

## BOARD MOUNTED ISOLATED DC/DC CONVERTER

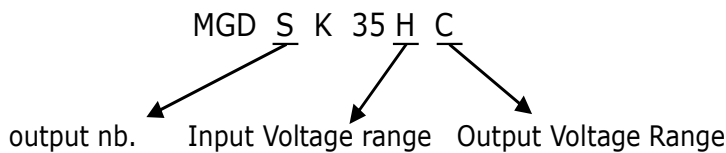
### Description

The MGDK35 series features a Quality Cost Effective range of 35W board mounted isolated dc/dc converters. With multiple selection of wide input voltage ranges from 9V up to 140V dc, the MGDK35 is proposed with a **single, symmetrical or triple output channel**. 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  
Renewable Energy

### Part-numbering



S = single	H = 9-36	B = 3.3
B = double	O = 18-75	C = 5
T = Triple	Q = 36-140	E = 12
		F = 15



### Selection Guide

Part Number	Output Voltage (Vdc)	Output Power (Watt)	Input Current (A <sub>dc</sub> )	Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (A <sub>dc</sub> )
MGDSK35HB	3.3	23	7	MGDSK35OC	5	23	7
MGDSK35HC	5	35	7	MGDSK35OE	12	35	7
MGDSK35HE	12	35	2.9	MGDSK35OF	15	35	2.9
MGDSK35HF	15	35	2.3	MGDBK35OC	+5/-5	35	3.5
MGDBK35HC	+5/-5	35	+/-3.5	MGDBK35OE	+12/-12	35	+/-1.45
MGDBK35HE	+12/-12	35	+/-1.45	MGDTK35OCE	+5 +/-11.7	35	4 +/-0.625
MGDBK35HF	+15/-15	35	+/-1.15	MGDTK35OCF	+5 +/-14.7	35	4 +/-0.5
MGDTK35HCE	+5 +/-11.8	35	4 +/-0.625	MGDSK35QC	+5	35	7
MGDTK35HCF	+5 +/-14.7	35	4 +/-0.5	MGDBK35QE	+12/-12	35	+/-1.45

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

# MGDK35 35W POWER

## 1-ELECTRICAL SPECIFICATIONS

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

### Specification

Parameter	Conditions	Limit	Units	H input	O input	Q input
<b>INPUT</b>						
<b>Nominal Input Voltage (Ui nom)</b>	Full temperature range	Nominal	Vdc	20	28	72
<b>Transient Input Voltage</b>	Full temperature range	Maximum	Vdc/s	36	75	175/0.1
<b>Start-up input voltage Turn on /turn off</b>	Full temperature range	Typical	Vdc	8.8/8	15.8/14	33/30
<b>Start-up time</b>	Full temperature range	Maximum	ms		30	
<b>Power efficiency</b>	Ui Nominal 75% load	Typical	%	83	84	85
<b>No load input power</b>	(hic-up mode)	Maximum	mW	300	500	800
<b>OUTPUT</b>						
<b>Set Point accuracy</b>	Ui nom @75% load	Maximum	%		+/- 2.5	
<b>Output regulation (Line)</b>	25% to full load	Maximum	%		+/- 1.5	
<b>Output regulation (Load)</b>	Ui min. To Ui max 25% to full load 0% to 25% load	Maximum Typical	%		+/- 2.5 +15 to +/-2.5	
<b>Cross Load Output regulation</b>	Vout1 @75% load Vout2@25% load		%		+/- 0.5	
<b>Output ripple voltage</b> B & C output (3V3) (5V) E & F output (12V) (15V)	Ui min. To Ui max	Maximum	mVpp		150 300	
<b>Admissible capacitor</b> B & C output E & F output	Ui min. Full load ( per output)	Maximum	µF		2200 330	
<b>MISCELLANEOUS</b>						
<b>Switching Frequency</b>		Typical	Khz		250	
<b>Output Trim Range</b>		Min.Max.	%		+/-5	
<b>Isolation Strength (Input output)</b>	Ui min. To Ui max		Vdc		1500	
<b>EMC Compliance</b>	With input capacitor With input filter				EN555032 class A EN555032 class B	

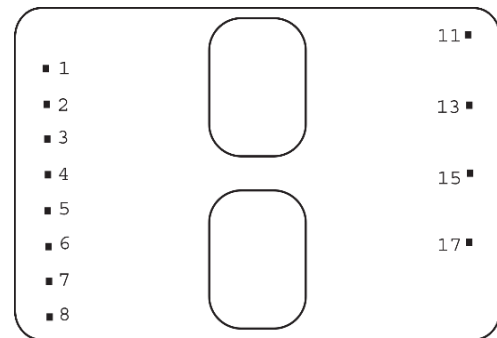
# MGDK35 35W POWER

## 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

### Connections

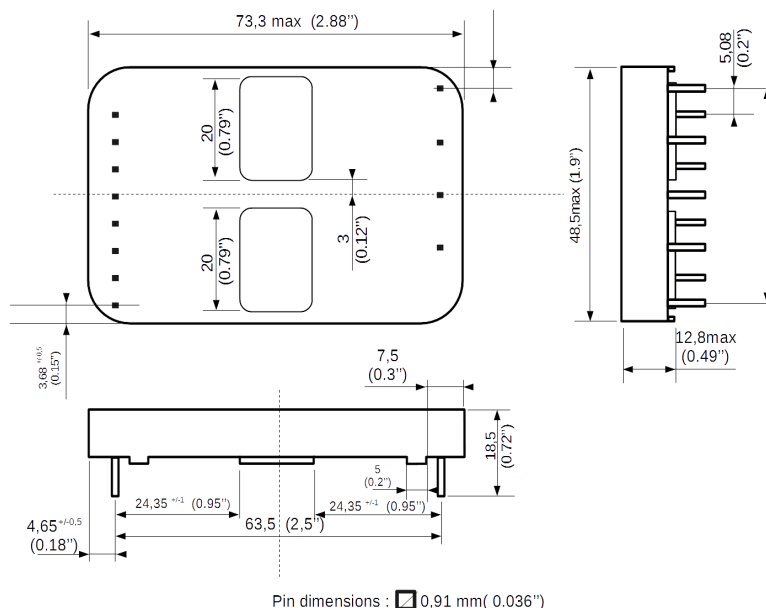
Pin#	MGDSK35 (Single)	MGDBK35 (Double)	MGDTK35 (Triple)
1	Do not Connect	Do not Connect	Do not Connect
2	-Input (Gi)	-Input (Gi)	-Input (Gi)
3	Do not Connect	Do not Connect	Do not Connect
4	+Input (Vi)	+Input (Vi)	+Input (Vi)
5	Trim	Trim	Trim
6	Do not Connect	Do not Connect	Do not Connect
7	Vref	Do not Connect	Do not Connect
8	On/Off	Vref	Vref
11	Do not Connect	Output (-Vo)	Output2- (-Vo2)
13	Do not Connect	Do not Connect	Output2+ (+Vo2)
15	Common (Go)	Common (Go)	Common (Go)
17	Output (Vo)	Output (Vo)	Output1 (Vo1)



Bottom view

### Dimensions MGDK35

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

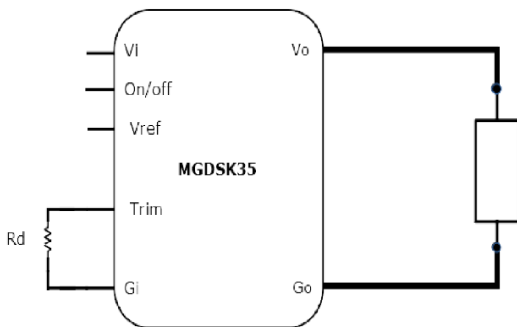
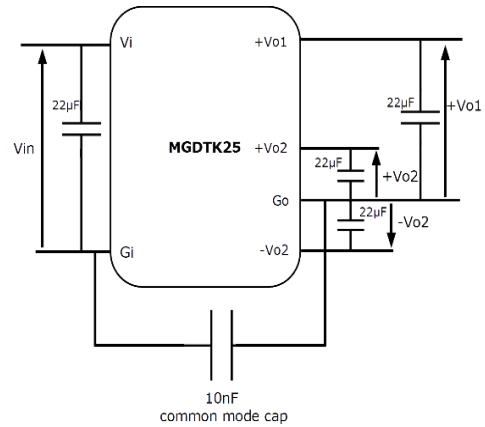
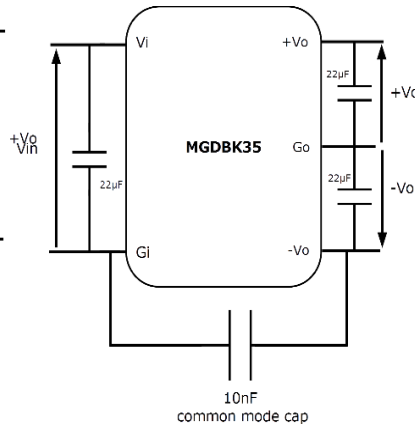
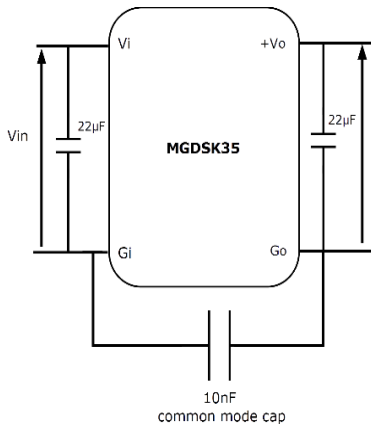


Pin dimensions :  $\square$  0,91 mm (0.036")

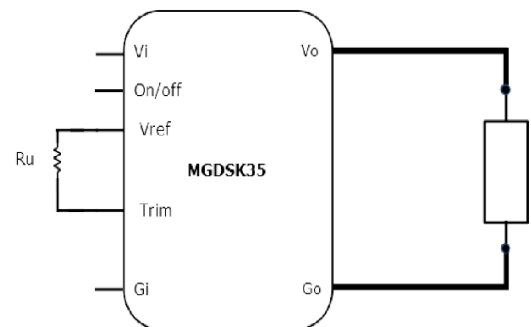
# MGDK35 35W POWER

## 3-APPLICATION

### Typical connections



Trim down



Trim up

### TRIM FUNCTION:

#### TRIM UP Function:

The Module can be trimmed up using a resistor connected across Trim pin and Vref. pin, the resistor value can be evaluated using the following formula:

$$R_u = 12 \cdot \frac{\frac{V_o}{2 \cdot V_{onom}} - 1}{1 - \frac{V_{onom}}{V_o}} - 47$$

With  $R_u$ : resistor value in  $K\Omega$   
 $V_o$ : desired voltage  
 $V_{onom}$ : nominal voltage

#### TRIM Down Function:

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

$$R_u = 12 \cdot \frac{\frac{V_o}{V_{onom}}}{2 \cdot (1 - \frac{V_{onom}}{V_o})} - 47$$

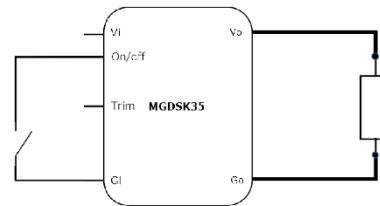
With  $R_u$ : resistor value in  $K\Omega$   
 $V_o$ : desired voltage  
 $V_{onom}$ : nominal voltage

## MGDK35 35W POWER

### 3-APPLICATION

#### 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.



<b>International Headquarters</b>	<b>North American Headquarters</b>
GAIA Converter - France	GAIA Converter Canada, Inc
18 rue caroline Aigle	4038 Le Corbusier Blvd
33186 LE HAILLAN - FRANCE	LAVAL, QUEBEC - CANADA H7L 5R2
Tel. : + (33)-5-57-92-12-80	Tel. : (514)-333-3169
Fax : + (33)-5-57-92-12-89	Fax : (514)-333-4519

Information given in this datasheet is believed to be accurate and reliable. However, no responsibility is assumed for the consequence of its use nor for any infringement of patents or other rights of third parties which may result from its use. These products are sold only according to GAIA Converter general conditions of sale, unless otherwise confirmed by writing. Specifications subject to change without notice.