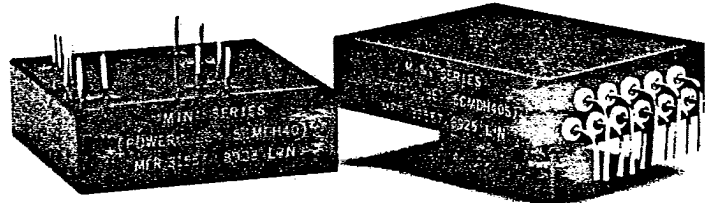


20 Watt Mini-Series DC/DC Converters

Features:

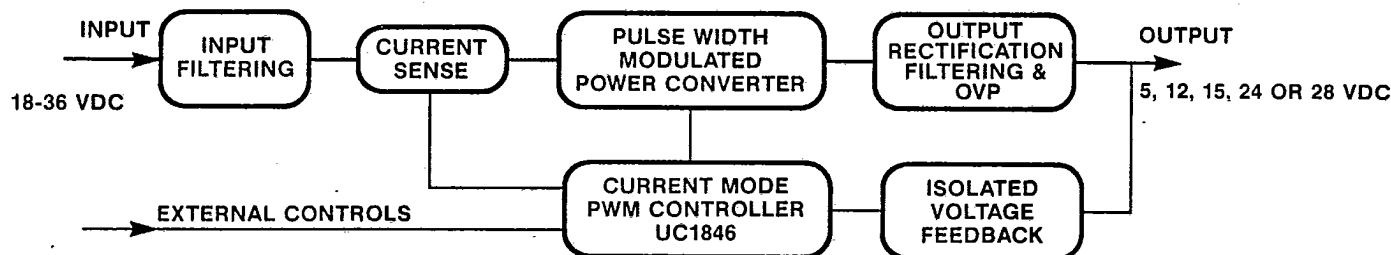
- Low Profile Package
- Current Mode Control
- Hybridized Power and Control Circuits
- MIL-STD-704D Compliant
- Printed Circuit Board Mountable
- Components Derated to Meet or Exceed NAVSO P-3641 (NAVMAT P-4855-1A) Guidelines
- MIL-STD-461/462
- MTBF Up to 4.5 Million Hours per MIL-HDBK-217E
- Environmental Conditions to MIL-STD-810C



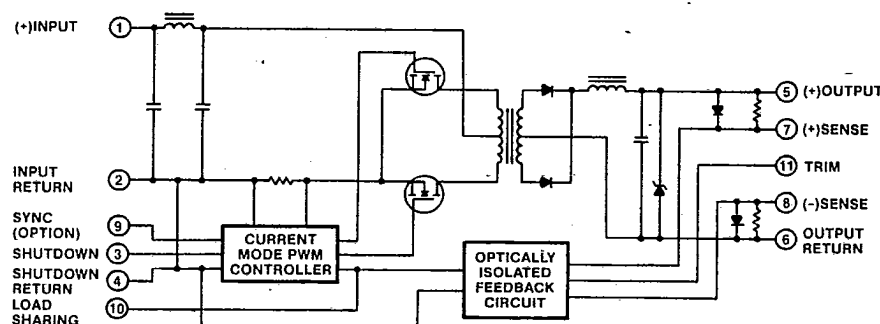
B-15-11
T-57-11

Powercube's 20W CMDH Mini-Series modules are rugged, low profile, miniaturized, 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, remote sense 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 9000-0860

20 Watt Mini-Series DC/DC Converters

Specifications:

PARAMETER	5CMDH40	12CMDH17	15CMDH14	24CMDH9	28CMDH7
OUTPUT VOLTAGE (VDC)	5.0	12.0	15.0	24.0	28.0
INITIAL SETTING @ VIN (NOM), F.L.	±1%	±1%	±1%	±1%	±1%
OUTPUT CURRENT (MAX)	4.0Amp	1.7Amp	1.4Amp	9Amp	.7Amp
OUTPUT KNEE (MIN)	4.4Amp	1.9Amp	1.6Amp	1.0Amp	.8Amp
DIFFERENTIAL OUTPUT RIPPLE/NOISE (MAX) 20MHz BW, 10% — F.L., VIN NOM.					
mVp-p/mV RMS WITH FEEDTHRU FILTERS (TYP-mVp-p)	100/10 20	100/10 20	100/10 20	120/10 20	140/10 20
EFFICIENCY (TYP.) @ VIN-NOM.	70%	71%	72%	73%	74%
TRANSIENT RESPONSE (MAX) EXCURSION/SETTLING TIME (mV/mS) 25% LOAD CHANGE MIN.—MAX. VIN	250-5	250/1.5	250/1.5	250/2	250/2
OVERVOLTAGE PROTECTION (ZENER, TOL. ±5%)	6.8V	15V	18V	30V	33V
INPUT VOLTAGE (CONTINUOUS)	18-36VDC MEETS OR EXCEEDS MIL-STD-704D REQUIREMENTS FOR DC NORMAL AND ABNORMAL CONDITIONS AS WELL AS MIL-STD-1275A (AT) REQUIREMENTS FOR STEADY STATE AND SURGE OF FAULT FREE AND BATTERY ONLY CONDITIONS.				

(TRANSIENT)

50VDC 50ms (MEETS OR EXCEEDS MIL-STD-704D REQUIREMENTS FOR ABNORMAL CONDITIONS AND MIL-STD-1275A (AT) FAULT FREE CONDITIONS.)

LINE REGULATION (18-36VDC)	0.3% MAX.
LOAD REGULATION (10%—F.L.)	0.5% MAX.
TEMPERATURE COEFFICIENT	-0.015% PER DEG C
TURN-ON OVERSHOOT (MAX)	.5%
EXTERNAL VOLTAGE TRIM	-10%
REMOTE SENSE	0.5V COMPENSATION MAX (NOTE 1)
CURRENT SHARING (TYP)	5% BETWEEN MODULES (NOTE 2)
OPERATING FREQUENCY	225 KHz ± 10%
SYNCHRONIZATION	OPTIONAL—CONSULT FACTORY
ISOLATION	
PIN TO CASE	500 VDC
INPUT TO OUTPUT	500 VDC
INPUT/OUTPUT CAPACITANCE (TYP)	500 PF
FAULT PROTECTION	NOTE 3
SHUTDOWN COMMAND SIGNAL	5V 2.5mA—ALL MODULES (NOTE 4)
EMI (MIL-STD-461B, -462)	MEETS OR EXCEEDS CE01, CE03, CE07, CS01, CS02, CS06 WHEN USED WITH OPTIONAL EMI FILTER MODULE—CONSULT FACTORY FOR RE & RS COMPLIANCE
TEMPERATURE RANGE	-55°C TO +100°C (BASEPLATE) OPERATING -65°C TO +125°C STORAGE
WEIGHT	5 OZ. MAX

NOTE 1

LIMITED TO 20 WATTS OF OUTPUT POWER WITH PROPER WIRING TECHNIQUES—UP TO FIVE UNITS MAY BE PARALLELED

NOTE 2

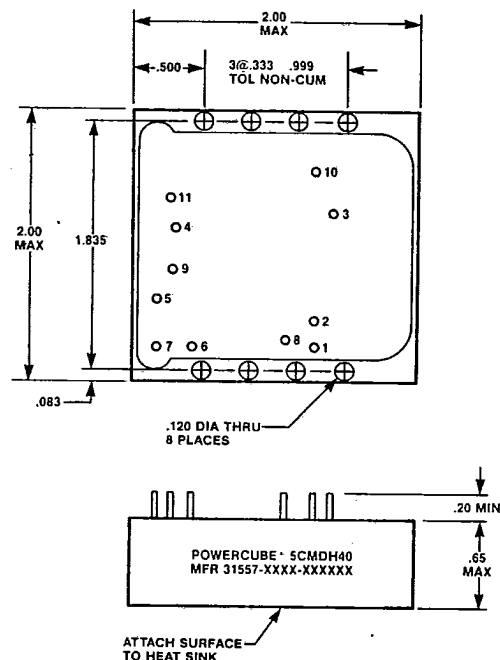
NOTE 3

SHOULD THE SENSE LINES BE SHORTED, THE OUTPUT VOLTAGE WILL BE LIMITED TO 1.6V (TYP) ABOVE THE NOMINAL OUTPUT VOLTAGE

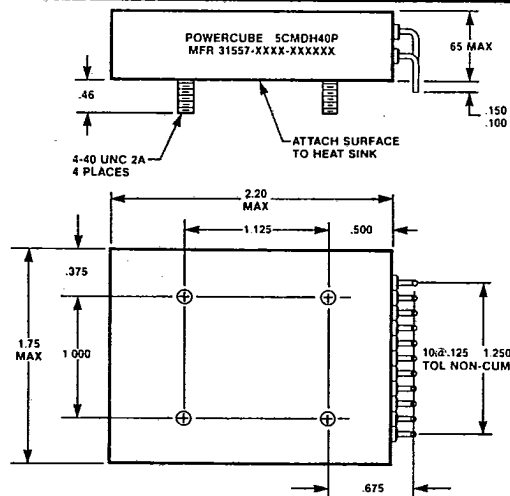
NOTE 4

THE SHUTDOWN PIN LEFT UNTERMINATED WILL RESULT IN NORMAL OPERATION

Standard Housing Dimensions:



Optional Housing Dimensions:



NOTES FOR BOTH DWGS:

1. TERMINALS ARE .040 DIA. SOLOERABLE PER MIL-T-10727. MIL-STD-202. METHOD 208 OPTIONAL
2. TOL: .XX .01
.XXX .010
3. MTL: 6061-T6 PER QQ-A-250/11
4. FINISH: BLACK ANODIZE PER MIL-A-6625, TYPE II, CLASS 2
5. FOR PIN REGISTRATION CONSULT FACTORY
6. DIMENSIONS IN INCHES
7. MODULE PIN NUMBERS SHOWN FOR REFERENCE ONLY AND ARE NOT NORMALLY PRINTED ON MODULE


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