MODULAR DEVICES, INC.
ONE RONED ROAD • BROOKHAVEN R&D PLAZA • SHIRLEY, NY 11967 (631) 345-3100

For Immediate Release:

Modular Devices, Inc. (MDI) has introduced the model 5080 family, which is a 4 to 10 watt, radiation hardened DC/DC converter module. The 5080 is a non-isolated, synchronous rectification, high efficiency DC/DC converter module which operates from an intermediate bus voltage in the range of 11VDC to 16 VDC. It is intended for use in powering low voltage logic circuits in radiation environment applications such as spacecraft and satellites. Other applications are seen in particle physics instrumentation.

A wide variety standard of positive and negative output voltages are available. This includes positive 7.5, 5.0, 3.3, 2.5, 2.0, 1.8, 1.5, 1.2 and 1.0 VDC as well as negative 5.0 and 3.3 VDC. Output current is rated at a maximum of 4 amperes or the current corresponding to 10 watts, whichever is lower.

The 5080 modules can be paralleled for higher output currents.

The module dimensions are 1.08” by 1.08” by 0.380”. The weight is 30 grams.

Producing reasonably priced radiation hardened DC/DC converters that can operate efficiently at low output voltages is difficult because of the limited availability and high cost of radiation hardened switching FETs. This problem is overcome by MDI’s proprietary circuit design. US and international patents are pending.

The circuitry used within these DC/DC converter modules were recently tested by Brookhaven National Laboratories and were found to be radiation resistant beyond 200kRads.

The price of an engineering grade 5080 module is $999 each in 100 piece quantity. Delivery is stock to 150 days ARO. MDI also fabricates assemblies of modules to customer specifications.

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For further information, contact Ms. Chris Merl at 631-345-3100

Factory Preliminary

4-10 Watt HYBRID

PROTON RAD HARD DC-DC CONVERTERS

Features

- Synchronous rectification for high efficiency
- Parallelable for higher current
- Non isolated for intermediate bus applications
- Adjustable output voltage trim
- Thick Film Hybrid DC-DC Converter
- "Inhibit-not" function
- 100 kHz operation
- Sync input 1:1, 95-105 kHz
- Full hermetic package, solder seal and seam welded; PC and Chassis mount options

Specifications

INPUT: 12 VDC nominal

Range: 11 to 16 VDC continuous

ISOLATION:

Input-Output : Non-Isolated

Input and Output to case: 100 VDC

OUTPUT:

External capacitance recommended for specified performance

ENVIRONMENT:

Storage temperature: -55°C to +150°C

Shock: 50 G's

Acceleration: 500 G's

Vibration: 30 G's

Grades RE & SE:

Full Power Output at T_{case} = +125°C

Linearly derates to zero at T_{case} = +135°C

MECHANICAL:

Dimensions: 1.08" x 1.08" x 0.380"

Terminals: PC board mount

Weight: 20 grams typical

Non-Isolated Series 5080

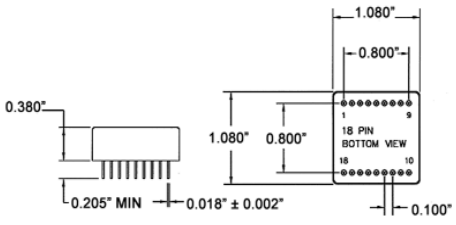
POSITIVE OUTPUT CONVERTERS		5080-P01 (4W)			5080-P01.2 (6W)			5080-P01.5 (6W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	+0.9	+1.0	+1.1	+1.0	+1.2	+1.4	+1.3	+1.5	+1.7
Output current	$V_{in\ min}$ — $V_{in\ max}$	—	—	4A	—	—	4A	—	—	4A
Efficiency	P_{out} = max rated load	—	70%	—	—	75%	—	—	80%	—
Line regulation	P_{out} = max rated load $V_{in\ min}$ — $V_{in\ max}$	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV
Load regulation	P_{out} = 10% to F.L.	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV
Output ripple	F.L. BW 2 MHz mV_{pp}	—	20	—	—	20	—	—	20	—
External Output Cap (µF)		1000	—	4000	1000	—	4000	1000	—	4000

POSITIVE OUTPUT CONVERTERS		5080-P01.8 (7.2W)			5080-P02.0 (8W)			5080-P02.5 (10W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	+1.6	+1.8	+2.0	+1.8	+2.0	+2.3	+2.2	+2.5	+3.0
Output current	$V_{in\ min}$ — $V_{in\ max}$	—	—	4A	—	—	4A	—	—	4A
Efficiency	P_{out} = max rated load	—	80%	—	—	80%	—	—	80%	—
Line regulation	P_{out} = max rated load $V_{in\ min}$ — $V_{in\ max}$	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Load regulation	P_{out} = 10% to F.L.	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Output ripple	F.L. BW 2 MHz mV_{pp}	—	20	—	—	20	—	—	25	—
External Output Cap (µF)		1000	—	4000	1000	—	4000	1000	—	4000

POSITIVE OUTPUT CONVERTERS		5080-P03.3 (10W)			5080-P05.0 (10W)			5080-P07.5 (10W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	+3.0	+3.3	+4.0	+4.0	+5.0	+6.0	+6.5	+7.5	+8.5
Output current	$V_{in\ min}$ — $V_{in\ max}$	—	—	3A	—	—	2A	—	—	1.33A
Efficiency	P_{out} = max rated load	—	82%	—	—	85%	—	—	85%	—
Line regulation	P_{out} = max rated load $V_{in\ min}$ — $V_{in\ max}$	—	25mV	125mV	—	50mV	250mV	—	65mV	300mV
Load regulation	P_{out} = 10% to F.L.	—	25mV	125mV	—	50mV	250mV	—	65mV	300mV
Output ripple	F.L. BW 2 MHz mV_{pp}	—	30	—	—	50	—	—	50	—
External Output Cap (µF)		1000	—	4000	500	—	2000	500	—	2000

NEGITIVE OUTPUT CONVERTERS		5080-N02.0 (8W)			5080-N03.3 (10W)			5080-N05.0 (10W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	-1.8	-2.0	-2.3	-3.0	-3.3	-4.0	-4.0	-5.0	-6.0
Output current	$V_{in\ min}$ — $V_{in\ max}$	—	—	4A	—	—	3A	—	—	2A
Efficiency	P_{out} = max rated load	—	70%	—	—	75%	—	—	85%	—
Line regulation	P_{out} = max rated load $V_{in\ min}$ — $V_{in\ max}$	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Load regulation	P_{out} = 10% to F.L.	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Output ripple	F.L. BW 2 MHz mV_{pp}	—	20	—	—	30	—	—	50	—
External Output Cap (µF)		1000	—	4000	1000	—	4000	500	—	2000

Pin Outs:			
Pin 1	Pos In	Pin 10	Case
Pin 2	Pos In	Pin 11	N/C
Pin 3	Pos In	Pin 12	N/C
Pin 4	Common	Pin 13	Vref
Pin 5	Common	Pin 14	Adjust
Pin 6	Common	Pin 15	Iout
Pin 7	Output	Pin 16	Sync
Pin 8	Output	Pin 17	Bit
Pin 9	Output	Pin 18	Inhibit Not



GRADE LEVELS:
Please specify grade level for your application. EU grade units will be shipped if no option is specified.

EU Prototype Grade
RE 100 KRAD, +125°C military/aerospace
SE 100 KRAD, +125°C space

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