MGDK100 100W POWER

ULTRA WIDE INPUT ISOLATED DC/DC CONVERTER
1500 Vdc ISOLATION

Description

The MGDK100 series features a Quality Cost Effective range of 100W board mounted isolated dc/dc converters. With multiple selection of ultra wide input voltage ranges from 11V up to 140V dc, the MGDK100 is proposed with a single channel with output voltage trim capability. The converter embeds an output overload protection, and comes encapsulated in a low profile fully potted 2.9''x1.9''X0.5'' metallic case.

Fields of Application

- General purpose application
- Transportation
- Telecom
- Renewble Energy



Part-numbering

MGD S K 100 M C

output nb.	Input Voltage Range	Output Voltage Range
S = single	M = 11-60	B = 3.3
	Q = 36-140	C = 5
		E = 12
		F = 15
		26= 24 to 28

Selection Guide

Part Number	Output Voltage (Vdc)	Output Power (Watt)	Input Voltage (Vdc)	Part Number	Output Voltage (Vdc)	Output Power (Watt)	Input Voltage (Vdc)
MGDSK100MB	3.3	66	11-60	**MGDSK100QB**	3.3	66	36-140
MGDSK100MC	5	100	11-60	**MGDSK100QC**	5	100	36-140
MGDSK100ME	12	100	11-60	**MGDSK100QE**	12	100	36-140
MGDSK100MF	15	100	11-60	**MGDSK100QF**	15	100	36-140
MGDSK100M26	24 to 28	100	11-60	**MGDSK100Q26**	24-28	100	36-140

for more information go to **https://www.gaia-converter.com**

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1-ELECTRICAL SPECIFICATIONS

Data are valid at +25°C, unless otherwise specified

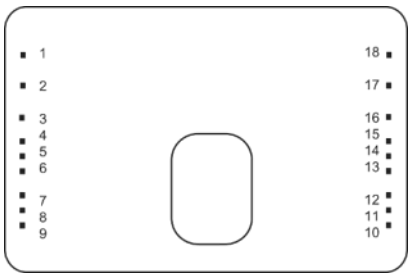
Parameter	Conditions	Limit	Units	Specification **H** input	Specification **Q** input
INPUT					
Nominal Input Voltage (Ui nom)	Full temperature range	Nominal	Vdc	24	72
Transient Input Voltage	Full temperature range	Maximum	Vdc/s	100/0.1	175/0.1
Start-up input voltage Turn on /turn off	Full temperature range	Typical	Vdc	10.5/9.5	33/30
Start-up time	Full temperature range	Maximum	ms	30	
Power efficiency	Ui Nominal 75% load	Typical	%	88	85
No load input power	Vo<15 Vo>12	Maximum	W	10 2	
OUTPUT					
Output current : * B output (3V3) C output (5V) E output (12V) F output (15V) 26 output (26V)	Ui min. To Ui max	Maximum	A	 20 20 8.25 6.5 3.8	
Set Point accuracy	Ui nom @75% load	Maximum	%	+/- 2.5	
Output regulation (Line)	@75% load	Maximum	%	+/- 1	
Output regulation (Load)	Ui min. To Ui max full load	Maximum Typical	%	+/- 1	
Output ripple voltage B & C output (3V3) (5V) E & F output (12V) (15V) 26 output (26V)	Ui min. To Ui max	Maximum	mVpp	 100 200 350	
Admissible capacitor B & C output E & F output	Ui min. Full load (per output)	Maximum	µF	 2200 330	
MISCELLANEOUS					
Switching Frequency		Typical	Khz	260	
Output Trim Range		Min.Max.	%	-20/+10	
Isolation Strength (Input output)	Ui min. To Ui max		Vdc	1500	
Module enable voltage **Module disable voltage**	On pin on/off	Min./Max..	Vdc	3.5/5 0.0/0.5	
Output over current protection level	Strait line limitation	nominal	%	130	
EMC Compliance	With input capacitor With input filter			EN555032 class A EN555032 class B	

2-THERMAL & MECHANICAL SPECIFICATIONS

Parameter	Conditions	Limit	Units	Parameter
Case temperature range		Mini.Max.	°C	-40 to 95
Storage temperature range	Not operating	Mini.Max.	°C	110
Case Material	Regular model		Metallic black anodized coated	
Pin Material			Copper plated with pure matte tin over nickel underplate	
Case to Air thermal resistance		Typical	°C/W	7.5

Connections

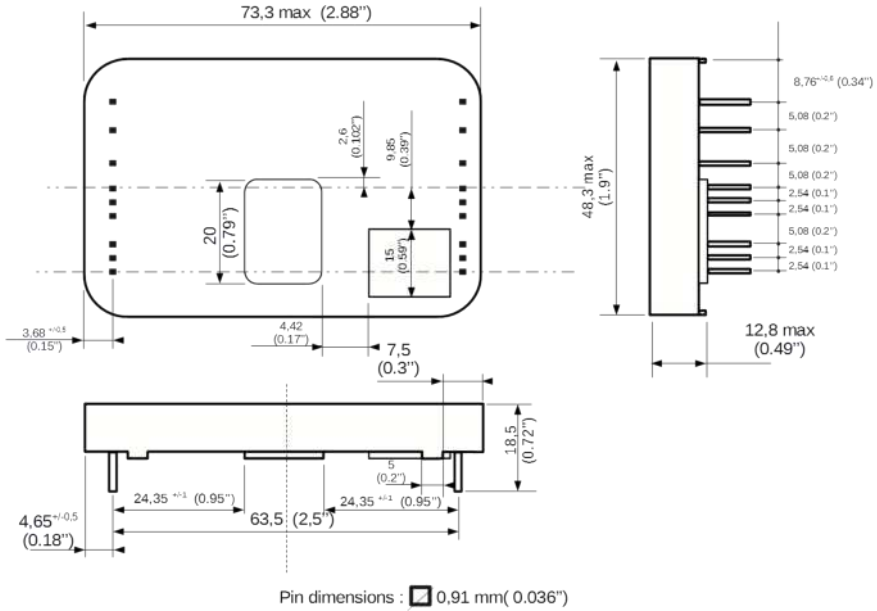
Pin#	MGDSK100 (Single)
1	On/Off
2	Do not Connect
3	Do not Connect
4,5,6	-Input (Gi)
7,8,9	+Input (Vi)
10,11,12	Output (Vo)
13,14,15	Common (Go)
16	Sense+
17	Trim
18	Sense-



Bottom view

Dimensions MGDK100

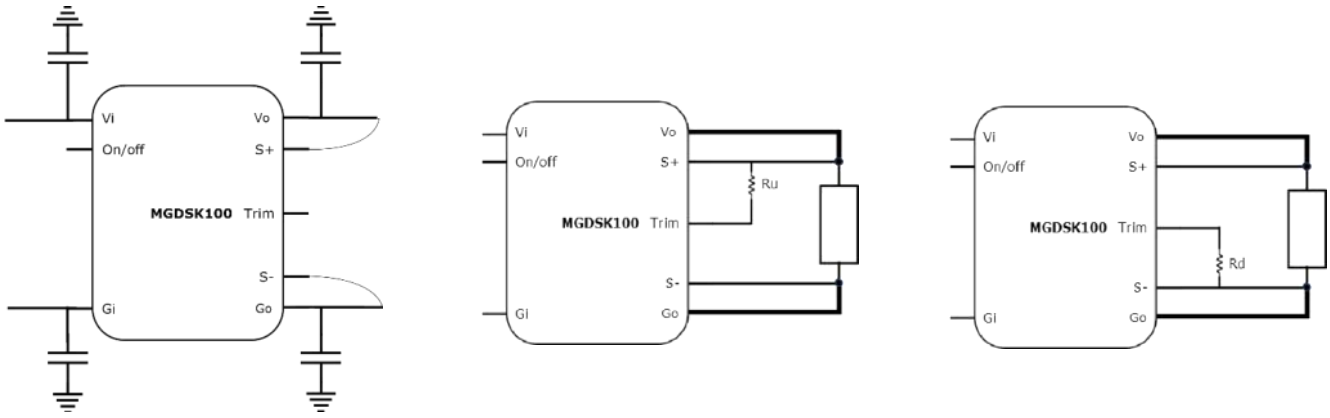
Dimensions are given in mm (inches) . Tolerance : +/-0.25mm (0.01'') unless otherwise specified
weight : < 80gr (2.8oz) max.



Pin dimensions : ☐ 0,91 mm(0.036")

3-APPLICATION

Typical connections



TRIM FUNCTION:

TRIM UP Function:

The Module can be trimmed up using a resistor connected across Trim pin and Vo pin, the ressitor value can be evaluatedusing the following formula:

$$\mathrm{Ru} = \frac{39 \times (Vo - 2.5) \times Vonom}{(Vo - Vonom) \times 2.5} - 39.27$$

With Ru: resistor value in KΩ
Vo: desired voltage
Vonom: nominal voltage

TRIM Down Function:

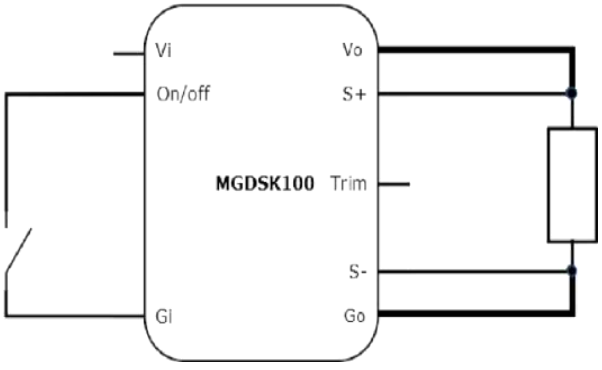
The Module can be trimmed down using a resistor connected across Trim pin and Go pin, the ressitor value can be evaluatedusing the following formula:

$$\mathrm{Rd} = \frac{39.27 \times Vo.Vo - 0.27 \times Vonom}{(Vonom - Vo)}$$

With Rd: resistor value in KΩ
Vo: desired voltage
Vonom: nominal voltage

ON-OFF FUNCTION:

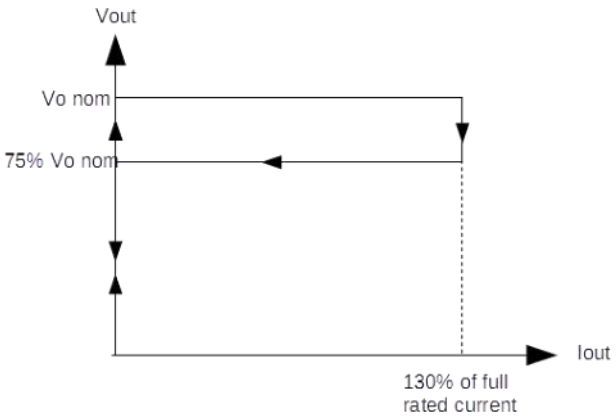
The converter is naturally enabled as far as the on/off pin remains unconnected. To disable the converter the pin on/off should be shorted to Go using a switch, an open collector or open drain transistor. Several converters of the same input bus can be remotely controlled by the same signal just by connecting all the pins on/off together.



3-APPLICATION

OCP FUNCTION:

The converter series incorporates a straight-line current protection circuit. When the output current reaches typically 130% of it's full-rated current, the output voltage decreases down to typically 75% of nominal output voltage. Below this threshold limit the converter falls into hiccup mode by testing periodically if an overload is applied. The module restarts automatically to normal operation when overcurrent is removed.



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