# 7.5-20 Watt Hybrid

## Features
- Rad Hard: TID > 25kRad(Si)
- No SEE: LET > 37MeV·cm²/mg
- 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
- Built-in EMI input filter meets MIL-STD-461C requirements
- 200 kHz operation for low ripple and fast response time
- Short circuit and overvoltage protection
- Capability of external sync for switching frequencies
- Built-in test capability

## Specifications
**INPUT:** 120 VDC nominal
**Range:** 86 to 158 VDC continuous

### 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, R & S:**
- Full Power Output at $T_{case} = +85°C$
- Linearity derates to zero at $T_{case} = +115°C$
- Full Power Output at $T_{case} = +125°C$
- Linearity derates to zero at $T_{case} = +135°C$

**WEIGHT:** 60 grams typical

## Case Dimensions

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

<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>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.130</td>
<td>54.102</td>
<td>1.120</td>
<td>28.448</td>
<td>0.495</td>
<td>12.573</td>
<td>0.800</td>
</tr>
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<tr>
<td>6 HF</td>
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<td>0.495</td>
<td>12.573</td>
<td>0.800</td>
</tr>
<tr>
<td>8 VF</td>
<td>2.160</td>
<td>54.864</td>
<td>1.510</td>
<td>38.354</td>
<td>0.495</td>
<td>12.573</td>
<td>—</td>
</tr>
</tbody>
</table>

Modular Devices, Inc • One Roned Road • Shirley, New York 11967 • www.mdipower.com • Fax 631.345.3106 • Tel 631.345.3100
## 3108 DC-DC Converters

### Dual Output Devices

<table>
<thead>
<tr>
<th>Parameter</th>
<th>3108-D3.3/5 (11.6W)</th>
<th>3108-D05 (20W)</th>
<th>3108-D12 (20W)</th>
<th>3108-D15 (20W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>+V_{out} = +V_{in}</td>
<td>+V_{out} = +V_{in}</td>
<td>+V_{out} = +V_{in}</td>
<td>+V_{out} = +V_{in}</td>
</tr>
<tr>
<td></td>
<td>+3.2 +3.3 +3.4</td>
<td>+4.9 +5.0 +5.1</td>
<td>+4.9 +5.0 +5.1</td>
<td>+4.9 +5.0 +5.1</td>
</tr>
<tr>
<td>Output current* V_{out} — V_{in}</td>
<td>200mA — 2A</td>
<td>100mA — 1A</td>
<td>100mA — 1A</td>
<td>100mA — 1A</td>
</tr>
<tr>
<td>Efficiency $P_{out}$ = max rated load</td>
<td>62% 65% — 72% 76%</td>
<td>82% 82% — 78% 76%</td>
<td>83% 83% — 79% 72%</td>
<td>83% 83% — 79% 72%</td>
</tr>
<tr>
<td>Load regulation $P_{out}$ = 10% to FL</td>
<td>10mV 30mV</td>
<td>10mV 30mV</td>
<td>10mV 30mV</td>
<td>10mV 30mV</td>
</tr>
<tr>
<td>Output ripple F.L. BW 2 MHz</td>
<td>30 65</td>
<td>40 85</td>
<td>60 150</td>
<td>75 180</td>
</tr>
</tbody>
</table>

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

### Triple Output Devices

<table>
<thead>
<tr>
<th>Parameter</th>
<th>3108-T3.3/5 (7.5W)</th>
<th>3108-T3.3/12 (10W)</th>
<th>3108-T3.3/15 (10W)</th>
<th>3108-T05 (7.5W)</th>
<th>3108-T12 (10W)</th>
<th>3108-T15 (10W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>+V_{out} = +V_{in}</td>
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</tr>
<tr>
<td></td>
<td>+3.2 +3.3 +3.4</td>
<td>+4.9 +5.0 +5.1</td>
<td>+60mA — 1A</td>
<td>150mA — 1.5A</td>
<td>150mA — 1.5A</td>
<td></td>
</tr>
<tr>
<td>Efficiency $P_{out}$ = max rated load</td>
<td>66% 69% — 66% 69% — 66% 69%</td>
<td>79% 83% — 79% 72%</td>
<td>71% 74% — 71% 74%</td>
<td>71% 74% — 71% 74%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line regulation $P_{out}$ = 10% to FL</td>
<td>10mV 30mV</td>
<td>25mV 50mV</td>
<td>10mV 30mV</td>
<td>10mV 30mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output ripple F.L. BW 2 MHz</td>
<td>30 65</td>
<td>40 85</td>
<td>60 150</td>
<td>75 180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CASE STYLE 6

- 120 VDC
- 250 MIN
- 250 TYP

### CASE STYLE 8

- DIA 2.0
- TYP 1.30
- LEAD #1
- M 12 BEAD

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

EU Engineering Units
- R 25 K RAD, +85°C military/aerospace
- S 25 K RAD, +85°C space
- RE 25 K RAD, +125°C military/aerospace
- SE 25 K RAD, +125°C space