

7.5-20 Watt Hybrid

Features

- Specifically designed for redundant or individual military or aerospace applications
- Completely self contained Thick Film Hybrid DC-DC Converter
- No external filter caps required
- Fully isolated design
- "Inhibit" function
- Power on soft start
- 200 kHz 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

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 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

Grade M:

Full Power Output at $T_{case} = +85^{\circ}C$
 Linearly derates to zero at $T_{case} = +115^{\circ}C$

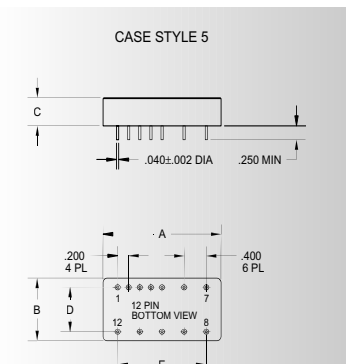
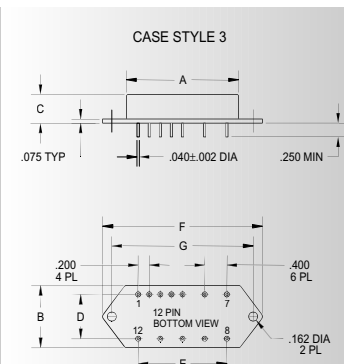
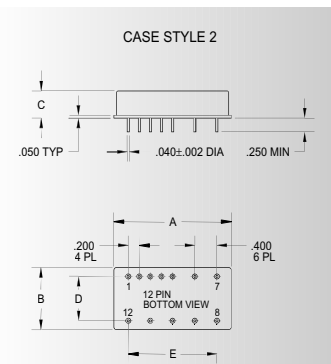
Grade E:
 Full Power Output at $T_{case} = +125^{\circ}C$
 Linearly derates to zero at $T_{case} = +135^{\circ}C$

WEIGHT: 60 grams typical

| SINGLE OUTPUT DEVICES | | 3107-S03.3 (13.2W) | | | 3107-S05 (20W) | | | 3107-S05.2 (20W) | | | 3107-S12 (20W) | | |
|-----------------------|--|--------------------|------|------|----------------|------|------|------------------|------|-------|----------------|-------|-------|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| Output voltage | — | +3.2 | +3.3 | +3.4 | +4.9 | +5.0 | +5.1 | +5.1 | +5.2 | +5.3 | +11.9 | +12.0 | +12.1 |
| Output current | $V_{in\ min} - V_{in\ max}$ | — | — | 4A | — | — | 4A | — | — | 3.85A | — | — | 1.67A |
| Efficiency | $P_{out} = \text{max rated load}$ | 66% | 69% | — | 71% | 74% | — | 71% | 74% | — | 78% | 82% | — |
| Line regulation | $P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$ | — | 10mV | 30mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 20mV | 100mV |
| Load regulation | $P_{out} = 10\%$ to F.L. | — | 10mV | 30mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 20mV | 100mV |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 30 | 65 | — | 40 | 85 | — | 40 | 85 | — | 60 | 150 |

| SINGLE OUTPUT DEVICES | | 3107-S15 (20W) | | | 3107-S28 (20W) | | | | | | | | |
|-----------------------|--|----------------|-------|-------|----------------|-------|-------|--|--|--|--|--|--|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | | | | | | |
| Output voltage | — | +14.9 | +15.0 | +15.1 | +27.8 | +28.0 | +28.2 | | | | | | |
| Output current | $V_{in\ min} - V_{in\ max}$ | — | — | 1.33A | — | — | 714mA | | | | | | |
| Efficiency | $P_{out} = \text{max rated load}$ | 79% | 83% | — | 78% | 82% | — | | | | | | |
| Line regulation | $P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$ | — | 25mV | 125mV | — | 50mV | 250mV | | | | | | |
| Load regulation | $P_{out} = 10\%$ to F.L. | — | 25mV | 125mV | — | 50mV | 250mV | | | | | | |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 75 | 180 | — | 150 | 350 | | | | | | |

| Model No. | Case Style | Pin Count | Mounting |
|-----------|------------|-----------|-------------------------------------|
| 3107 | 2 | 12 | Solder Sealed Flangeless PCB Mount |
| 3107 | F | 3 | Solder Sealed PCB Mount with Flange |
| 3107 | H | 5 | Seam Weld Flangeless PCB Mount |
| 3107 | HF | 6 | Seam Weld PCB Mount with Flange |
| 3107 | VF | 8 | Seam Weld Chassis Mount with Flange |



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

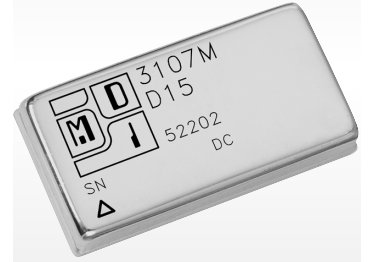
Case Dimensions

Units: inches | millimeters

| Case Style | A | B | C | D | E | F | G |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 2 | 2.130 54.102 | 1.120 28.448 | 0.495 12.573 | 0.800 20.320 | 1.600 40.640 | — — | — — |
| 3 F | 2.130 54.102 | 1.120 28.448 | 0.495 12.573 | 0.800 20.320 | 1.600 40.640 | 2.890 73.406 | 2.550 64.770 |
| 5 H | 2.130 54.102 | 1.120 28.448 | 0.495 12.573 | 0.800 20.320 | 1.600 40.640 | — — | — — |
| 6 HF | 2.130 54.102 | 1.120 28.448 | 0.495 12.573 | 0.800 20.320 | 1.600 40.640 | 2.890 73.406 | 2.550 64.770 |
| 8 VF | 2.160 54.864 | 1.510 38.354 | 0.495 12.573 | — — | 1.600 40.640 | 2.890 73.406 | 2.550 64.770 |

DC-DC CONVERTERS

FULL FEATURE SERIES 3107



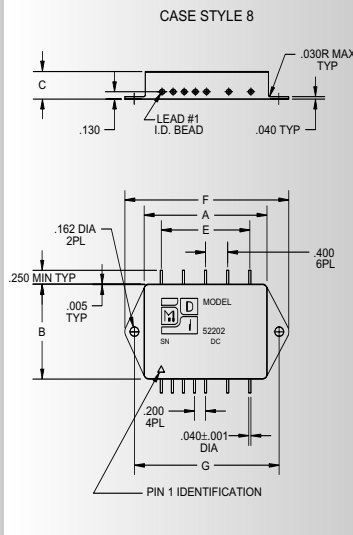
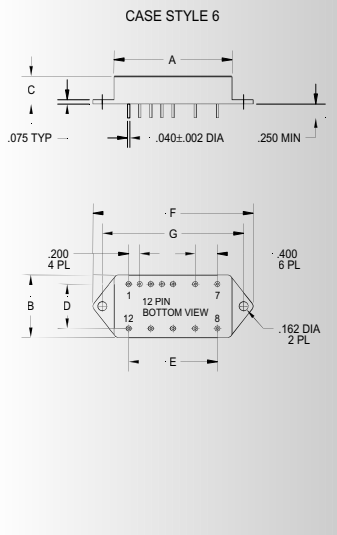
28 VDC

0006

| DUAL OUTPUT DEVICES | | 3107-D05 (20W) | | | 3107-D12 (20W) | | | 3107-D15 (20W) | | |
|---------------------|--|----------------|------------|------------|----------------|------------|-------------|----------------|------------|-------------|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| Output voltage | $+I_{out} = -I_{out}$ | +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* | $V_{in\ min} - V_{in\ max}$ | $\pm 150mA$ | — | $\pm 2A$ | $\pm 125mA$ | — | $\pm 833mA$ | $\pm 100mA$ | — | $\pm 667mA$ |
| Efficiency | $P_{out} = \text{max rated load}$ | 72% | 76% | — | 78% | 82% | — | 79% | 83% | — |
| Line regulation | $P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$ | — | $\pm 10mV$ | $\pm 50mV$ | — | $\pm 20mV$ | $\pm 100mV$ | — | $\pm 25mV$ | $\pm 125mV$ |
| Load regulation† | $P_{out} = 10\%$ to F.L. | — | $\pm 10mV$ | $\pm 50mV$ | — | $\pm 20mV$ | $\pm 100mV$ | — | $\pm 25mV$ | $\pm 125mV$ |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 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.

| TRIPLE OUTPUT DEVICES | | 3107-T3.3/5 (7.5W) | | | 3107-T3.3/12 (10W) | | | 3107-T3.3/15 (10W) | | | 3107-T05 (7.5W) | | | 3107-T12 (10W) | | | 3107-T15 (10W) | | | | | |
|-----------------------|--|--------------------|------|-------------|--------------------|-------|-------------|--------------------|-------|-------------|-----------------|------|-------------|----------------|-------|-------------|----------------|-------|-------------|------------|-------|-------------|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | | | |
| Output voltage | $+I_{out} = -I_{out}$ | +3.2 | +3.3 | +3.4 | +3.2 | +3.3 | +3.4 | +3.2 | +3.3 | +3.4 | +4.9 | +5.0 | +5.1 | +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 | -4.9 | -5.0 | -5.1 | -11.9 | -12.0 | -12.1 | -14.9 | -15.0 | -15.1 | -14.9 | -15.0 | -15.1 |
| Output current | $V_{in\ min} - V_{in\ max}$ | 150mA | — | 1.5A | 150mA | — | 1.5A | 150mA | — | 1.5A | 60mA | — | 1A | 30mA | — | 1A | 30mA | — | 1A | 30mA | — | 1A |
| | | $\pm 15mA$ | — | $\pm 250mA$ | $\pm 15mA$ | — | $\pm 208mA$ | $\pm 15mA$ | — | $\pm 167mA$ | $\pm 15mA$ | — | $\pm 250mA$ | $\pm 15mA$ | — | $\pm 208mA$ | $\pm 15mA$ | — | $\pm 167mA$ | $\pm 15mA$ | — | $\pm 167mA$ |
| Efficiency | $P_{out} = \text{max rated load}$ | 66% | 69% | — | 66% | 69% | — | 66% | 69% | — | 66% | 69% | — | 71% | 74% | — | 71% | 74% | — | 71% | 74% | — |
| Line regulation | $P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$ | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV |
| | | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV |
| Load regulation | $P_{out} = 10\%$ to F.L. | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV | — | 10mV | 50mV |
| | | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV | — | 25mV | 50mV |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 30 | 65 | — | 30 | 65 | — | 30 | 65 | — | 40 | 85 | — | 40 | 85 | — | 40 | 85 | — | 40 | 85 |
| | | — | — | 50 | — | — | 50 | — | — | 50 | — | — | 50 | — | — | 50 | — | — | 50 | — | — | 50 |



| 3107-SXX output <24 VDC | | 3107-SXX output ≥24 VDC | | 3107-DXX | | 3107-TXX | |
|-------------------------|------------|-------------------------|-----------------|----------|------------|----------|-----------------|
| Pin 1 | bit | Pin 7 | + input | Pin 1 | bit | Pin 7 | + input |
| Pin 2 | inhibit | Pin 8 | main output | Pin 2 | inhibit | Pin 8 | N/C |
| Pin 3 | soft start | Pin 9 | main output ret | Pin 3 | soft start | Pin 9 | N/C |
| Pin 4 | sync | Pin 10 | N/C | Pin 4 | sync | Pin 10 | + dual output |
| Pin 5 | N/C | Pin 11 | adjust | Pin 5 | N/C | Pin 11 | dual output ret |
| Pin 6 | input ret | Pin 12 | N/C | Pin 6 | input ret | Pin 12 | - dual output |

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

- M** +85°C military
- E** +125°C military