MDC Series - Micro DC-DC Voltage Converters

Models: MDC2412-6A, MDC2412-3A, MDC2405-8A, MDC2405-4A, MDC1205-8A



FEATURES

- Regulated outputs from 5 VDC to 12 VDC
- Output power from 20 W to 72 W
- Peak efficiency >97 % (>95 % for 5 Vout models)
- Fully integrated EMI CISPR32 Class A filter
- High endurance and lifetime even under extreme conditions due to all-ceramic capacitors design
- Input protection:
  - Overvoltage, Reverse polarity, Hot-swap capable
- Output protection:
  - Overvoltage, Undervoltage, Overcurrent, Overtemperature, Short Circuit
- Compact size 60 x 28 x 17 mm
- Operating temperature - 40 °C ÷ + 85 °C

PART NUMBER KEY

MDC XX YY - Z A

Series | Input voltage | Output voltage | Output current

SPECIFICATION

MODELS

Model No.	Output Voltage	Max. Output Current	Output Power	Input Voltage			Input Current		Output Ripple (2)	Max. Efficiency
				min.	typ.	max.	Max. Load(1)	No load(1)		
	(Vdc)	(A)	(W)	(Vdc)	(Vdc)	(Vdc)	(A)	(mA)	(mV RMS)	(%)
MDC2412-6A	12	6	72	15	24	33	3.16	0.18	7	> 97
MDC2412-3A	12	3	36	15	24	33	1.56	0.18	10	> 97
MDC2405-8A	5	8	40	15	24	33	1.79	0.18	4	> 95
MDC2405-4A	5	4	20	15	24	33	0.88	0.18	6	> 95
MDC1205-8A	5	8	40	7	12	33	3.57	0.18	6	> 95

Notes: 1. measured at nominal input voltage
2. measured at max. output power

INPUT

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	15	24	33	V	for max. output, 24 Vin models
	7	12	33	V	for max. output, 12 Vin models
Abs. Max. Voltage	-0.3		47	V	continuous, no damage, all models
Input Current					see Models table
Input Filter					Pi network
Recommended Fuse					choose according to input current
Protection:					
Surge Voltage			100	V	max. 1 sec., all models
Reverse Polarity					external, use recommended fuse for rated input current, (device may be damaged)

OUTPUT

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12.06	12.25	12.45	V	12 Vout models
	5.26	5.29	5.34	V	5 Vout models
Output Current					see Models table
Output Noise		7		mV RMS	MDC2412-6A
		10		mV RMS	MDC2412-3A
		4		mV RMS	MDC2405-8A
		6		mV RMS	MDC2405-4A
		6		mV RMS	MDC1205-8A
Line Regulation			0.2	%/V	all models
Load Regulation			2	% Vout	all models
Transient Recovery Time			50	µs	all models
Output Voltage Accuracy		±1.6		% Vout	12 Vout models
		±0.8		% Vout	5 Vout models
Protection:					
Overvoltage	120 % Vout nom.				autorestart, hiccup, all models
Undervoltage	20 % Vout nom.				autorestart, hiccup, all models
Overcurrent		9.75		A	MDC2412-6A, MDC2405-8A, MDC1205-8A
(autorestart, hiccup)		6.5		A	MDC2412-3A, MDC2405-4A
Overtemperature		150		°C	autorestart, hysteresis 35°C, all models

GENERAL

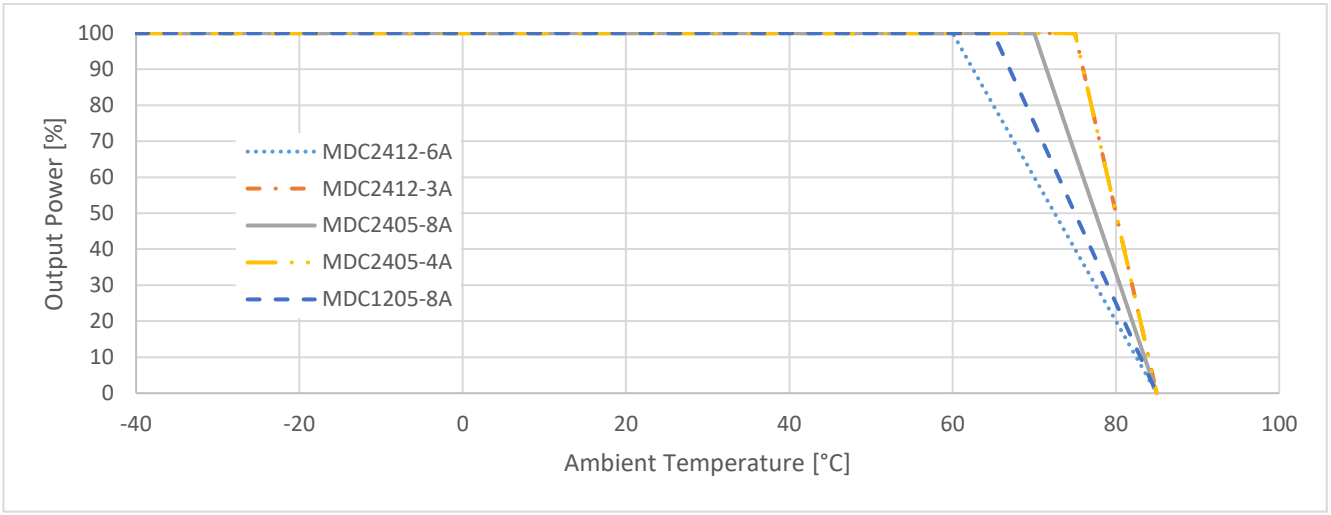
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency			96.5	%	12 Vout models
			94.5	%	5 Vout models
Start Up Time		6		ms	all models
Isolation	800			V	base plate to Input/Output
Switching Frequency		570		kHz	all models
Converter topology	Buck, Non-isolated				all models
MTBF	> 1E6			hours	MIL-HDBK-217F, all models

Operating Temperature	- 40		85	°C	ambient temp., all models
Storage Temperature	- 55		105	°C	all models
Case Material	ABS, UL94-HB				all models
Conductor cross section	0.14		1.5	mm2	I/O connector, all models, (less when terminated with wire ferrule)
	26		16	AWG	I/O connector, all models, (less when terminated with wire ferrule)
Dimmensions	LxWxH 60x28x17			mm	all models
Humidity			95	% RH	all models, non-condensing (the enclosure is completely waterproof)
Cooling	natural convection				all models
Weight		29		g	all models

SAFETY AND COMPLIANCE

Characteristic	Minimum	Typical	Maximum	Units	Standard
EMC conducted/radiated emissions					EN 55032:2015+A11:2020, Class A
ESD immunity					IEC/EN 61000-4-2, ±2 kV, Level 1; IEC/EN 61000-4-3; IEC/EN 61000-4-4; IEC/EN 61000-4-5; IEC/EN 61000-4-6
RoHS					2011/65/EU + (EU) 2015/863, EN IEC 63000:2018

DERATING



DRAWING

Dimmensions: mm(inch)

