / 2 A	E : ± 12 Vdc / ± 0.4 A	CF : 5 Vdc & ± 15 Vdc / 1 A & ± 0.15 A
E : 12 Vdc / 0.8 A	F : ± 15 Vdc / ± 0.325 A	
F : 15 Vdc / 0.65 A		

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : $\varnothing$ 0.03"

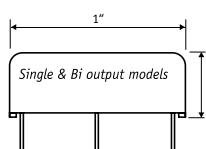


Single & Bi output models

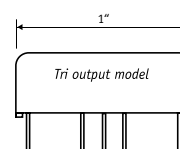


Tri output models

Bottom view



Single & Bi output models



Tri output model

Metallic case black anodized coating solder plated pin

Pin	Single Output	Bi Output	Triple Output
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	Gate*	No pin	No pin
3	-Input (Gi)	-Input (Gi)	-Input (Gi)
4	Output (Vo)	Output+ (+Vo)	Output 1 (V1)
5	No Pin	Common (Go)	No pin
6	Common (Go)	Output- (-Vo)	Common (Go)
7	No pin	No pin	Output 2+ (+V2)
8	No pin	No pin	Output 2- (-V2)
A	On/Off (option)	On/Off (option)	On/Off (option)

KEY FEATURES

- Low profile 0.33" package
- Single, bi or triple outputs
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 10 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 20W



REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Ultra wide input 12-160 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 20 W
- Galvanic isolation input/output : 2 250 Vdc
- Switching frequency : 270 KHz
- Protections : input undervoltage lockout, output current, output over voltage
- Trim adjustment : 80% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, input current ripple reduction, adjustable undervoltage lockout

PART NUMBERING

DUAL OUTPUT

MGDDI-20 - ■ - ■

INPUT SPECIFICATIONS

ULTRA WIDE INPUT

R : 12-160 Vdc

OUTPUT SPECIFICATIONS

DUAL ISOLATED OUTPUT*

C : 2 X 5 Vdc / 2 x 2 A

E : 2 x 12 Vdc / 2 x 0.825 A

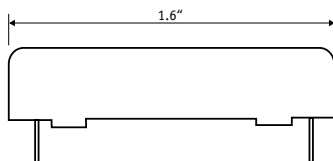
F : 2 x 15 Vdc / 2 x 0.65 A

I : 2 x 24 Vdc / 2 x 0.42 A

* Possible unbalanced power up to 10% / 90%

PACKAGE AND PIN-OUT

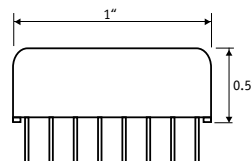
Dimensions in inches



Pin dimensions : square pin 0.025"



Bottom view



Metallic case black anodized coating gold plated pin

Pin	Dual Output	Pin	Dual Output
1	On/Off	9	+ Output 2 (Vo2)
2	Do not connect	10	- Output 2 (Go2)
3	UVLO	11	Do not connect
4	Do not connect	12	+ Output 1 (Vo1)
5	Do not connect	13	- Output 1 (Go1)
6	- Input (Gi)	14	Do not connect
7	VIF	15	Vtrim
8	+ Input (Vi)	16	Do not connect

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 35W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDSI-35 - ■ - ■

BI OUTPUT

MGDBI-35 - ■ - ■

TRIPLE OUTPUT

MGDTI-35 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc

O : 18-75 Vdc

Q : 36-140 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 7 A

C : 5 Vdc / 7 A

E : 12 Vdc / 2.9 A

F : 15 Vdc / 2.3 A

BI OUTPUT

C : ± 5 Vdc / ± 4 A

E : ± 12 Vdc / ± 1.7 A

F : ± 15 Vdc / ± 1.3 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 4 A & ± 1.1 A*

BF : 3.3 Vdc & ± 15 Vdc / 4 A & ± 0.9 A*

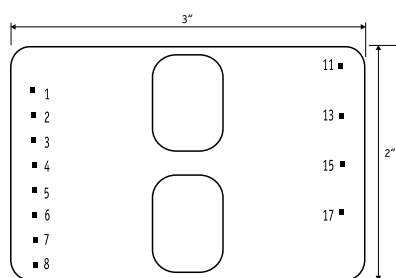
CE : 5 Vdc & ± 12 Vdc / 4 A & ± 1.1 A*

CF : 5 Vdc & ± 15 Vdc / 4 A & ± 0.9 A*

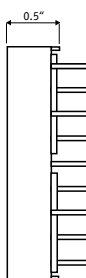
*Indicated values are maximum current on each output with total power not exceeding 35W

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions : $\square$ 0.035"



Metallic case black anodized
coating solder plated pin

Pin	Single Output	Bi Output	Triple Output
1	UVLO	UVLO	UVLO
2	-Input (Gi)	-Input (Gi)	-Input (Gi)
3	Do not connect	Do not connect	Do not connect
4	+Input (Vi)	+Input (Vi)	+Input (Vi)
5	Trim (Trim)	Trim (Trim)	Trim (Trim)
6	Synchro (Sync)	Synchro (Sync)	Synchro (Sync)
7	V Ref	V Ref	V Ref
8	On/Off	On/Off	On/Off
11	Do not connect	Output - (-Vo)	Output 2- (-Vo2)
13	Do not connect	Do not connect	Output 2+ (+Vo2)
15	Common (Go)	Common (Go)	Common (Go)
17	Output (Vo)	Output + (+Vo)	Output 1+ (+Vo1)

KEY FEATURES

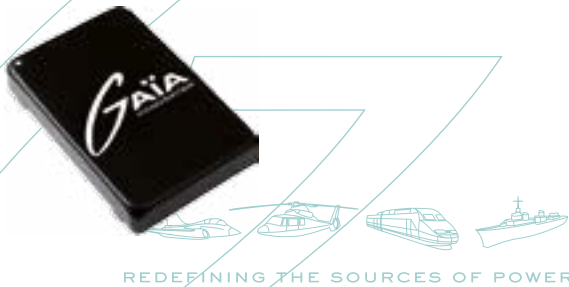
- Standard 3" x 2" package
- Single, bi or triple outputs
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 35 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 500 KHz
- Protections : input undervoltage lockout, output short circuit, output overvoltage
- Trim adjustment : 95% to 105%
- External synchronization range : 550 to 600 KHz
- Additional functions : on/off, reference voltage, adjustable undervoltage lockout

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 60W



KEY FEATURES

- Wide input 14-55 Vdc, 36-175 Vdc, 12-160 Vdc
- Flexible isolated dual outputs
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 60 W
- Galvanic isolation input/output : 1 500 Vdc (2 250 Vdc for MGDDI)
- Switching frequency : 270 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 285 to 310 KHz
- Additional functions : on/off, Input current ripple reduction, adjustable undervoltage lockout

PART NUMBERING

SINGLE OUTPUT

MGDSI-60 - ■ - ■

DUAL OUTPUT

MGDDI-60 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

ULTRA WIDE INPUT

G : 14-55 Vdc
Q : 36-175 Vdc

R : 12-160 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

DUAL ISOLATED OUTPUT*

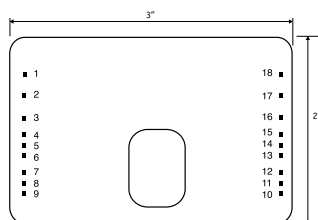
B : 3.3 Vdc / 15 A
C : 5 Vdc / 12 A
E : 12 Vdc / 5 A
F : 15 Vdc / 4 A
26 : 26 Vdc / 2.3 A

C : 2 X 5 Vdc / 2 x 5 A
E : 2 x 12 Vdc / 2 x 2.5 A
F : 2 x 15 Vdc / 2 x 2 A
I : 2 x 24 Vdc / 2 x 1.25 A

* Possible unbalanced power up to 10% / 90%

PACKAGE AND PIN-OUT

Dimensions in inches

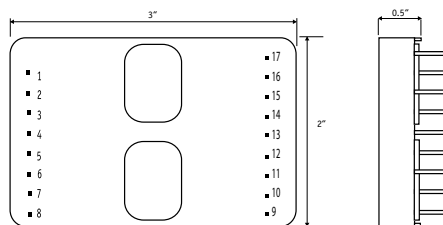


Bottom view

Pin dimensions : square pin 0.035"



Metallic case black anodized coating solder plated pin



Pin dimensions : 0.035"

Metallic case black anodized coating solder plated pin

Pin	Single Output	Pin	Single Output
1	On/Off	10,11,12	Output (Vo)
2	Synchro (Sync)	13,14,15	Common (Go)
3	UVLO	16	Sense +
4,5,6	-Input (Gi)	17	Trim
7,8,9	+Input (Vi)	18	Sense -

Pin	Dual Output	Pin	Dual Output
1	UVLO	10	Do not connect
2	-Input (Gi)	11	+ Output 1 (Vo1)
3	VIF	12	Do not connect
4	+Input (Vi)	13	- Output 1 (Go1)
5	Do not connect	14	Do not connect
6	Do not connect	15	+ Output 2 (Vo2)
7	Do not connect	16	Do not connect
8	On/Off/OTP	17	- Output 2 (Go2)
9	Vtrim		

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 75W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDSI-75 - ■ - ■

Leaded process for H and O series add - L after reference

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc

O : 18-75 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT*

B : 3.3 Vdc / 15 A

C : 5 Vdc / 15 A

E : 12 Vdc / 6.25 A

SINGLE OUTPUT*

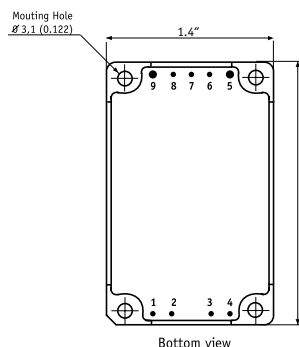
F : 15 Vdc / 5 A

I : 24 Vdc / 3.125 A*

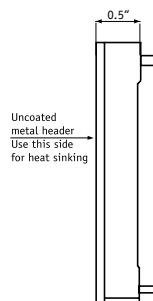
J : 28 Vdc / 2.7 A*

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 4, 7, 8 : $\varnothing$ 0.04"
Pins : 5, 9 : $\varnothing$ 0.06"



Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	Syncho (Sync)
3	On/Off
4	+Input (Vi)
5	+Output (Vo)
6	Sense + (S+)
7	Trim (Trim)
8	Sense - (S-)
9	-Output (Go)

KEY FEATURES

- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 75 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 420 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 420 to 480 KHz
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 100W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDSI-100 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

G : 14-55 Vdc

Q : 36-140 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 20 A

C : 5 Vdc / 20 A

E : 12 Vdc / 8.5 A

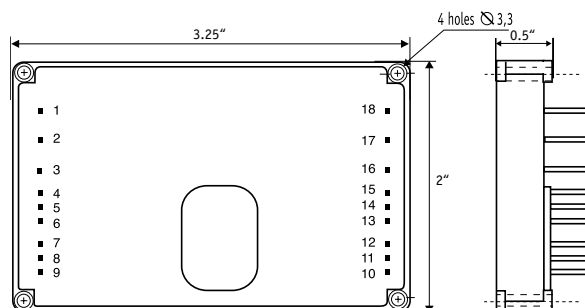
SINGLE OUTPUT

F : 15 Vdc / 6.5 A

26 : 26 Vdc / 4 A

PACKAGE AND PIN-OUT

Dimensions in inches



Bottom view

Pin dimensions : square pin $\square$ 0.035"

Metallic case black anodized
coating solder plated pin

Pin	Single Output
1	On/Off
2	Synchro (Sync)
3	UVLO
4,5,6	-Input (Gi)
7,8,9	+Input (Vi)
10,11,12	Output (Vo)
13,14,15	Common (Go)
16	Sense +
17	Trim
18	Sense -

KEY FEATURES

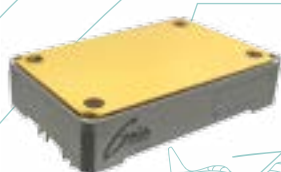
- Standard 3" x 2" package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 100 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 260 KHz
- Protections : input undervoltage lockout, input overvoltage lockout, output current limitation, over temperature
- Trim adjustment : 80% to 110%
- External synchronization range : 270 to 300 KHz
- Additional functions : on/off, sense, adjustable undervoltage lockout

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 120W



REDEFINING THE SOURCES OF POWER



PART NUMBERING

SINGLE OUTPUT

MGDSI-124 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

C : 5 Vdc / 24 A

E : 12 Vdc / 10 A

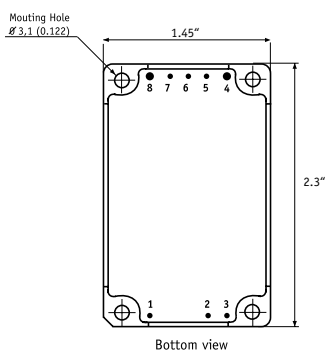
SINGLE OUTPUT

F : 15 Vdc / 8 A

I : 24 Vdc / 5 A

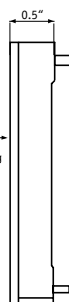
PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 5, 6, 7 : $\varnothing$ 0.04"
Pins : 4, 8 : $\varnothing$ 0.06"

Uncoated
metal header
Use this side
for heat sinking



Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	On/Off
3	+Input (Vi)
4	+Output (Vo)
5	Sense + (S+)
6	Trim (Trim)
7	Sense - (S-)
8	-Output (Go)

KEY FEATURES

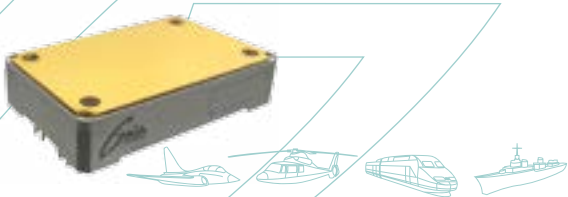
- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 120 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 160W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDSI-164 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

C : 5 Vdc / 32 A

E : 12 Vdc / 13.3 A

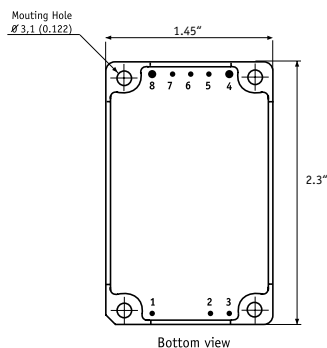
SINGLE OUTPUT

F : 15 Vdc / 10.6 A

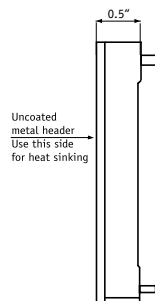
I : 24 Vdc / 6.6 A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 5, 6, 7 : Ø 0.04"
Pins : 4, 8 : Ø 0.06"



Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	On/Off
3	+Input (Vi)
4	+Output (Vo)
5	Sense + (S+)
6	Trim (Trim)
7	Sense - (S-)
8	-Output (Go)

KEY FEATURES

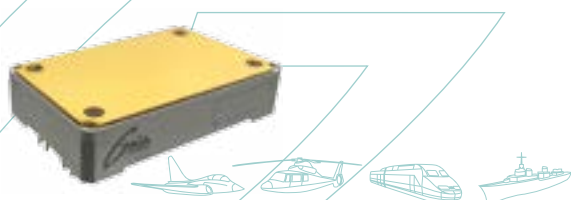
- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 160 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 200W



REDEFINING THE SOURCES OF POWER

PART NUMBERING

SINGLE OUTPUT

MGDSI-204 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc

OUTPUT SPECIFICATIONS

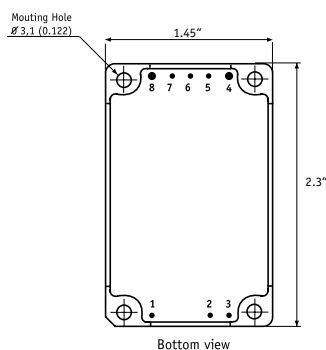
SINGLE OUTPUT

C : 5 Vdc / 40 A

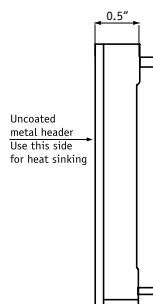
E : 12 Vdc / 16.6 A

PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 5, 6, 7 : Ø 0.04"
Pins : 4, 8 : Ø 0.06"



Uncoated metal header
Use this side for heat sinking

Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	On/Off
3	+Input (Vi)
4	+Output (Vo)
5	Sense + (S+)
6	Trim (Trim)
7	Sense - (S-)
8	-Output (Go)

KEY FEATURES

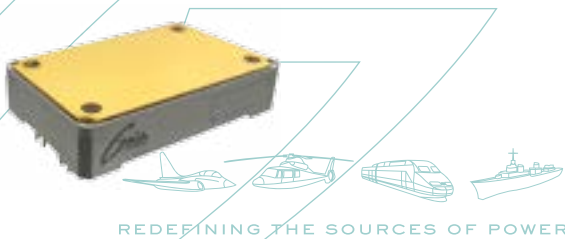
- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 200 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, sense

DC/DC CONVERTERS

DC ISOLATED CONVERTERS 250W



PART NUMBERING

SINGLE OUTPUT

MGDSI-254 - ■ - ■

INPUT SPECIFICATIONS

INPUT RANGE

H : 9-36 Vdc

OUTPUT SPECIFICATIONS

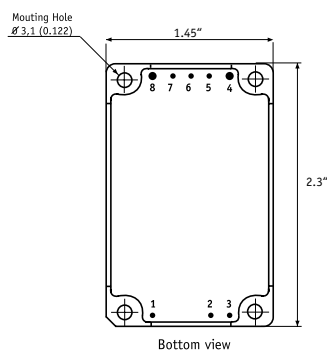
SINGLE OUTPUT

E : 12 Vdc / 20.8 A

F : 15 Vdc / 16.7 A

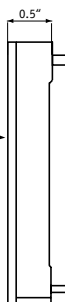
PACKAGE AND PIN-OUT

Dimensions in inches



Pin dimensions :
Pins : 1, 2, 3, 5, 6, 7 : $\varnothing$ 0.04"
Pins : 4, 8 : $\varnothing$ 0.06"

Uncoated
metal header
Use this side
for heat sinking



Metallic case alodined
coating solder plated pin

Pin	Single Output
1	-Input (Gi)
2	On/Off
3	+Input (Vi)
4	+Output (Vo)
5	Sense + (S+)
6	Trim (Trim)
7	Sense - (S-)
8	-Output (Go)

KEY FEATURES

- Standard quarter brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 250 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 330 KHz
- Protections : input undervoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 90% to 110%
- External synchronization range : no synchro
- Additional functions : on/off, sense



MGDI-18 Series



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 18W

PART NUMBERING

SINGLE OUTPUT

MGDSI-18 - ■ - ■ / ■

Option ■ : On/Off function

INPUT SPECIFICATIONS

WIDE INPUT

D : 4.7-16 Vdc
H : 9-36 Vdc
I : 16-40 Vdc
G : 36-140 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 4 A
C : 5 Vdc / 4 A
E : 12 Vdc / 1.5 A
F : 15 Vdc / 1.2 A

KEY FEATURES

- Small surface 1" x 1.5" package
- Single output
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 18 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option



MGDI-20 Series



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 20W

PART NUMBERING

SINGLE OUTPUT

MGDSI-20 - ■ - ■ / ■

BI OUTPUT

MGDBI-20 - ■ - ■ / ■

TRIPLE OUTPUT

MGDTI-20 - ■ - ■ / ■

Option ■ : On/Off function

INPUT SPECIFICATIONS

STANDARD INPUT

C : 4.5-5.5 Vdc
I : 18-36 Vdc

WIDE INPUT

D : 4.7-16 Vdc
H : 9-36 Vdc
I : 16-40 Vdc
G : 36-140 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 4 A
C : 5 Vdc / 4 A
E : 12 Vdc / 1.6 A
F : 15 Vdc / 1.3 A

BI OUTPUT

C : ± 5 Vdc / ± 2 A
E : ± 12 Vdc / ± 0.8 A
F : ± 15 Vdc / ± 0.65 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 2 A & ± 0.4 A
BF : 3.3 Vdc & ± 15 Vdc / 2 A & ± 0.3 A
CE : 5 Vdc & ± 12 Vdc / 2 A & ± 0.4 A
CF : 5 Vdc & ± 15 Vdc / 2 A & ± 0.3 A

KEY FEATURES

- Standard 2" x 2" package
- Single, bi or triple outputs
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 20 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option



MGDI-25 Series



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 25W

PART NUMBERING

SINGLE OUTPUT

MGDSI-25 - ■ - ■ / ■

BI OUTPUT

MGDBI-25 - ■ - ■ / ■

TRIPLE OUTPUT

MGDTI-25 - ■ - ■ / ■

Option ■ : On/Off function

INPUT SPECIFICATIONS

WIDE INPUT

H : 9-36 Vdc
G : 18-75 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 6 A
C : 5 Vdc / 5 A
E : 12 Vdc / 2 A
F : 15 Vdc / 1.65 A

BI OUTPUT

C : ± 5 Vdc / ± 2.5 A
E : ± 12 Vdc / ± 1 A
F : ± 15 Vdc / ± 0.825 A

TRIPLE OUTPUT

BE : 3.3 Vdc & ± 12 Vdc / 2.5 A & ± 0.5 A
BF : 3.3 Vdc & ± 15 Vdc / 2.5 A & ± 0.4 A
CE : 5 Vdc & ± 12 Vdc / 2.5 A & ± 0.5 A
CF : 5 Vdc & ± 15 Vdc / 2.5 A & ± 0.4 A

KEY FEATURES

- Standard 2" x 2" package
- Single, bi or triple outputs
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 25 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 250 KHz
- Protections : output short circuit
- Trim adjustment : no trim
- External synchronization range : no synchro
- Additional functions : on/off on option





DC/DC CONVERTERS

DC ISOLATED CONVERTERS 26W

REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Standard 2" x 2" package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 25 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 1 MHz
- Protections : input undervoltage lockout, output short circuit
- Trim adjustment : 80% to 110%
- External synchronization range : 1.05 to 1.15 MHz
- Additional functions : on/off, sense parallelization

PART NUMBERING

SINGLE OUTPUT

MGDSI-26 - ■ - ■

INPUT SPECIFICATIONS

WIDE INPUT

I : 9-36 Vdc
I : 16-40 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 6 A
C : 5 Vdc / 5 A
E : 12 Vdc / 2 A
F : 15 Vdc / 1.65 A



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 30W

REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Low profile 0.33" package
- Highly configurable DC/DC converter
- Up to 6 outputs and 3 independant line regulations
- Soft start

GENERAL CHARACTERISTICS

- Nominal power up to : 30 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 480 KHz
- Protections : output short circuit, output overvoltage, over temperature
- Trim adjustment : 95% to 105%
- External synchronization range : no synchro
- Additional functions : on/off, sense

PART NUMBERING

SINGLE LINE OUTPUT

CGDI - ■ - ■ - 0 - 0

DUAL LINE OUTPUT

CGDI - ■ - ■ - 0 - ■

TRIPLE LINE OUTPUT

CGDI - ■ - ■ - ■ - ■

INPUT SPECIFICATIONS

STANDARD INPUT

I : 18-36 Vdc

WIDE INPUT

D : 4.7-16 Vdc
I : 9-36 Vdc
I : 16-40 Vdc
C : 36-140 Vdc

OUTPUT SPECIFICATIONS

OUTPUT

3 : 3.3 Vdc
5 : 5 Vdc
12 : 12 Vdc
15 : 15 Vdc

OUTPUT

58 : +/- 5 Vdc
128 : +/- 12 Vdc
158 : +/- 15 Vdc



DC/DC CONVERTERS

DC ISOLATED CONVERTERS 150W

REDEFINING THE SOURCES OF POWER

KEY FEATURES

- Standard half brick package
- Single output
- Soft start
- No load to full load operation

GENERAL CHARACTERISTICS

- Nominal power up to : 150 W
- Galvanic isolation input/output : 1 500 Vdc
- Switching frequency : 420 KHz
- Protections : input undervoltage lockout, input overvoltage lockout, output current limitation, output overvoltage, over temperature
- Trim adjustment : 10% to 110%
- External synchronization range : 420 to 480 KHz (220 KHz to 235 KHz for T input)
- Additional functions : on/off, sense, parallelization

PART NUMBERING

SINGLE OUTPUT

MGDSI-150 - ■ - ■

Loaded process add - L after reference

INPUT SPECIFICATIONS

WIDE INPUT

I : 9-36 Vdc
I : 18-75 Vdc

OUTPUT SPECIFICATIONS

SINGLE OUTPUT

B : 3.3 Vdc / 30 A
C : 5 Vdc / 30 A
E : 12 Vdc / 12.5 A

SINGLE OUTPUT

F : 15 Vdc / 10 A
I : 24 Vdc / 6.25 A
J : 28 Vdc / 5.3 A

DC/DC SOLUTIONS

DC/DC Converters Selection Chart

Grades	Single Output	Bi Output	Dual Output	Triple Output
Hi-Rel (M)	MGDS - ■ - ■ - ■ / ■ - ■	MGDB - ■ - ■ - ■ / ■ - ■	MGDD - ■ - ■ - ■ / ■ - ■	MGDT - ■ - ■ - ■ / ■ - ■
Industrial (I)	MGDSI - ■ - ■ - ■ / ■ - ■	MGDBI - ■ - ■ - ■ / ■ - ■	MGDDI - ■ - ■ - ■ / ■ - ■	MGDTI - ■ - ■ - ■ / ■ - ■

Power references	Input Voltage range reference	Output references	Options
04 : 4 W 60 : 60 W 06 : 6 W 75 : 75 W 08 : 8 W 80 : 80 W 10 : 10 W 100 : 100 W 18 : 18 W 124 : 120 W 20 : 20 W 150 : 150 W 21 : 21 W 155 : 150 W 25 : 25 W 164 : 160 W 26 : 26 W 200 : 200 W 30 : 30 W 204 : 200 W 35 : 35 W 254 : 250 W 40 : 40 W	Standard Input C : 4.5-5.5 Vdc I : 18-36 Vdc Ultra Wide Input E : 4.5-33 Vdc M : 10-100 Vdc N : 9-60 Vdc R : 12-160 Vdc Wide Input D : 4.7-16 Vdc H : 9-36 / 9-45 Vdc J : 16-40 Vdc O : 18-75 / 16-80 Vdc Q : 36-140 / 36-175 Vdc T : 120-480 Vdc S : 155-480 Vdc	A : 2.5 Vdc B : 3.3 Vdc C : 5 or +/- 5 Vdc E : 12 or +/- 12 Vdc F : 15 or +/- 15 Vdc I : 24 or +/- 24 Vdc 26 : 26 Vdc J : 28 Vdc BE : 3.3 and +/- 12 Vdc BF : 3.3 and +/- 15 Vdc CE : 5 and +/- 12 Vdc CF : 5 and +/- 15 Vdc	Option M On/Off function Option Y high isolation 3000 Vdc Option T -55° C start-up temperature Option /S screening and serialization

Process
L : Leaded process ■ : RoHS process

DC/DC Front-End Module Section Chart

Type of module	Single Output	Selection
EMI input filter module	FGDS - ■ A - $\frac{50V}{100V}$	2 : 2 A input current 12 : 12 A input current 6 : 6 A input current 20 : 20 A input current 10 : 10 A input current
Transient/drop-out protection module 50 W	PGDS - 50 - ■ - K	N : 10-80 Vdc transient/drop-out input voltage O : 6-100 Vdc transient/drop-out input voltage
Transient protection module 50 W / 300 W	LGDS - ■ - ■ - K 50 : 50 W power 75 : 75 W power 100 : 100 W power 300 : 300 W power	J : 10-60 Vdc transient input voltage Q : 36-165 Vdc transient input voltage O : 9-100 Vdc transient input voltage P : 9-202 Vdc transient input voltage
Hold-up module 50 W / 300 W	HUGD - ■	50 : 50 W power 300 : 300 W power

AC/DC SOLUTIONS

Type of module	Single Output	Bi Output
Isolated PFC Modules series		HGMB - ■ - ■ - ■ / ■ - ■
Non Isolated PFC Modules series	HGMS - ■ - ■ - ■ / ■ - ■	

Power references	Input Voltage range reference	Output references	Options
35 : 35 W 50 : 50 W 150 : 150 W 350 : 350 W	W : 95-140 Vac / frequency 320-800 Hz X : 95-140 Vac / frequency 47 - 440 Hz Y : 85-265 Vac / frequency 50 - 60 Hz	17 : 17 Vdc T : 375 Vdc	Option T -55° C start-up temperature Option /S screening and serialization

Process
L : Leaded process ■ : RoHS process



COMPANY PROFILE

Modular Power Architecture Page 1

Leading Supplier of Hi-Rel Power Conversion Products Pages 2 and 3

High Level of Quality Achievements..... Page 4

PRODUCTS

HI-REL GRADE PRODUCTS

Current Hi-Rel Grade Products

FGDS-2A EMI Filter	Page 6	HGMM-350 AC Non Isolated PFC 350W.....	Page 19
FGDS-6A EMI Filter	Page 7	MPGS-14A DC Non isolated Converter 260W ..	Page 20
FGDS-10A EMI Filter	Page 8	MGDM-04 DC Isolated Converters 4W.....	Page 21
FGDS-12A EMI Filter	Page 9	MGDD-08 DC Isolated Converters 8W.....	Page 22
FGDS-20A EMI Filter	Page 10	MGDM-10 DC Isolated Converters 10W.....	Page 23
PGDS-50 Transient Protection.....	Page 11	MGDD-21 DC Isolated Converters 20W.....	Page 24
LGDS-100 Transient Protection.....	Page 12	MGDD-40 DC Isolated Converters 40W.....	Page 25
LGDS-300 Transient Protection.....	Page 13	MGDM-75 DC Isolated Converters 75W.....	Page 26
HUGD-50 Hold Up Module.....	Page 14	MGDD-80 DC Isolated Converters 80W.....	Page 27
HUGD-300 Hold Up Module.....	Page 15	MGDM-150 DC Isolated Converters 150W.....	Page 28
HGMM-35 AC Isolated PFC 35W.....	Page 16	MGDM-155 DC Isolated Converters 150W.....	Page 29
HGMM-50 AC Isolated PFC 50W.....	Page 17	MGDM-200 DC Isolated Converters 200W.....	Page 30
HGMM-150 AC Non Isolated PFC 150W.....	Page 18	MGDM-205 DC Isolated Converters 200W.....	Page 31

Other Hi-Rel Grade Products

MGDM-18 DC Isolated Converters 18W.....	Page 32	CGDM-30 DC Isolated Converters 30W.....	Page 33
MGDM-20 DC Isolated Converters 20W.....	Page 32	MGDM-35 DC Isolated Converters 35W.....	Page 33
MGDM-25 DC Isolated Converters 25W.....	Page 32	MGDD-60 DC Isolated Converters 60W.....	Page 34
MGDM-26 DC Isolated Converters 26W.....	Page 33	MGDM-100 DC Isolated Converters 100W.....	Page 34

INDUSTRIAL GRADE PRODUCTS

Current Industrial Grade Products

LGDSI-50 Spike Protection 50W	Page 36	MGDI et MGDDI-60 DC Isolated Converters 60W	Page 43
LGDSI-75 Spike Protection 75W	Page 37	MGDI-75 DC Isolated Converters 75W.....	Page 44
MGDI-04 DC Isolated Converters 4W.....	Page 38	MGDI-100 DC Isolated Converters 100W.....	Page 45
MGDDI-06 DC Isolated Converters 6W.....	Page 39	MGDI-124 DC Isolated Converters 120W.....	Page 46
MGDI-10 DC Isolated Converters 10W.....	Page 40	MGDI-164 DC Isolated Converters 160W.....	Page 47
MGDDI-20 DC Isolated Converters 20W.....	Page 41	MGDI-204 DC Isolated Converters 200W.....	Page 48
MGDI-35 DC Isolated Converters 35W.....	Page 42	MGDI-254 DC Isolated Converters 250W.....	Page 49

Other Industrial Grade Products

MGDI-18 DC Isolated Converters 18W.....	Page 50	MGDI-26 DC Isolated Converters 26W.....	Page 51
MGDI-20 DC Isolated Converters 20W.....	Page 50	CGDI-30 DC Isolated Converters 30W.....	Page 51
MGDI-25 DC Isolated Converters 25W.....	Page 50	MGDI-150 DC Isolated Converters 150W.....	Page 51

DEFINITION OF PART NUMBERSPage 51

ENVIRONMENTAL QUALIFICATIONS.....Page 52





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