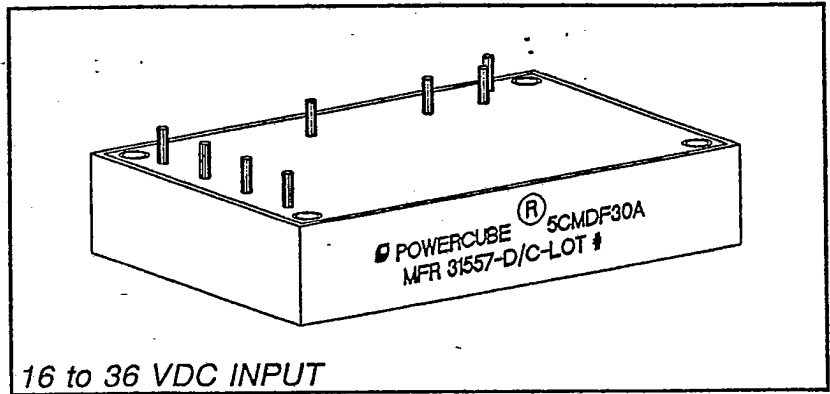


15 WATT MICRO-SERIES DC/DC CONVERTERS

UNITRODE CORP/ POWERCUBE 32E D ■ 9348373 0000575 3 ■ UNIP T-57-11

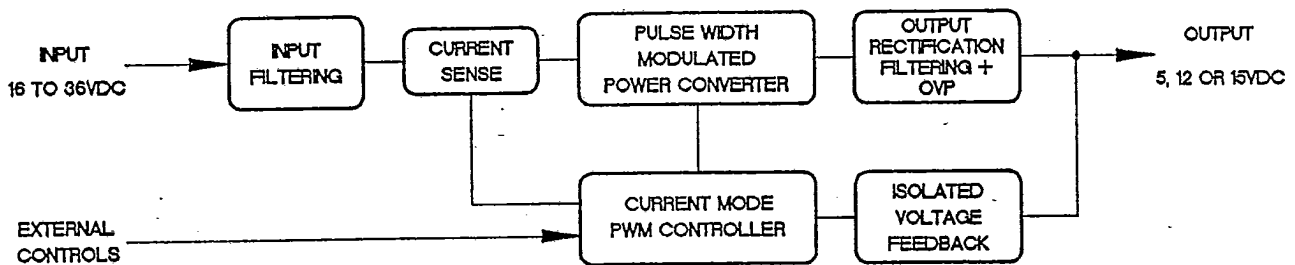
Features:

- ✓ Input/Output Isolation
- ✓ Low Profile
- ✓ PC Board Mountable
- ✓ "D" Connector Version Available
- ✓ MIL-STD-704D
- ✓ >4 Million Hours MTBF Per MIL-HDBK-217E
- ✓ Derated Per NAVSO P-3641, NAVMAT P4855-1A Guidelines
- ✓ MIL-STD-461/462 Compliant

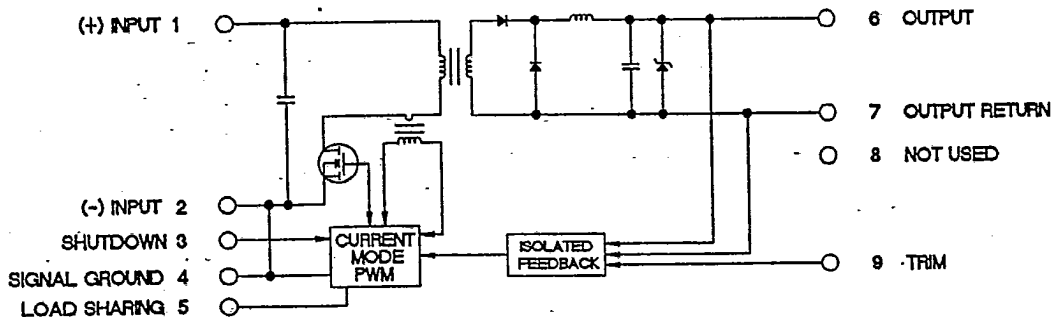


Powercube's 15 watt Micro-Series modules are rugged, low profile, current mode control switching regulators providing fully isolated, efficient power conversion from a broad DC input range. Excellent transient response and pulse by pulse current limiting are features of this design. These units are parallelable and load share within five percent. They also include overload and short circuit protection, overvoltage protection by zener diode, and on/off control.

Functional Block Diagram



Simplified Electrical Schematic



POWERCUBE

Eight Suburban Park Drive

Billerica, MA 01821

(508) 667-9500

FAX (508) 667-6280

1 9000-0864

Electrical Specifications

Module P/N	5CMDF30A	12CMDF13A	15CMDF10A
Output Voltage	5VDC	12VDC	15VDC
Initial Setting (Vin-Nom, FL)	±1.0%	±1.0%	±1.0%
External Output Voltage Trim (Note 1)	±10%	±10%	±10%
Output Current (Max rated)	3.00A	1.30A	1.00A
Output Current Knee (Minimum)	3.30A	1.43A	1.10A
Efficiency (Typ, Vin-Nom, FL)	72%	75%	76%
Differential Output Ripple & Noise 20Mhz BW, 10% to FL, Vin Nom (Max, mVp-p/mV RMS)	100/20	120/20	150/20
With Feedthru Filters (Typ)	20mVp-p	20mVp-p	20mVp-p
Over Voltage Protection (Zener Tolerance ±5%)	6.8VDC	15VDC	18VDC

Values below apply to all output voltages

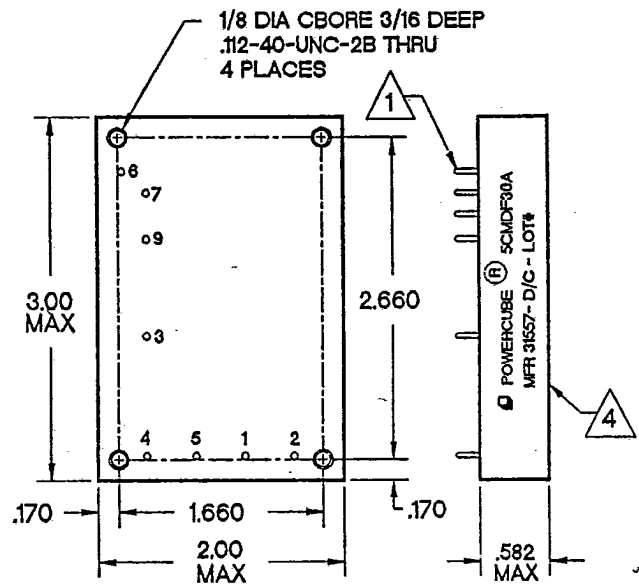
Line Regulation (Max, 100 to 185VDC)	0.30%
Load Regulation (Max, 10% to Full Load)	0.30%
Transient Response (With 25% Load Change) Excursion/Settling Time (Typ)	150mV/1mSec
Output Short Circuit (Withstand)	Indefinite
Turn-on Overshoot	<5%
Temp Coeff	±0.015%/°C
Operating Frequency (Nom)	130Khz
Input/Output Isolation	500VDC
Pins/Case Isolation	500VDC
Shutdown Command Signal	5VDC/2.5mA (Note 2)
Input Voltage (Continuous)	16-36VDC; Meets or exceeds MIL-STD-704D for DC normal & abnormal conditions, as well as MIL-STD-1275A (AT) requirements for steady state & surge of fault free & battery only conditions.
(Transient)	50VDC/50mS; Meets or exceeds MIL-STD-704D for abnormal conditions & MIL-STD-1275A (AT) fault free conditions.
EMI	Meets or exceeds MIL-STD-461B, 462; CEO1, CEO3, CEO7, CSO1, CSO2 and CSO6 when used with optional EMI filter module. Consult Factory for RE and RS compliance.
Derating	Electrical components have been selected IAW Powercube's Design/Reliability Standard DRS1003, an extension to the Navy's NAVMAT and NAVSO component derating guidelines.

Mechanical/Environmental Specifications

Temperature (Baseplate)	
Operating	-55°C to +100°C (Note 3)
Storage	-65°C to +125°C
Weight	6 oz. Max
Environmental	Compliant to MIL-STD-810C for; Humidity, Shock, Vibration, Acceleration, Sand/Dust, Fungus, Temperature/Altitude.
Reliability (MTBF)	>4,000,000 Hrs., GB/25°C Environment As Per MIL-STD-217E, Part Stress Method.

Note 1: Insert resistor between terminals 7 & 9 to trim up, between 6 & 9 to trim down.
 Note 2: Shutdown signal is TTL compatible and is referenced to signal ground. The shutdown pin left unterminated will result in normal operation.
 Note 3: For full compliance to NAVMAT thermal derating guidelines case temp not to exceed +85°C.

Standard Housing Dimensions



Drawing Notes:

- Terminals are .040 Dia, solderable per MIL-T-10727. MIL-STD-202, Method 208 optional. Consult factory for pin registration. Terminal numbers shown for reference only and are not normally printed on module.
- Housing Material: 5052-H32 Aluminum per QQ-A-250/8
- Housing Finish: Black Anodize per MIL-A-8625, Type II, Class 2.
- Mount this surface to heatsink. Case operating temperature not to exceed +100°C (Note 3)
- Tolerances (Unless otherwise specified):
 FRAC ±1/64
 .XXX ±.010

TERM	FUNCTION
1	16-36VDC INPUT
2	16-36VDC INPUT RETURN
3	SHUTDOWN
4	SIGNAL GROUND
5	LOAD SHARE
6	OUTPUT
7	OUTPUT RETURN
8	NOT USED
9	OUTPUT TRIM



POWERCUBE
 Eight Suburban Park Drive Billerica, MA 01821

(508) 667-9500

FAX (508) 667-6280

(9/27/90)