

## 30 Watt Hybrid DC – DC Booster

### Features

- Rad Hard: TID > 100kRad(Si)
- Gan HEMT design
- No SEE:LET > 82MeV\*cm<sup>2</sup>/mg
- Completely self contained Thick Film Hybrid DC-DC Converter
- No external filter caps required
- "Inhibit-not" function
- Power on soft start
- 270kHz operation for low ripple and fast response time
- Built-in EMI input filter
- Short circuit protection

### Specifications

**INPUT:** 12 VDC nominal  
 Range: 8 to 20 VDC continuous  
 9 to 20 VDC full power  
 Starts at 9 VDC runs to 8 VDC

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

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

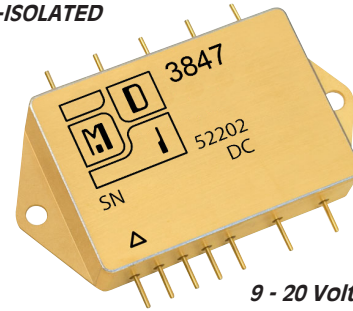
Grades: **EU, L, & S:**  
 Full Power Output at T<sub>case</sub> = +85°C  
 Lineary derates to zero at T<sub>case</sub> = +115°C  
 Grades **LE, & SE:**  
 Full Power Output at T<sub>case</sub> = +125°C  
 Lineary derates to zero at T<sub>case</sub> = +135°C  
 Grades **L & LE:**  
 TID up to 45kRad(Si)  
 No SEE up to 60MeV\*cm<sup>2</sup>/mg

**WEIGHT:** 60 grams typical

3847	
Pin 1	Soft Start
Pin 2	Inhibit – Not
Pin 3	N/C
Pin 4	N/C
Pin 5	N/C
Pin 6	Adjust Ret
Pin 7	Adjust
Pin 8	V out
Pin 9	Out Ret
Pin 10	In Ret
Pin 11	Input 9 – 20 VDC
Pin 12	Case

SINGLE OUTPUT DEVICES		3847 (30W)		
PARAMETER	CONDITION	MIN	TYP	MAX
Output voltage	—	+27.8	+28.0	+28.2
Output current	V <sub>in min</sub> – V <sub>in max</sub>	—	—	1A
Efficiency	P <sub>out</sub> = max rated load	89%	92%	—
Line regulation	P <sub>out</sub> = max rated load V <sub>in min</sub> – V <sub>in max</sub>	—	50mV	250mV
Load regulation	P <sub>out</sub> = 10% to F.L.	—	50mV	250mV
Output ripple	F.L. BW 2 MHz mV <sub>pp</sub>	—	150	350
Input Current (@ 12V)	Inhibited:	—	8mA	—
	No Load	—	37mA	—

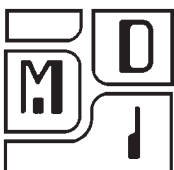
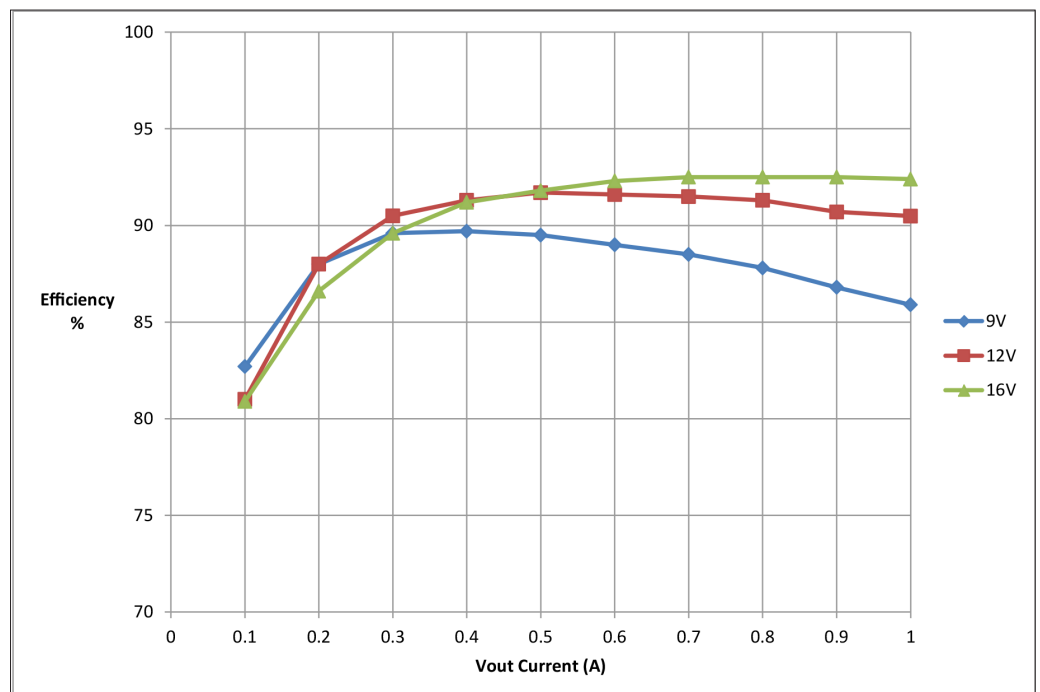
### NON-ISOLATED



9 - 20 Volts Input

The 3847 is a Rad Hard non-isolated Booster with a 9 VDC to 20 VDC input and a 28 VDC output with 120W capability. Model 3847 is a modern GaN design specifically designed for cube sat, commercial space and traditional Space applications. It features high efficiency and short circuit protection. 3847 is packaged in a 1.35" by 2.20" flange case.

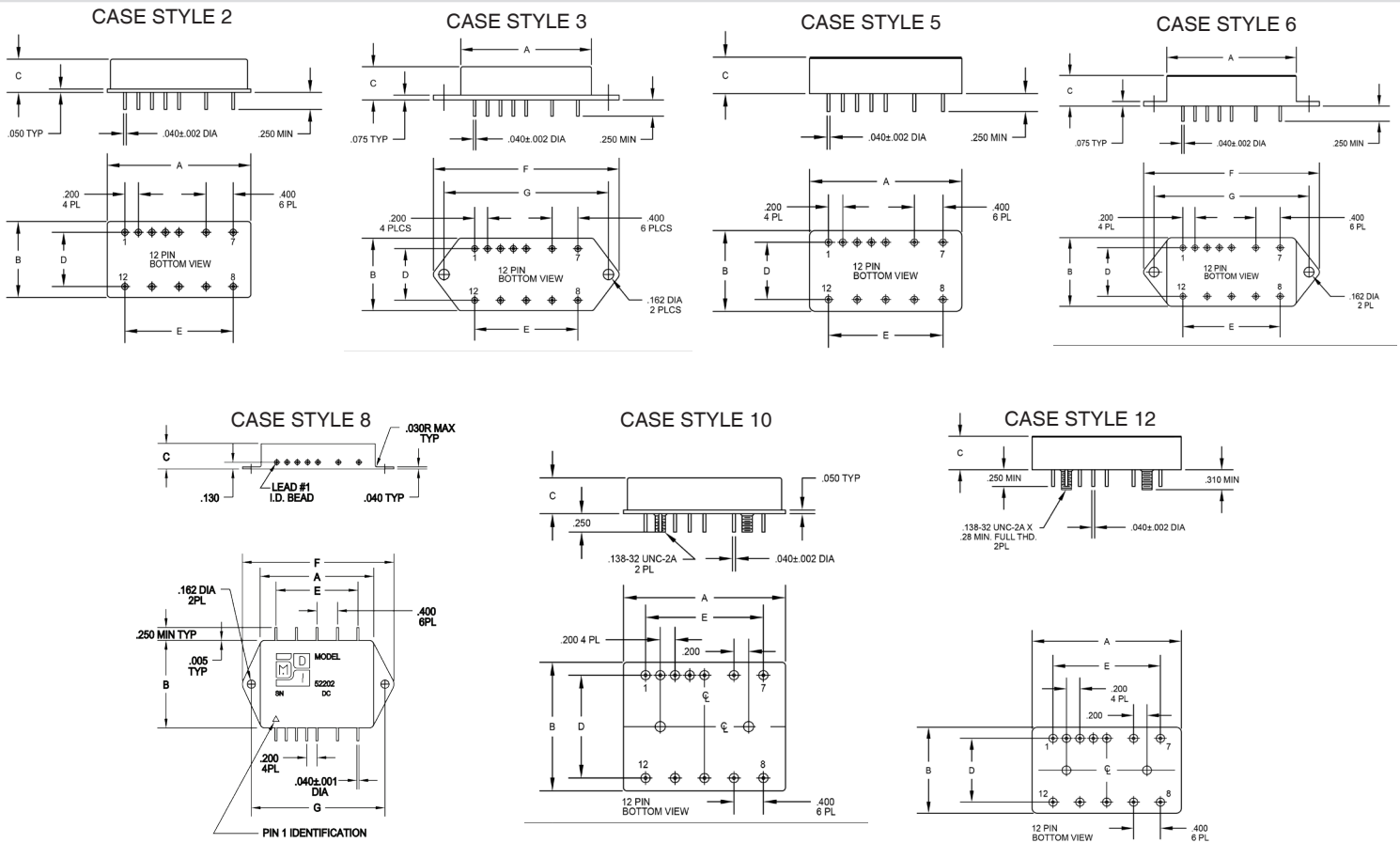
Unlike simple DC-DC boosters which allow unlimited current when the output voltage is less than the input voltage, Model 3847 contains an internal FET that opens the input/output connection when the output voltage is less than the input voltage. This feature not only provides short circuit protection but also allows the output to be inhibited when commanded.



# Proton Rad Hard 100k+™

# Model 3847

## 30 Watt Hybrid DC – DC Booster



Model No.	Case Style	Pin Count	Mounting
3847	2	12	Solder Sealed Flangeless PCB Mount
3847	F	12	Solder Sealed PCB Mount with Flange
3847	I	12	Seam Weld Flangeless PCB Mount
3847	IF	12	Seam Weld PCB Mount with Flange
3847	WF	12	Seam Weld Chassis Mount with Flange
3847	PB	12	Solder Sealed Flangeless PCB Stud Mount
3847	PE	12	Seam Weld Flangeless PCB Stud Mount

### 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
2	2.200   55.880	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	—   —	—   —
3 F	2.200   55.880	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	2.960   75.184	2.610   66.294
5 I	2.225   56.515	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	—   —	—   —
6 IF	2.225   56.515	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	2.960   75.184	2.610   66.294
8 WF	2.225   56.515	1.710   43.434	0.495   12.573	—   —	1.600   40.640	2.960   75.184	2.610   66.294
10 PB	2.225   56.515	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	—   —	—   —
12 PE	2.225   56.515	1.350   34.290	0.495   12.573	1.000   25.400	1.600   40.640	—   —	—   —

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

**EU** Engineering Units,

**L** 45 K, +85°C Military/Aerospace,

**LE** 45 K +125°C Military/Aerospace,

**S** 100 K+™, +85°C Space

**SE** 100 K+™, +125°C Space