

# Series 5031A

## 100 Watt Hybrid DC – DC Converters

### Features

- Rad Hard: TID > 100kRad(Si)
- Gan HEMT design
- 2:1 margin: Operates beyond 200kRad TID
- No SEE:LET > 82MeV\*cm<sup>2</sup>/mg
- Proton Resistant: Magnetic Coupled RF feedback design
- Specifically designed for redundant or individual space applications
- Completely self contained Thick Film Hybrid DC-DC Converter
- No external filter caps required
- Fully isolated design
- "Inhibit-not" function
- Power on soft start
- 300kHz operation for low ripple and fast response time
- Built-in EMI input filter meets MIL-STD-461C requirements CE01, CE03, CS01, CS02 and CS06
- Short circuit and overvoltage protection
- Capability of external sync for switching frequencies
- Built-in test capability

SINGLE OUTPUT DEVICES		5031A-S12 (100W)			5031A-S15 (100W)			5031A-S28 (100W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1	+27.8	+28.0	+28.2
Output current	$V_{in min} - V_{in max}$	—	—	8.33A	—	—	6.67A	—	—	3.6A
Efficiency	$P_{out} = \text{max rated load}$	78%	81%	—	78%	82%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in min} - V_{in max}$	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Load regulation	$P_{out} = 10\% \text{ to F.L.}$	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Output ripple	F.L. BW 2 MHz mV <sub>pp</sub>	—	60	150	—	75	180	—	150	350

Model No.	Case Style	Pin Count	Mounting
5031A	4	12	Solder Sealed PCB Mount with Flange
5031A LF	7	12	Seam Weld PCB Mount with Flange
5031A ZF	9	12	Seam Weld PCB Chassis Mount with Flange
5031A PD	11	12	Solder Sealed Flangeless PCB Stud Mount

### Specifications

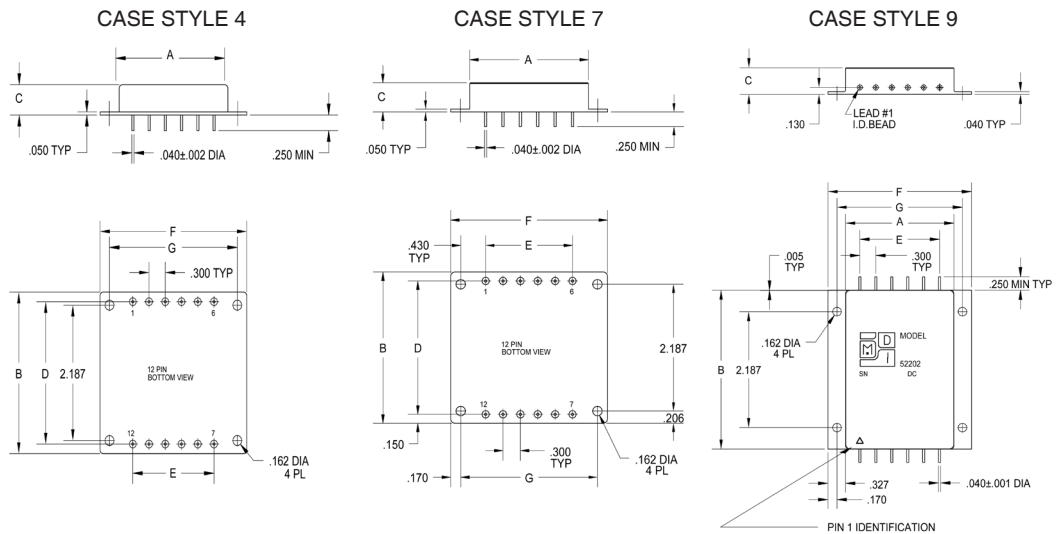
**INPUT:** 28 VDC nominal  
 Range: 16 to 50 VDC continuous  
 18 to 50 VDC full power

**ISOLATION:**  
 Input to case: 500 VDC  
 Input to output: 500 VDC  
 Output to case: 100 VDC

**ENVIRONMENT:**  
 Storage temperature: -55°C to +150°C  
 Shock: 50 G's  
 Acceleration: 500 G's  
 Vibration: 30 G's

Grades **EU, L, R & S:**  
 Full Power Output at  $T_{case} = +85^\circ\text{C}$   
 Lineary derates to zero at  $T_{case} = +115^\circ\text{C}$   
 Grades **LE, RE & SE:**  
 Full Power Output at  $T_{case} = +25^\circ\text{C}$   
 Lineary derates to zero at  $T_{case} = +35^\circ\text{C}$   
 Grades **L & LE:**  
 TID up to 45kRad(Si)  
 No SEE up to 60MeV\*cm<sup>2</sup>/mg

**WEIGHT:** 160 grams typical

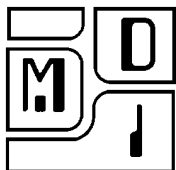


### Case Dimensions

Units: inches | millimeters

**TOLERANCES:** ALL DIMENSIONS ±0.01 EXCEPT F= MAX. C = +0.01/-0.02; **DRAWINGS IN INCHES.**

Case Style	A	B	C	D	E	F	G
4	2.040   51.816	2.610   66.294	0.495   12.573	2.300   58.420	1.500   38.100	2.710   68.834	2.360   59.944
7 LF	2.040   51.816	2.610   66.294	0.495   12.573	2.300   58.420	1.500   38.100	2.710   68.834	2.360   59.944
9 ZF	2.040   51.816	3.010   76.454	0.495   12.573	—   —	1.500   38.100	2.710   68.834	2.360   59.944
11 PD	2.040   51.816	2.610   66.264	0.495   12.573	2.300   58.420	1.500   38.100	—   —	—   —



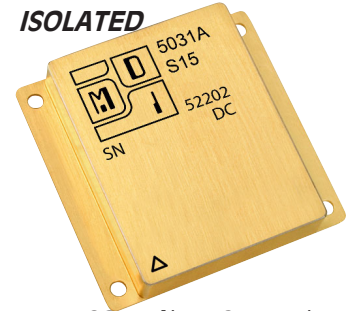
# Series 5031A

## Proton Rad Hard 100k+™ Series

DUAL OUTPUT DEVICES		5031A-D05 (100W)			5031A-D12 (100W)			5031A-D15 (100W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+4.9	+5.0	+5.1	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1
		-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current*	$V_{in\ min} - V_{in\ max}$	±350mA	—	±10A	±210mA	—	±4.17A	±170mA	—	±3.3A
Efficiency	$P_{out} = \text{max rated load}$	72%	75%	—	77%	81%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Load regulation†	$P_{out} = 10\% \text{ to F.L.}$	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Output ripple	F.L. BW 2 MHz mV <sub>pp</sub>	—	40	85	—	60	150	—	75	180

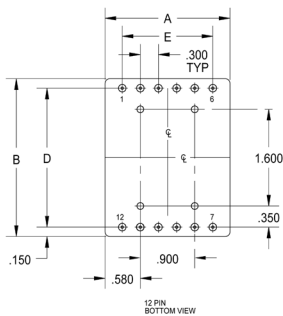
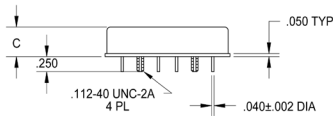
Notes: \*Up to 90% full power available from either output if rated output power is not exceeded; †balanced load conditions.

**MAGNETICALLY ISOLATED**



**28 Volts DC Input**

### CASE STYLE 11



#### 5031A-SXX output < 24VDC

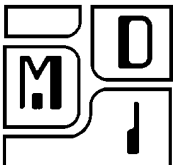
Pin 1	Bit	Pin 7	N/C
Pin 2	Inhibit Not	Pin 8	Main Output
Pin 3	Soft Start	Pin 9	Main Output Ret
Pin 4	Sync	Pin 10	+Remote Sense
Pin 5	+Input	Pin 11	Adjust
Pin 6	Input Ret	Pin 12	-Remote Sense

#### 5031A-SXX output ≥ 24 VDC

Pin 1	Bit	Pin 7	Adjust
Pin 2	Inhibit Not	Pin 8	+ Remote Sense
Pin 3	Soft Start	Pin 9	- Remote Sense
Pin 4	Sync	Pin 10	Main Output
Pin 5	+Input	Pin 11	N/C
Pin 6	Input Ret	Pin 12	Main Output Ret

#### 5031A-DXX

Pin1	Bit	Pin 7	Adjust
Pin 2	Inhibit Not	Pin 8	+ Remote Sense
Pin 3	Soft Start	Pin 9	- Remote Sense
Pin 4	Sync	Pin10	+Dual Output
Pin 5	+Input	Pin 11	Dual Output Rtn
Pin 6	Input Ret	Pin 12	-Dual Output



Please specify **GRADE LEVEL** for your application. **EU** grade units will be shipped if no option is specified.

**EU** Engineering Units/Industrial Grade, **L** 45 K, +85°C Military/Aerospace, **R** 100 K+™, +85°C Military/Aerospace **S** 100 K+™, +85°C Space  
**LE** 45 K +125°C Military/Aerospace **RE** 100 K+™, +125°C Military/Aerospace **SE** 100 K+™, +125°C Space