

Series 7031A

100 Watt Hybrid DC – DC Converters

Features

- Rad Hard: TID > 100kRad(Si)
- Gan HEMT design
- 2:1 margin: Operates beyond 200kRad TID
- No SEE:LET > 82MeV*cm²/mg
- Proton Resistant: Magnetic Coupled RF feedback design
- 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
- 300kHz 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: 50 VDC nominal
 Range: 35 to 75 VDC continuous
 35 to 75 VDC full power

ISOLATION:
 Input to case: 500 VDC
 Input to output: 500 VDC
 Output to case: 100 VDC

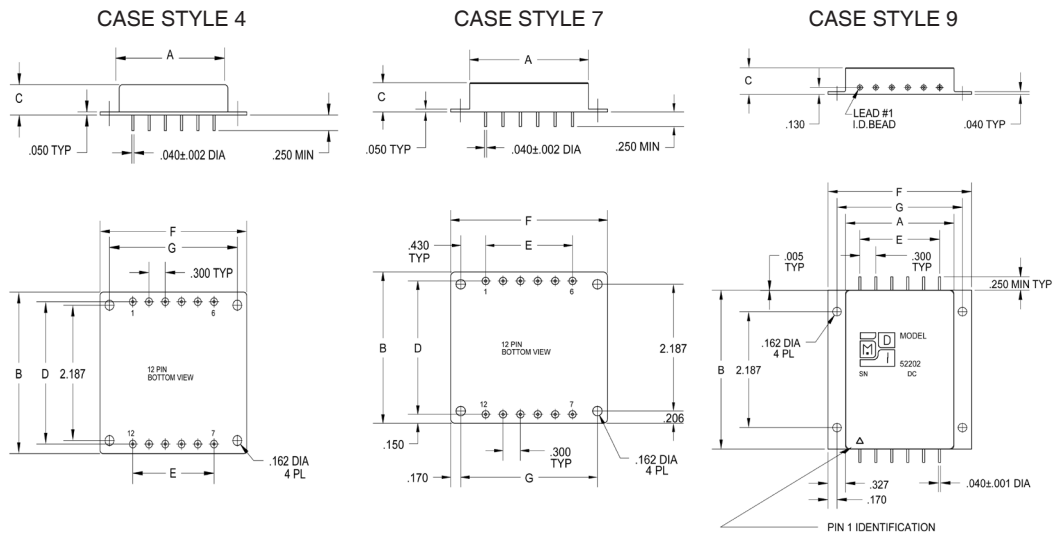
ENVIRONMENT:
 Storage temperature: -55°C to +150°C
 Shock: 50 G's
 Acceleration: 500 G's
 Vibration: 30 G's

Grades: **EU, 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

| SINGLE OUTPUT DEVICES | | 7031A-S05 (100W) | | | 7031A-S12 (100W) | | | 7031A-S15 (100W) | | | 7031A-S28 (100W) | | |
|-----------------------|--|------------------|------|------|------------------|-------|-------|------------------|-------|-------|------------------|-------|-------|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| Output voltage | — | +4.9 | +5.0 | +5.1 | +11.9 | +12.0 | +12.1 | +14.9 | +15.0 | +15.1 | +27.8 | +28.0 | +28.2 |
| Output current | V _{in min} – V _{in max} | — | — | 20A | — | — | 8.33A | — | — | 6.67A | — | — | 3.6A |
| Efficiency | P _{out} = max rated load | 70% | 73% | — | 78% | 81% | — | 78% | 82% | — | 84% | 87% | — |
| Line regulation | P _{out} = max rated load V _{in min} – V _{in max} | — | 10mV | 50mV | — | 20mV | 100mV | — | 25mV | 125mV | — | 50mV | 250mV |
| Load regulation | P _{out} = 10% to F.L. | — | 10mV | 50mV | — | 20mV | 100mV | — | 25mV | 125mV | — | 50mV | 250mV |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 40 | 85 | — | 60 | 150 | — | 75 | 180 | — | 150 | 350 |

| Model No. | Case Style | Pin Count | Mounting |
|-----------|------------|-----------|---|
| 7031A | 4 | 12 | Solder Sealed PCB Mount with Flange |
| 7031A LF | 7 | 12 | Seam Weld PCB Mount with Flange |
| 7031A ZF | 9 | 12 | Seam Weld PCB Chassis Mount with Flange |
| 7031A PD | 11 | 12 | Solder Sealed Flangeless PCB Stud Mount |

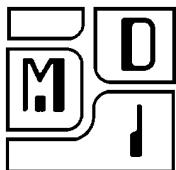


Case Dimensions

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 |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4 | 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 |
| 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 | — — | — — |



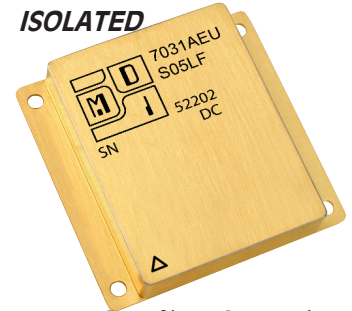
Series 7031A

Proton Rad Hard 100k+™ Series

| DUAL OUTPUT DEVICES | | 7031A-D05 (100W) | | | 7031A-D12 (100W) | | | 7031A-D15 (100W) | | |
|---------------------|--|------------------|-------|-------|------------------|-------|--------|------------------|-------|--------|
| PARAMETER | CONDITION | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| Output voltage | — | +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* | $V_{in\ min} - V_{in\ max}$ | ±350mA | — | ±10A | ±210mA | — | ±4.17A | ±170mA | — | ±3.3A |
| Efficiency | $P_{out} = \text{max rated load}$ | 72% | 75% | — | 77% | 81% | — | 78% | 82% | — |
| Line regulation | $P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$ | — | ±10mV | ±50mV | — | ±20mV | ±100mV | — | ±25mV | ±125mV |
| Load regulation† | $P_{out} = 10\% \text{ to F.L.}$ | — | ±10mV | ±50mV | — | ±20mV | ±100mV | — | ±25mV | ±125mV |
| Output ripple | F.L. BW 2 MHz mV _{pp} | — | 40 | 85 | — | 60 | 150 | — | 75 | 180 |

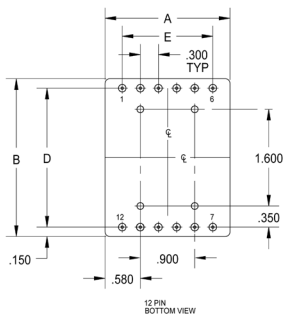
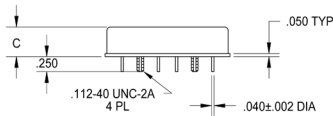
Notes: *Up to 90% full power available from either output if rated output power is not exceeded; †balanced load conditions.

MAGNETICALLY ISOLATED



50 Volts DC Input

CASE STYLE 11



7031A-SXX output < 24VDC

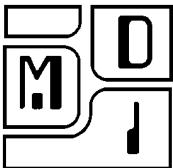
| | | | |
|-------|-------------|--------|-----------------|
| Pin 1 | Bit | Pin 7 | N/C |
| Pin 2 | Inhibit Not | Pin 8 | Main Output |
| Pin 3 | Soft Start | Pin 9 | Main Output Ret |
| Pin 4 | Sync | Pin 10 | +Remote Sense |
| Pin 5 | +Input | Pin 11 | Adjust |
| Pin 6 | Input Ret | Pin 12 | -Remote Sense |

7031A-SXX output ≥ 24 VDC

| | | | |
|-------|-------------|--------|-----------------|
| Pin 1 | Bit | Pin 7 | Adjust |
| Pin 2 | Inhibit Not | Pin 8 | + Remote Sense |
| Pin 3 | Soft Start | Pin 9 | - Remote Sense |
| Pin 4 | Sync | Pin 10 | Main Output |
| Pin 5 | +Input | Pin 11 | N/C |
| Pin 6 | Input Ret | Pin 12 | Main Output Ret |

7031A-DXX

| | | | |
|-------|-------------|--------|-----------------|
| Pin1 | Bit | Pin 7 | Adjust |
| Pin 2 | Inhibit Not | Pin 8 | + Remote Sense |
| Pin 3 | Soft Start | Pin 9 | - Remote Sense |
| Pin 4 | Sync | Pin10 | +Dual Output |
| Pin 5 | +Input | Pin 11 | Dual Output Rtn |
| Pin 6 | Input Ret | Pin 12 | -Dual Output |



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

EU Engineering Units,

LE 45 K +125°C Military/Aerospace

L 45 K, +85°C Military/Aerospace,

SE 100 K+™, +125°C Space

S 100 K+™, +85°C Space