12.5-30 Watt Hybrid

Features
- Rad Hard: TID > 100 kRad(Si)
- 2:1 margin: Operates beyond 200 kRad TID
- No SEE: LET > 82 MeV·cm²/mg
- Proton Resistant: No optocouplers used
- 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
- Short circuit and overvoltage protection
- Built-in EMI input filter meets
- "Inhibit-not" function
- No external filter caps required
- Completely self contained Thick Film
- Specifically designed for redundant or individual space applications
- Proton Resistant: No optocouplers used

Specifications
INPUT: 28 VDC nominal
Range: 16 to 50 VDC continuous
18 to 50 VDC full power
Survives 80 V transients/MIL-STD-704A
ISOLATION:
Input to output: 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 L & R & S:
Full Power Output at Tcase = +85°C
Linearly derates to zero at Tcase = +115°C
Grades LE, RE & SE:
Full Power Output at Tcase = +125°C
Linearly derates to zero at Tcase = +135°C
Grades L & LE:
TID up to 45 kRad(Si)
No SEE up to 60 MeV·cm²/mg
WEIGHT: 75 grams typical

Tolerances: All dimensions ±0.01 except F = MAX, C = ±0.01/0.02; Drawings in inches.

Case Dimensions
Units: inches | millimeters

<table>
<thead>
<tr>
<th>Case Style</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tbody>
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<td>2.200</td>
<td>55.880</td>
<td>1.350</td>
<td>34.290</td>
<td>0.495</td>
<td>12.573</td>
<td>1.000</td>
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<td>1.350</td>
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<tr>
<td>5</td>
<td>2.225</td>
<td>56.515</td>
<td>1.350</td>
<td>34.290</td>
<td>0.495</td>
<td>12.573</td>
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www.mdipower.com  •  Fax 631.345.3106  •  Tel 631.345.3100  •  Revised 2015-09-17
## DC-DC CONVERTERS

### PROTON RAD HARD 100K+™ SERIES

### 5680

#### DUAL OUTPUT DEVICES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5680-D3.3/5 (14.9W)</th>
<th>5680-D5/5 (30W)</th>
<th>5680-D12 (30W)</th>
<th>5680-D15 (30W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Temp.</td>
<td>66°C</td>
<td>66°C</td>
<td>66°C</td>
<td>66°C</td>
</tr>
<tr>
<td>Max. Temp.</td>
<td>125°C</td>
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<td>125°C</td>
</tr>
<tr>
<td>Efficiency</td>
<td>76%</td>
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</tr>
<tr>
<td>Load Regulation</td>
<td>Pout = 10% to FL.</td>
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</tr>
</tbody>
</table>

#### TRIPLE OUTPUT DEVICES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5680-T3.3/15 (17.5W)</th>
<th>5680-T5/5 (30W)</th>
<th>5680-T12 (17.5W)</th>
<th>5680-T15 (17.5W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Temp.</td>
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</tr>
</tbody>
</table>

#### ISOLATED MAGNETICALLY

**28 VDC**

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

### Engineering Units
- **EU** Engineering Units
  - RE 100 K+, +125°C military/aerospace
  - SE 100 K+, +125°C space
- **R** 100 K+, +85°C military/aerospace
- **S** 100 K+, +85°C space
- **L** 45 K, +85°C military/aerospace
- **LE** 45 K, +125°C military/aerospace

### Pins and Identifications

- **Pin 1 bit** Pin 7 + input
- **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 N/C** Pin 11 adjust
- **Pin 6 input ret** Pin 12 - remote sense

### Models

- **5680-DXX**
  - 100 K+, +85°C military/aerospace
  - S 100 K+, +85°C space

- **5680-TXX**
  - 100 K+, +125°C military/aerospace
  - SE 100 K+, +125°C space

### Rev 

**Revised 2015-08-17**