

BOARD MOUNTED ISOLATED DC/DC CONVERTER 0.3" LOW PROFILE

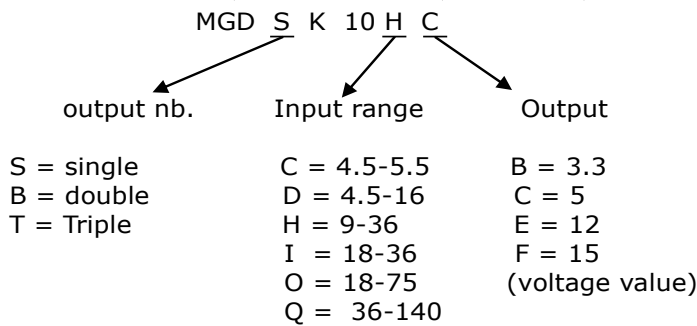
Description

The MGDK10 series features a Quality Cost Effective range of 10W board mounted isolated dc/dc converters. With multiple selection of wide input voltage ranges, the MGDK10 is proposed with a **single, double, symmetrical or triple output channel**. The converter embeds an output overload protection, and comes encapsulated in a low profile fully potted **1.6"x0.3"x1" metallic case**.

Fields of Application

General purpose application
Transportation
Telecom
Renewable Energy

Part-numbering



Selection Guide

Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (Adc)	Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (Adc)
MGDSK10CE	+/-12	10	+/-0.4	MGDSK10HF	12	10	0.8
MGDSK10CF	15	10	0.66	MGDBK10HC	+/-5	10	+/-1
MGDBK10CE	+/-12	10	+/-0.4	MGDBK10HE	+/-12	10	+/-0.4
MGDBK10CF	+/-15	10	+/-0.33	MGDBK10HF	+/-15	10	+/-0.33
MGDSK10DC	5	10	2	MGDTK10H3E	+3,8 +/-12	10	+1 +/-0.2
MGDBK10DC	+/-5	10	+/-1	MGDTK10HCE	+5 +/-12	10	+1 +/-0.2
MGDBK10DF	5	10	2	MGDTK10HCF	+5 +/-15	10	+1 +/-0.17
MGDSK10HB	3.3	6.6	2	MGDTK10ICE	+5 +/-12	10	+1 +/-0.2
MGDSK10HC	5	10	2	MGDTK10ICF	+5 +/-15	10	+1 +/-0.17
MGDSK10H5.5	5.5	10	1.8	MGDSK10OC	5	10	2
MGDSK10HE	12	10	0.8	MGDBK10OF	+/-15	10	+/-0.33

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

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Selection Guide (continued)

Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (A _{dc})	Part Number	Output Voltage (Vdc)	Output Power (Watt)	Output Current (A _{dc})
MGDSK10QB	3.3	6.6	2	MGDBK10QE	12	10	0.8
MGDSK10QC	5	10	2	MGDBK10QE/Y	12	10	0.8
MGDSK10QC/Y	5	10	2	MGDBK10QF	15	10	0.66
MGDBK10QC	+/-5	10	+/-1				

1-ELECTRICAL SPECIFICATIONS

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

Specification

Parameter	Conditions	Limit	Units	C input	D input	H input	I input
INPUT							
Nominal Input Voltage (U _{i nom})	Full temperature range	Nominal	Vdc	5	9	20	24
Input Voltage Range	Full temperature range	Min.-Max.	Vdc	4.5-5.5	4.5-16	9-36	18-36
Transient Input Voltage	Full temperature range	Maximum	Vdc/s	/	/	36	36
Start-up input voltage Turn on -turn off	Full temperature range	Min.-Max.	Vdc	4-4.5	7-8.5	12-15.5	16-17.5
Start-up time	Full temperature range	Maximum	ms		50		
Power efficiency	U _i Nominal 75% load	Typical	%		80		
Input current in short circuit mode (Average)	U _i nominal (hic-up mode)	Maximum	mA	50	50	30	30

Parameter	Conditions	Limit	Units	O input	Qinput
INPUT					
Nominal Input Voltage (U _{i nom})	Full temperature range	Nominal	Vdc	48	72
Input Voltage Range	Full temperature range	Min.-Max.	Vdc	18-75	36-140
Transient Input Voltage	Full temperature range	Maximum	Vdc/s	75	175/0.1
Start-up input voltage Turn on -turn off	Full temperature range	Min.-Max.	Vdc	12-15	33-36
Start-up time	Full temperature range	Maximum	ms		50
Power efficiency	U _i Nominal 75% load	Typical	%		80
Input current in short circuit mode (Average)	U _i nominal (hic-up mode)	Maximum	mA	30	20

1-ELECTRICAL SPECIFICATIONS (Continued)

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

Specification

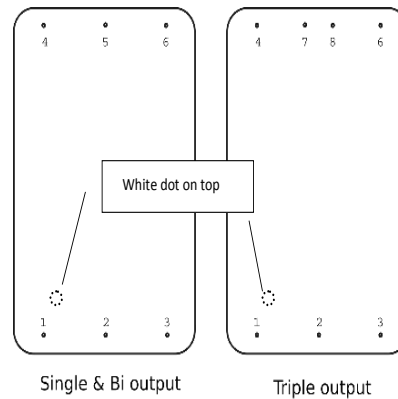
Parameter	Conditions	Limit	Units	All inputs
OUTPUT				
Set Point accuracy	Ui nom @75% load	Maximum	%	+/- 2.5
Output regulation (Line)	25% to full load	Maximum	%	+/- 1.5
Output regulation (Load)	Ui min. To Ui max 25% to full load 0% to 25% load	Maximum Typical	%	+/- 2.5 +20 to +/-2.5
Minimum 10% load is recommended, operation with no load during more than 1s may partially damage the converter output.				
Output ripple voltage B output (3V3) C output (5V) E output (12V) F output (15V)	Ui min. To Ui max	Maximum	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	500 500 150 100
MISCELLANEOUS				
Switching Frequency		Typical	Khz	480
Isolation Strength (Input output)	Input output		Vdc	1500
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	12

Connections

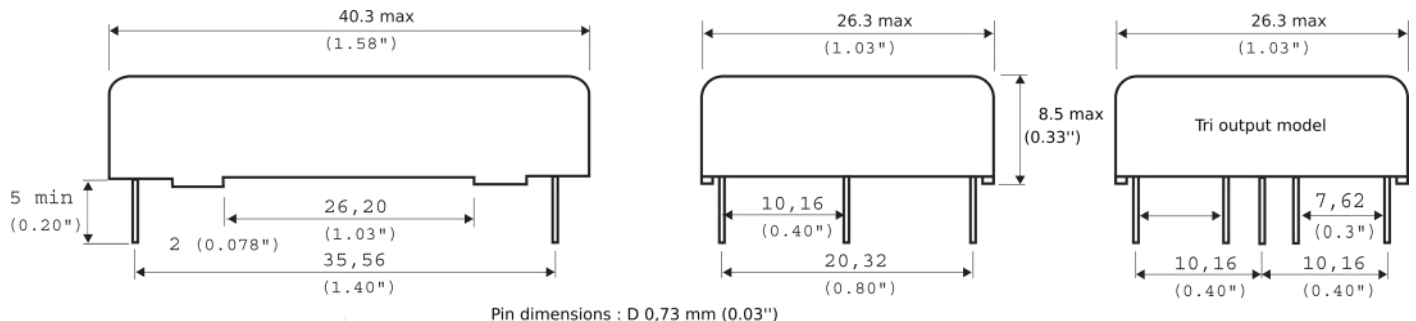
Pin#	MGDSK10 (Single)	MGDBK10 (Double)	MGDTK10 (Triple)
1	+Input (Vi)	+Input (Vi)	+Input (Vi)
2	Do Not Connect	Do Not Connect	Do Not Connect
3	-Input (Gi)	-Input (Gi)	-Input (Gi)
4	Output (Vo)	Output+ (Vo)	Output1 (Vo1)
5	/	Common (Go)	No pin
6	Common (Go)	Output- (-Vo)	Common (Go)
7	No pin	No pin	Output2+ (+V2)
8	No pin	No pin	Output2- (-V2)



Bottom view

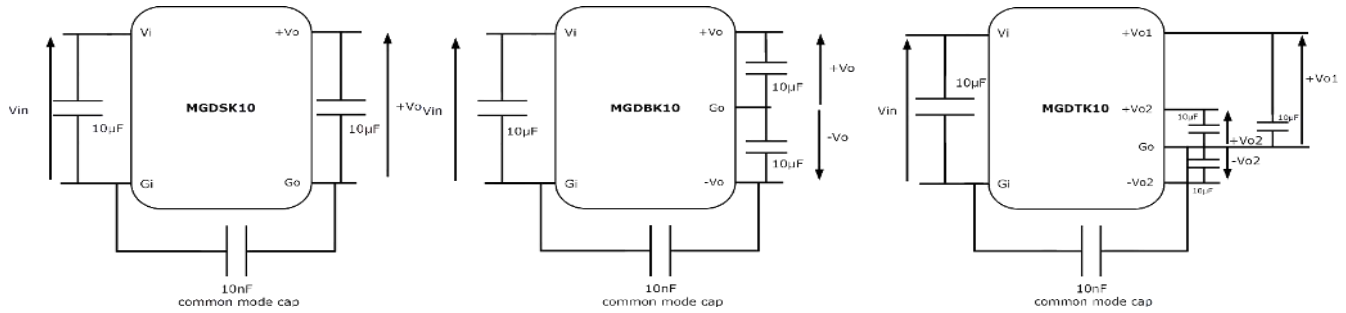
Dimensions MGDK10

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



3-APPLICATION

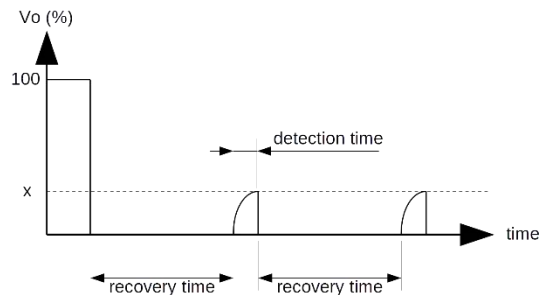
Typical connections



Input and output capacitor values are given as suggestion

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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