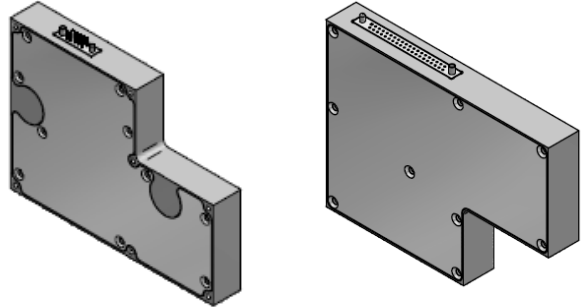


M1648 SERIES

MINIATURE, HIGH DENSITY,
SINGLE OUTPUT,
DC/DC CONVERTERS
(UP TO 100W)



Applications

Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Remote sense
- External On/Off Inhibit
- High Density – up to 37 W/in³
- Fixed switching frequency (250 KHz)
- External synchronization capability
- EMI/RFI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

DC Input:

DC Input range: 18 to 48 V_{DC}, per MIL-STD-704E.

No damage for:

MIL-STD-1275A (100V for 50mSec)
MIL-STD-704A (80V for 0.1 Sec)

Line/Load regulation:

Less than 1% (no load to full load, -55°C to +85°C).

Ripple and Noise:

Less than 50mVp-p, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

DC Output:

Output range – 1V to 28V
Output current – up to 20A

Efficiency :

Up to 85%

Load Transient Overshoot and undershoot

Output resistance at load change of 50%-100% is 15-120 m Ω (depending on output voltage). Output back to steady stated within 300-500 $^{\circ}$ Sec

Isolation:

200V between Input and Output
200V between Input and Case
100V between Output and Case

EMI/RFI:

Design to meet
MIL-STD-461F: CE102, CS101 (5Mhz) , RE102, RS103, CE106, CS103, CS114, CS115, CS116

Turn on Transient

Voltage overshoot at during power on is less than 1% nominal voltage.

Protections *

Input

- **Under voltage protection** – unit protects itself (no damage) below 16Vdc.
- **Over voltage protection** – unit protects itself (no damage) above 52Vdc

Output

- **Electronic over voltage protection** – Internal control protects unit (no damage) 10% above nominal voltage.
- **Current limiting** – Continuous protection (10-40% above maximum current) for unlimited time (Hiccup – other than output 3).

General

- **Over temperature protection:** Shutdown at base plate temperature of +105°C (\pm 5°C) Automatic recovery at base plate temperature lower than +95°C (\pm 5°C)

(* Thresholds and protections can be modified / removed – please consult factory)

PIN ASSIGNMENT

PIN Function	J1 PIN No.
VIN	1, 2, 6
VIN RTN	3, 4, 8
SYN IN	5
INHIBIT	10
SIGNAL RTN	9

PIN Function	J2 PIN No.
1V +SENSE	30
1V	7,8,9,10,11,26,27,28,29
1V RTN	2,3,4,5,21,22,23,24,25
1V SENSE RTN	1
3.3V +SENSE	31
3.3V	13,14,15,32,33,34,35
3.3V RTN	16,17,18,19,36,37,38
3.3V SENSE RTN	39
5V	20
5V RTN	40

Functions and Signals

INHIBIT signal

The INHIBIT signal is used to turn the power supply ON and OFF.

TTL "1" or OPEN – will turn on the power supply. (For normal operation leave the signal not connected.)

TTL "0" – will turn off the power supply.

SYN IN signal

The SYNC IN signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250 KHz \pm 10 KHz.

When not connected the power supply will work at 250 KHz.

SIGNAL RTN

The INPUT SIGNAL RTN is referred to the input.

This is used as grounding for SYNC IN and INHIBIT signals.

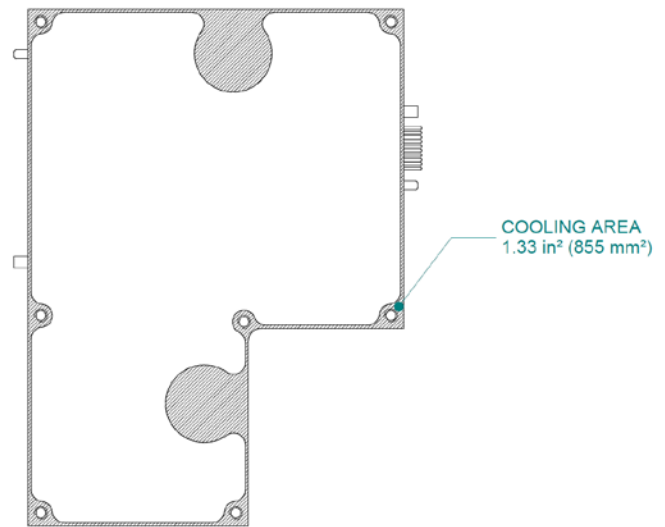
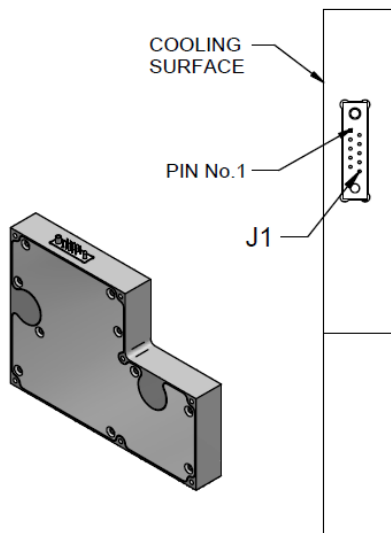
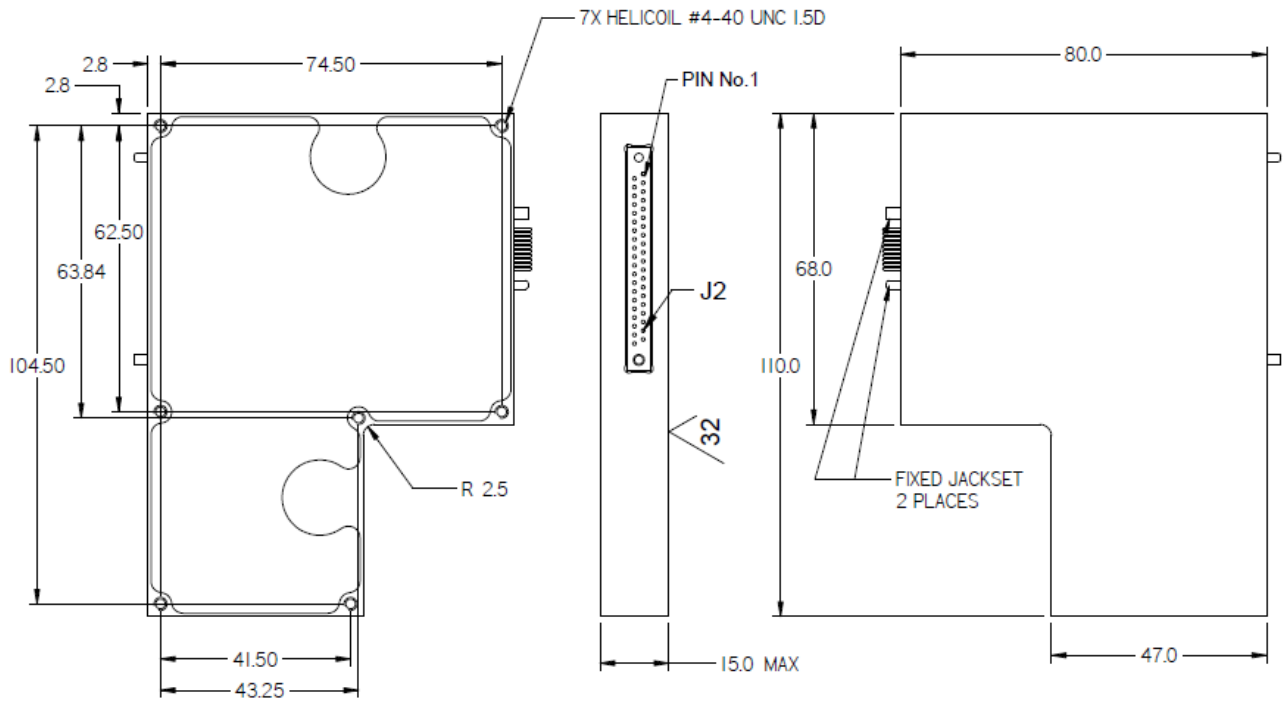
SENSE

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).

The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output.

When not used connect + SENSE to +VOUT and –SENSE to –VOUT

Outline Drawing



Notes

1. Dimensions are in MM
2. Tolerance is:
.XX ±0.02 IN
.XXX ±0.008 IN
3. Weight: TBD
4. Mounting holes can be modified – please consult factory.

* Specifications are subject to change without prior notice by the manufacturer.