

120 Watt Hybrid DC – DC Booster

Features

- Rad Hard: TID > 100kRad(Si)
- Gan HEMT design
- 2:1 margin: Operates beyond 200kRad TID
- No SEE:LET > 82MeV*cm²/mg
- Specifically designed for redundant or individual space applications
- 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

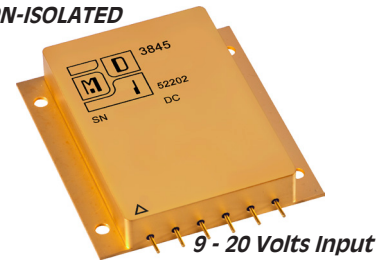
Grades: **EU, L, & S:**
 Full Power Output at T_{case} = +85°C
 Lineary derates to zero at T_{case} = +115°C
 Grades **LE, & SE:**
 Full Power Output at T_{case} = +125°C
 Lineary derates to zero at T_{case} = +135°C
 Grades **L & LE:**
 TID up to 45kRad(Si)
 No SEE up to 60MeV*cm²/mg

WEIGHT: 160 grams typical

| 3845 | |
|--------|----------------------------|
| Pin 1 | Soft Start |
| Pin 2 | Inhibit – Not |
| Pin 3 | +Input |
| Pin 4 | Input Return |
| Pin 5 | +Input |
| Pin 6 | Input Return |
| Pin 7 | Adjust |
| Pin 8 | N/C |
| Pin 9 | N/C |
| Pin 10 | +28VDC Output |
| Pin 11 | +28VDC Droop Output Return |
| Pin 12 | +28VDC Output Return |

| SINGLE OUTPUT DEVICES | | 3845 (120W) | | |
|-----------------------|--|-------------|-------|-------|
| PARAMETER | CONDITION | MIN | TYP | MAX |
| Output voltage | — | +27.8 | +28.0 | +28.2 |
| Output current | V _{in min} – V _{in max} | — | — | 4.28A |
| Efficiency | P _{out} = max rated load | 90% | 92% | — |
| Line regulation | P _{out} = max rated load V _{in min} – V _{in max} | — | 50mV | 250mV |
| Load regulation | P _{out} = 10% to F.L. | — | 50mV | 250mV |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 150 | 350 |
| Input Current (@ 12V) | Inhibited: | — | 8mA | — |
| | No Load | — | 37mA | — |

NON-ISOLATED

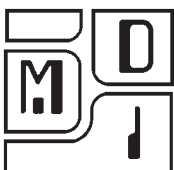
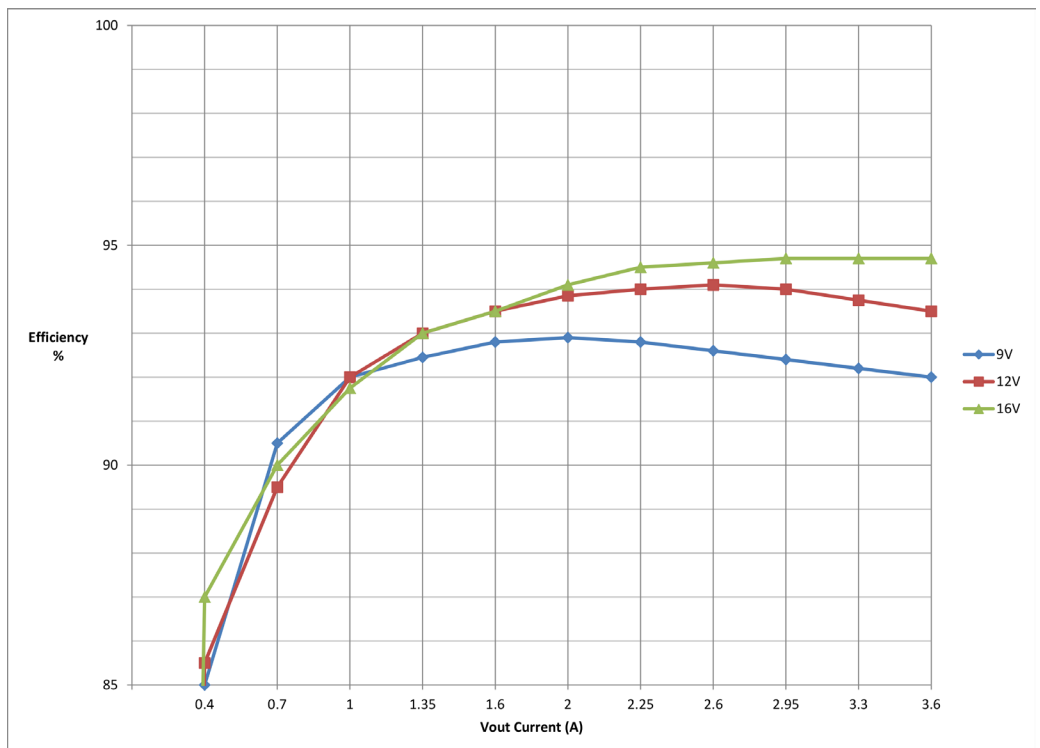


The 3845 is a Rad Hard non-isolated Booster with a 9 VDC to 20 VDC input and a 28 VDC output with 120W capability. Model 3845 is a modern GaN design specifically designed for cube sat, commercial space and traditional Space applications. It features high efficiency and short circuit protection. 3845 is packaged in a 2.61" by 2.71" flanged case.

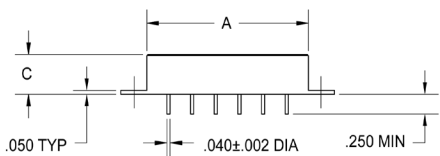
Unlike simple DC-DC boosters which allow unlimited current when the output voltage is less than the input voltage, Model 3845 contains an internal FET that opens the input/output connection when the output voltage is less than the input voltage. This feature not only provides short circuit protection but also allows the output to be inhibited when commanded.

Two modes of voltage regulation are provided. The first mode is the conventional precise regulation, and is selected by the user by connecting 28 VDC to the load return to pin 12.

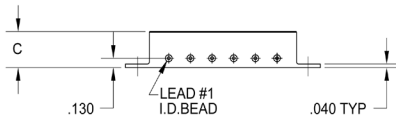
The second mode is a precision droop regulation, which allows paralleling two or more booster units for higher power. The droop is approximately 2 VDC from no load to full load. Droop regulation is selected by the user by connecting the 28 VDC load return to pin 11.



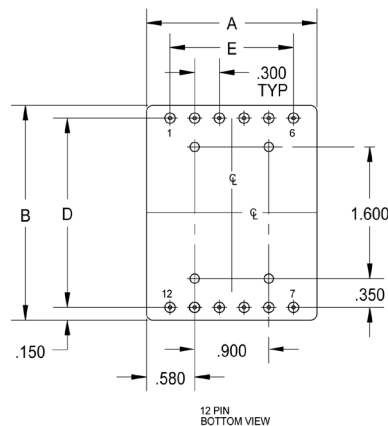
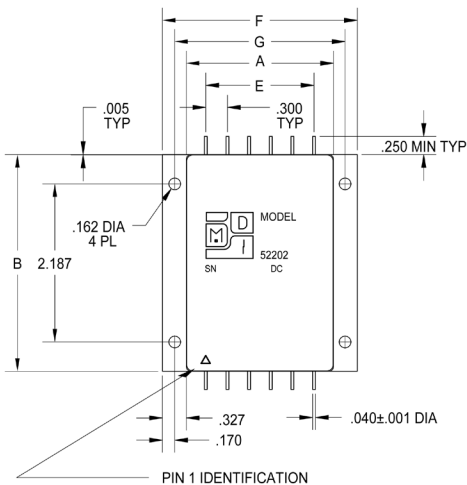
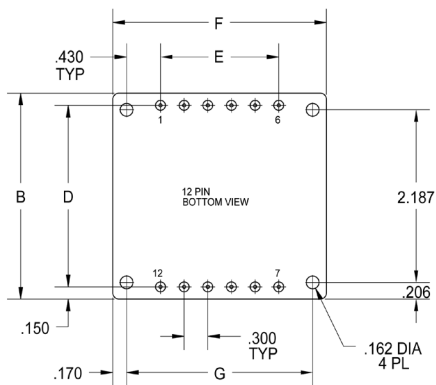
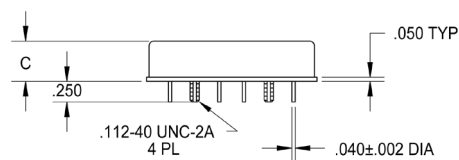
CASE STYLE 7



CASE STYLE 9



CASE STYLE 11



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 |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 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 | — — | — — |

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, **S** 100 K+™, +85°C Space
 LE 45 K +125°C Military/Aerospace, **SE** 100 K+™, +125°C Space

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