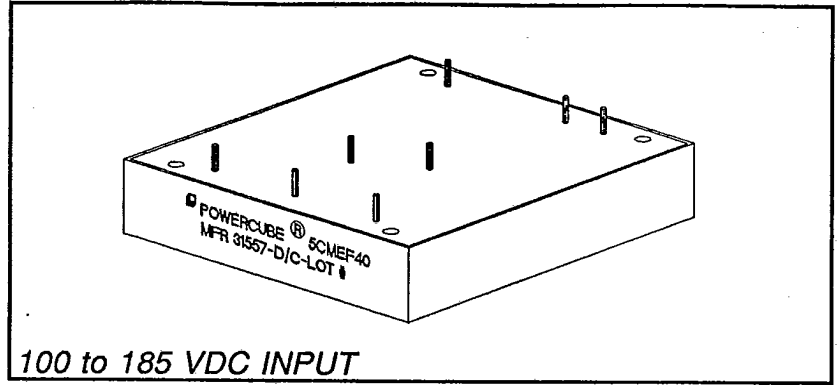


20 WATT MICRO-SERIES DC/DC CONVERTERS *T-57-11*

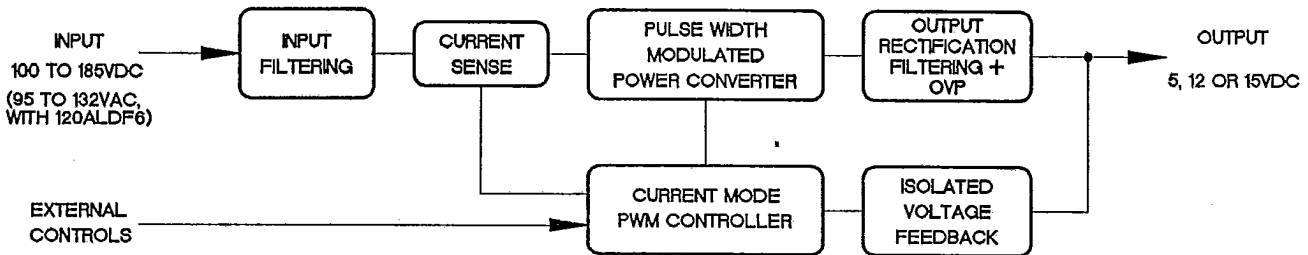
Features:

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

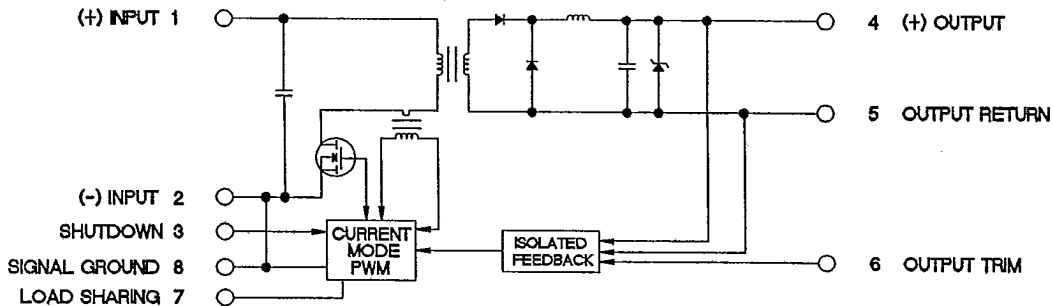


Powercube's 20 watt **Micro-Series** modules are rugged, low profile, current mode control switching regulators providing fully isolated, efficient power conversion from a broad DC input range. Excellent transient response and pulse by pulse current limiting are features of this design. These units are parallelable and load share within five percent. They also include overload and short circuit protection, overvoltage protection by zener diode, and on/off control. This series is also designed to operate from several AC power line configurations per MIL-STD-704 and DOD-STD-1399 when used together with our 120ALDF6 and other AC-DC conversion modules.

Functional Block Diagram



Simplified Electrical Schematic



POWERCUBE

Eight Suburban Park Drive Billerica, MA 01821

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1 9000-0858

Electrical Specifications

Module P/N	5CMEF40	12CMEF17	15CMEF14
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)	4.00A	1.70A	1.40A
Output Current Knee (Minimum)	4.40A	1.90A	1.60A
Efficiency (Typ, Vin-Nom, FL)	75%	80%	80%
Differential Output Ripple & Noise 20Mhz BW, 10% to FL, Vin Nom (Max, mVp-p/mV RMS)	85/10	85/10	85/10
With Feedthru Filters (Typ)	30mVp-p	30mVp-p	30mVp-p
Over Voltage Protection (Zener Tolerance ±5%)	6.8VDC	15VDC	18VDC
Transient Response (With 25% Load Change)	150/1	200/1	200/1
Excursion/Settling Time (Typ, mV/msec)			

Values below apply to all output voltages

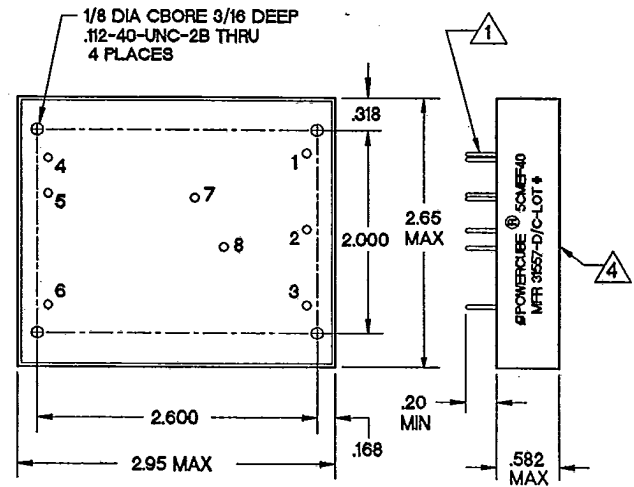
Line Regulation (Max, 100 to 185VDC)	0.30%
Load Regulation (Max, 10% to Full Load)	0.30%
Output Short Circuit (Withstand)	Indefinite
Turn-on Overshoot	<5%
Temp Coeff	±0.015%/°C
Operating Frequency (Nom)	100Khz
Input/Output Isolation	500VDC
Pins/Case Isolation	500VDC
Shutdown Command Signal	5VDC/2.5mA (Note 2)
Input Voltage (Continuous)	100-185VDC; Designed to operate from 115VAC 1Ø, 3Ø Wye and 3Ø Delta configurations as per MIL-STD-704D, DOD-STD-1399/300 and MIL-E-4158 when used in conjunction with the 120ALDF6 or other similar Powercube AC/DC conversion modules.
(Transient)	255VDC/100mS; Complies with 180VAC surge requirements as per MIL-STD-704A, Figure 3, Curve 1, when used in conjunction with the 120ALDF6 or other Powercube AC/DC modules.
EMI	Meets or exceeds MIL-STD-461B, 462; CEO1, CEO3, CEO7, CSO1, CSO2 and CSO6 when used with optional EMI filter and AC/DC conversion 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 5 & 6 to trim up, between 4 & 6 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 ±0.10

TERM	FUNCTION
1	+100-185VDC INPUT
2	100-185VDC INPUT RETURN
3	SHUTDOWN
4	+OUTPUT
5	OUTPUT RETURN
6	OUTPUT TRIM
7	LOAD SHARING
8	SIGNAL GROUND



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(10/26/90)