

BOARD MOUNTED ISOLATED DC/DC CONVERTER

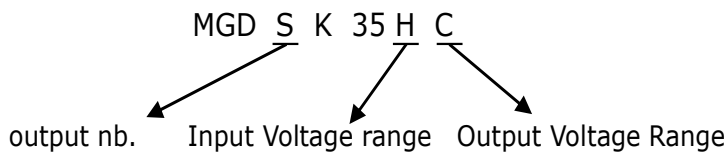
Description

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

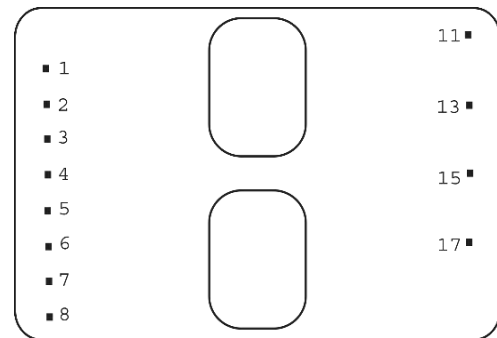
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2-THERMAL & MECHANICAL SPECIFICATIONS

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

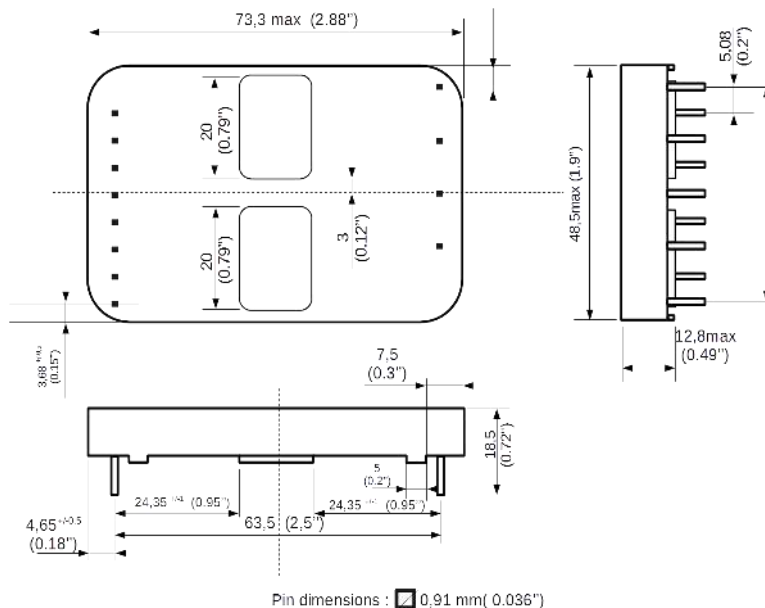
Pin#	MGDSK35 (Single)	MGDBK35 (Double)	MGDTK35 (Triple)
1	Do not Connect	Do not Connect	Do not Connect
2	-Input (Gi)	-Input (Gi)	-Input (Gi)
3	Do not Connect	Do not Connect	Do not Connect
4	+Input (Vi)	+Input (Vi)	+Input (Vi)
5	Trim	Trim	Trim
6	Do not Connect	Do not Connect	Do not Connect
7	Vref	Do not 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.

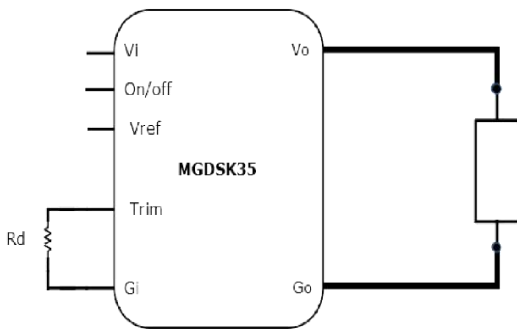
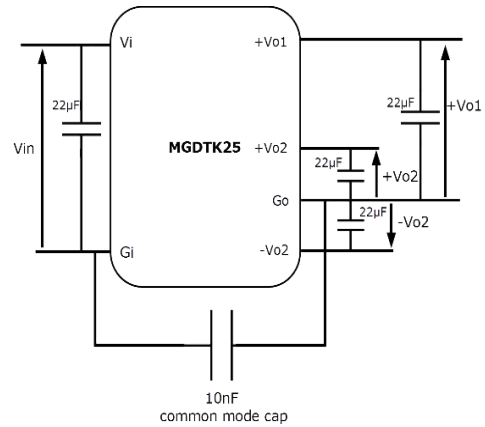
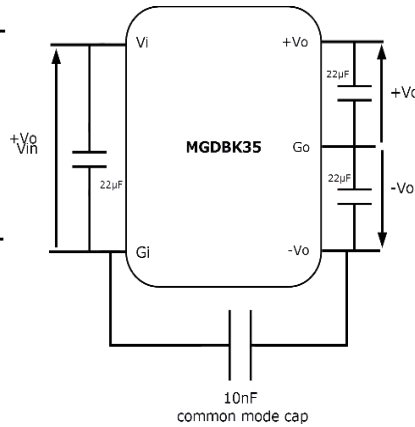
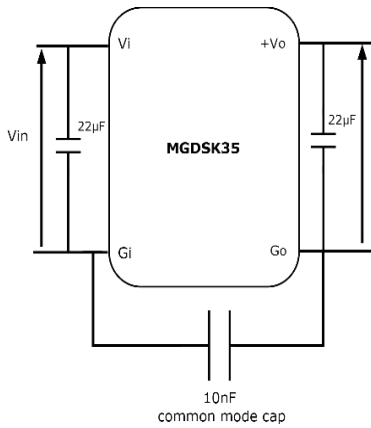


Pin dimensions : \square 0,91 mm (0.036")

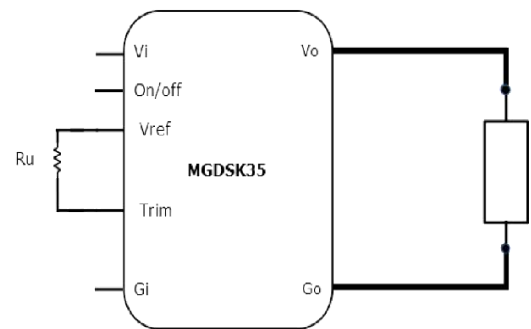
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3-APPLICATION

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:

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

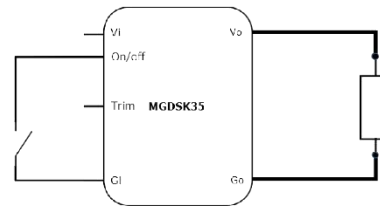
With R_u : resistor value in $K\Omega$
 V_o : desired voltage
 V_{onom} : nominal voltage

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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.



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