MGDK04 4W POWER

WIDE INPUT RANGE ISOLATED DC/DC CONVERTER
0.3" LOW PROFILE

Description

The MGDK04 series features a Quality Cost Effective range of 4W board mounted isolated dc/dc converters. With multiple selection of wide input voltage ranges, the MGDK04 is proposed with a **single symmetrical or triple output channel**. The converter embeds an output short circuit protection, and comes encapsulated in a low profile fully potted **DIL 24** compliant metallic case.

Fields of Application

- General purpose application
- Transportation
- Telecom
- Renewable Energy

Part-numbering

MGD S K 04 H C

output nb.	Input range	Output
S = single	C = 4.5-5.5	B = 3.3
B = double	H = 9-36	C = 5
T = Triple	I = 18-36	E = 12
	Q = 36-140	F = 15

Selection Guide

Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (Adc)	Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (Adc)
MGDSK04CC(Y)	5	4	0.8	**MGDBK04CE**	+/-12	4	+/-0.165
MGDSK04CC	5	4	0.8	**MGDSK04HF**	15	4	0.26
MGDBK04CC	+/-5	4	+/-0.4	**MGDTK04ICF**	+5 +/-15	4	0.4 +/-0.06
MGDSK04CF	15	4	0.26	**MGDSK04QC(Y)**	5	4	0.8
MGDBK04CE	+/-12	4	+/-0.165	**MGDSK04QE(Y)**	12	4	0.33
MGDBK04CF	+/-12	4	+/-0.165	**MGDSK04QF(Y)**	15	4	0.26
MGDSK04HB	3.3	3.3	1				
MGDSK04HC	5	4	0.8				
MGDSK04HE	12	4	0.33				

/Y = High isolation option

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

MGDK04 4W POWER

1-ELECTRICAL SPECIFICATIONS

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

Parameter	Conditions	Limit	Units	Specification			
				C input	**H** input	**I** input	**Q** input
INPUT							
Nominal Input Voltage (Ui nom)	Full temperature range	Nominal	Vdc	5	20	24	72
Input Voltage range	Full temperature range	Min.-Max.	Vdc	4.5-5.5	9-36	18-36	36-140
Transient Input Voltage	Full temperature range	Maximum	Vdc/s	5.5/1	36/1	36/1	175/0.1
Start up input voltage	Full temperature range	Maximum	Vdc		8.5	15.5	33
Power efficiency	Ui Nominal 75% load	Typical	%	80			
Input current in short circuit mode (Average)	Ui nominal (hic-up mode)	Maximum	mA		30	30	20
OUTPUT							
Set Point accuracy	Ui nom @75% load	Maximum	%	+/- 2			
Output regulation (Line)	25% to full load	Maximum	%	+/- 1.5			
Output regulation (Load) Minimum 10% load is recommended, operation with no load during more than 1s may partially damage the converter output.	Ui min. To Ui max 25% to full load 0% to 25% load	Maximum Typical	%	+/- 2.5 +20 to +/-2.5			
Output ripple voltage B output (3V3) C output (5V) E output (12V) F output (15V)	Ui min. To Ui max	Typical	mVpp	150 150 300 450			
Admissible capacitor B output (3V3) C output (5V) E output (12V) F output (15V)	Ui min. Full load (per output)	Maximum	µF	500 500 47 47			
MISCELLANEOUS							
Switching Frequency			Khz	480	480	480	430
Isolation Strength (Input output)	regular model /Y option model		Vdc	1500 3000			
EMC Compliance	With input capacitor With input filter			EN555032 class A EN555032 class B			

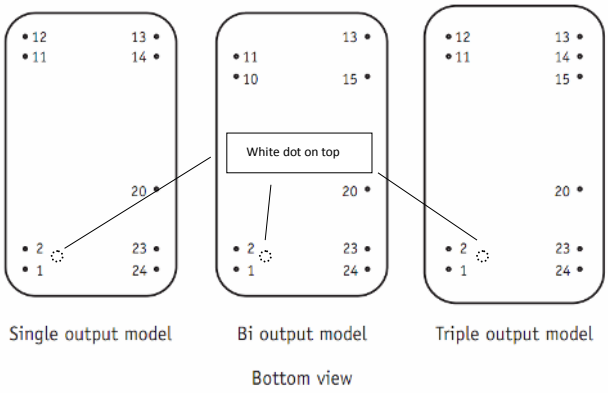
2-THERMAL & MECHANICAL SPECIFICATIONS

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 /Y model		Metallic black anodized coated Black plastic	
Pin Material			Copper plated with pure matte tin over nickel underplate	
Case to Air thermal resistance		Typical	°C/W	20

Connections

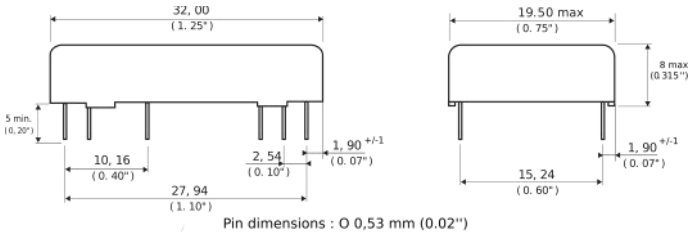
Pin#	MGDSK04 (Single)	MGDBK04 (Double)	MGDTK04 (Triple)
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	+Input (Vi)	+Input (Vi)	+Input (Vi)
10	/	Common (Go)	
11	Common (Go)	Common (Go)	Common (Go)
12	Common (Go)	/	Common (Go)
13	Output (Vo)	Output-(-Vo)	Output2(-V2)
14	Output (Vo)	/	Output1(V1)
15	/	Output+(+Vo)	Output2 (+V2)
20	On/off *	On/off *	On/off *
23	-Input (Gi)	-Input (Gi)	-Input (Gi)
24	-Input (Gi)	-Input (Gi)	-Input (Gi)

* Pin not available for Q input range models

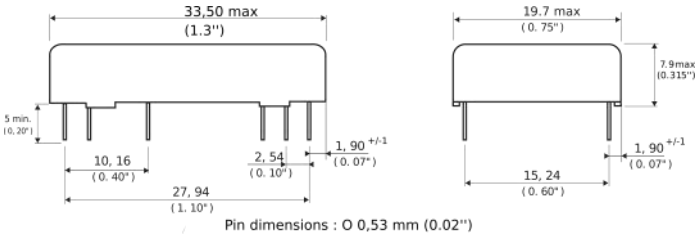


Dimension MGDSK04 & MGDBK04 serie (C,H,I input)

Dimension are given in mm (inches) . Tolerance : +/-0.25mm (0.01'') unless otherwise specified
weight : < 15gr (0.5oz) max.



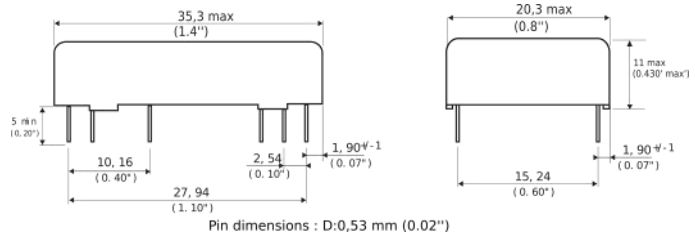
Metallic case



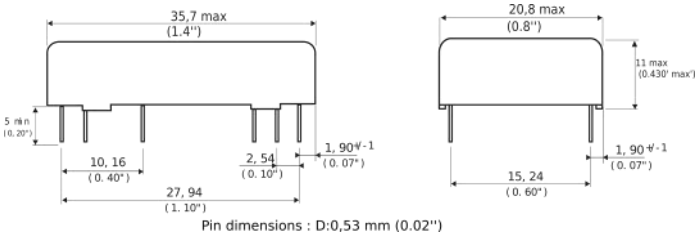
Plastic case

Dimension MGDTK04 serie, & Q input serie

Dimension are given in mm (inches) . Tolerance : +/-0.25mm (0.01'') unless otherwise specified
weight : < 15gr (0.5oz) max.



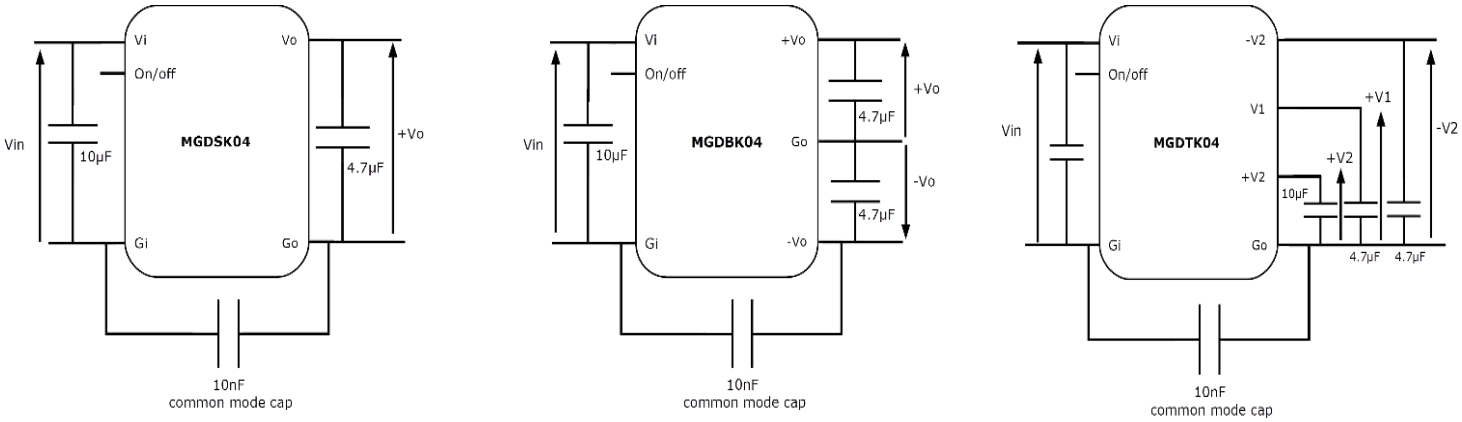
Metallic case



Plastic case

3-APPLICATION

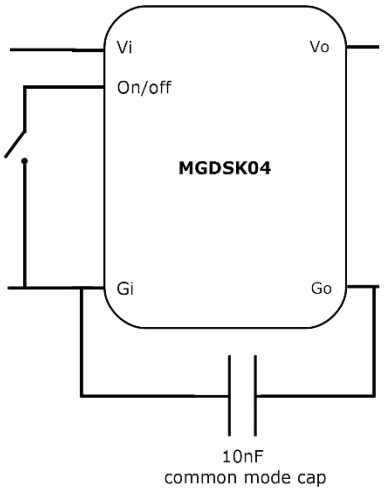
Typical connections



Input and output capacitor values are given as example of min values

ON-OFF FUNCTION

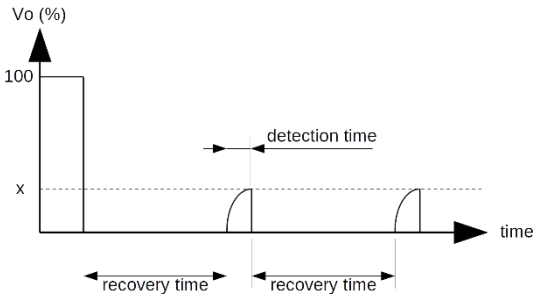
The converter is naturally enabled as far as the on/off pin remains unconnected. To disable the converter the pin on/off should be shorted to Go using a switch, an open collector or open drain transistor. Several converters of the same input bus can be remotely controlled by the same signal just by connecting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



3-APPLICATION (continued)

OCP FUNCTION

The converter series incorporates an over current protection circuit. When the output current reaches a value above typically 200% of it's full-rated current, 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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