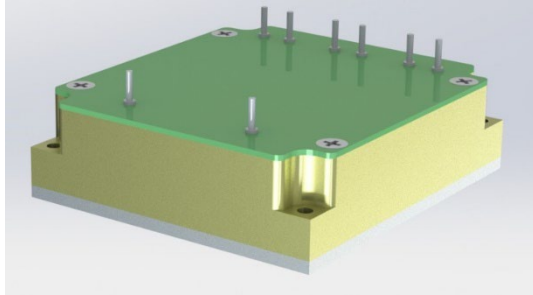




MDC503 Series

Datasheet Rev A 3/15/23

DC/DC CONVERTER WITH 3 ISOLATED OUTPUTS



- Three Fully Isolated Outputs
- Small Footprint
- MIL-STD-810 Compliant
- High Efficiency >85% Full Load
- MIL-STD-461 Compliance for EMI
- MIL-STD-704D and 1275A for Input Transients
- Onboard Protection Features

DESCRIPTION:

This compact, ruggedized, multi-output design utilizes Active Clamp Forward Converters with Synchronous Output Rectification to achieve the highest possible efficiency. It has three fully isolated outputs with all protection features included in a small-profile rugged aluminum enclosure. Features include; input transient/surge protection, output over voltage, over current and over temperature protection. This converter also has built-in MIL-STD-461 EMI filtering.

GENERAL SPECIFICATIONS			
INPUT VOLTAGE	18-40 VDC		
OPERATING FREQUENCY	300 - 500 KHz (fixed)		
*OUTPUT VOLTAGE / CURRENT	OUT1	OUT2	OUT3
PN: MDC503-101	+5V/4A	+5V/4A	+12V/1A
OUTPUT POWER (Max)	Up to ~50W		
PHYSICAL SIZE	2.165" (55mm) L x 1.969" (50mm) W x 0.630" (16mm) H		
OPERATING TEMPERATURE	-55 C to +85 C (Baseplate)		
WEIGHT	< 80g		
MTBF	>150,000 hours, calculated per MIL-STD-217F		

*: OTHER OUTPUTS AVAILABLE

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PRIME POWER INC: (603) 329-4675.
1 OWENS CT.
HAMPSTEAD NH, 03841.



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PHYSICAL CHARACTERISTICS	
CASE SIZE	2.165" (55mm) L x 1.969" (50mm) W x 0.630" (16mm) H
COOLING METHOD	Conduction
ENCAPSULATION	Conformal Coat
ENCLOSURE FINISH	Yellow Chromate
BASEPLATE FINISH	5052 Aluminum
INPUT/OUTPUT TERMINATION	.040" Gold Plated Brass Pins
MOUNTING	(4x) M2 THRU ALL
WEIGHT	< 80g

ELECTRICAL SPECIFICATIONS	
LINE REGULATION	1% (Lo Line to Hi Line)
LOAD REGULATION	1.0% (1/2-FL W/SENSE)
PARD (RIPPLE NOISE)	20.0mVp-p typical (1% max.) all outputs
OVERCURRENT SETPOINT	Approx. 150% from nominal for each output
SHORT CIRCUIT CURRENT	<10.0% from nominal for each of outputs, indefinitely
OVERVOLTAGE PROTECTION	Input- 80V 100mS/100V 50ms; Outputs – 120%, passive
REVERSE POLARITY	-40Vdc, Indefinite
LOAD STEP RECOVERY	<10% of nom. Vout for 200ms (1/2 to F.L.)
TURN-ON OVERSHOOT	<10% Vout nom for every output
EFFICIENCY (MIN)	85% min.
ISOLATION	200Vdc between primary input and output and between outputs
EMI FILTERING	MIL-STD-461E/F for CE101 and CE102
OUTPUT POWER	Varies by configuration up to ~50W

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*ENVIRONMENTAL SPECIFICATIONS		
ALTITUDE	MIL-STD-810F	Method 500.1, Procedure 1
HIGH TEMPERATURE	MIL-STD -810F	Method 501.4 Procedure 1 & 2
LOW TEMPERATURE	MIL-STD-810F	Method 502.4 Procedure 1 & 2
HUMIDITY	MIL-STD-202G	Method 103B
FUNGUS	MIL-STD-810F	Method 508, Condition A
SALT FOG	MIL-STD-202G	Method 101 E, Test Condition A
SAND AND DUST	MIL-STD-810F	Method 501.4, Procedure 1 & 2
EXPLOSIVE ATMOSPHERE	MIL-STD-810F	Method 511, Condition A
ACCELERATION	MIL-STD-810F	Method 513.5, Procedure 1 & 2
VIBRATION	MIL-STD-810F	Method 514.2
SHOCK	MIL-STD-883	Method 2002.4

**Designed to Meet*

TEMPERATURE SPECIFICATIONS	
OPERATING TEMPERATURE	-55 C to +85 C (Baseplate)
STORAGE TEMPERATURE	-55 C to +125 C
THERMAL SHUTDOWN	Shut Down: + 105°C (±5° C) Auto Recovery: <95°C(±5°C)
POWER DERATING	Full Rated Power at: +85 C Baseplate Derate > +85 C Baseplate: 2.0 W/°C
TEMPERATURE COEFFICIENT	.02%/°C

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