



POWERCUBE

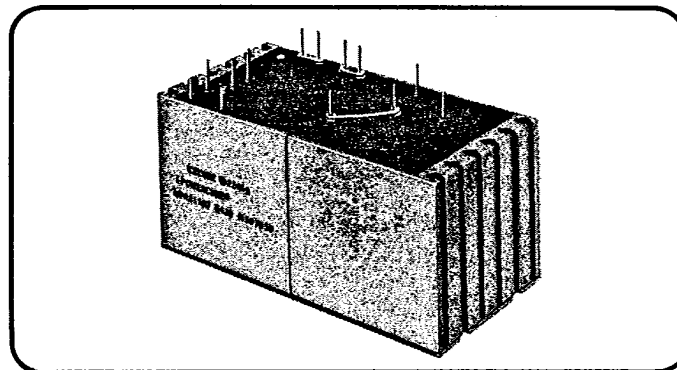
A SUBSIDIARY OF UNITRODE CORPORATION
POWERCUBE CORPORATION, EIGHT SUBURBAN PARK DRIVE,
BILLERICA, MASSACHUSETTS 01821 • (617) 667-9500

"Better Always/By Design"

12CMD50 60 Watt ICECUBE™ Current Mode DC-DC Converter

Features:

- Current Mode Control
- Power MOSFET Design
- 75% Efficiency
- MIL-STD-704A Positive Input Transient Protected

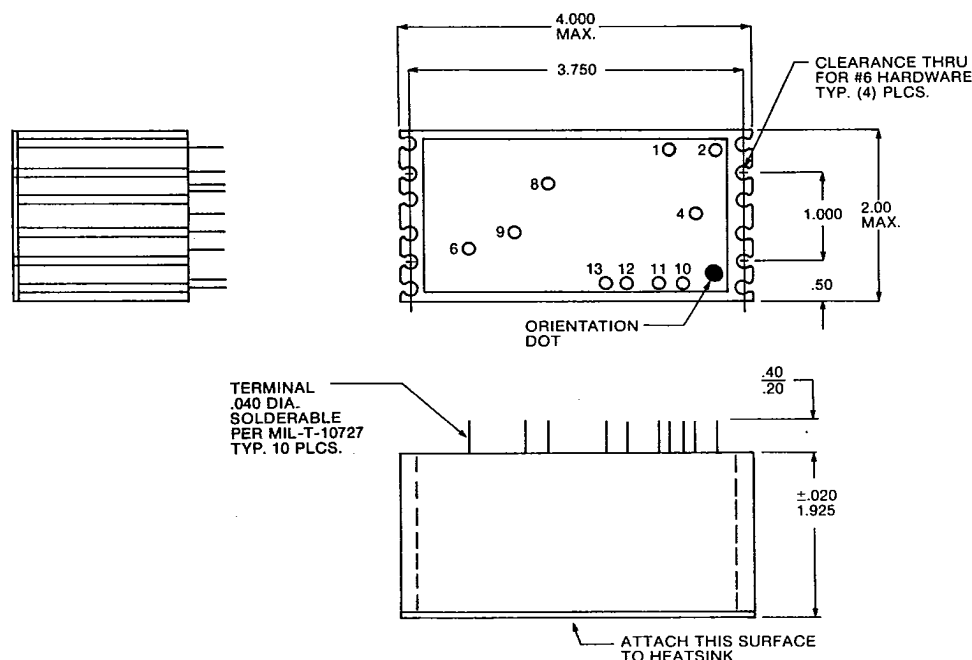


60 Watt ICECUBE

Powercube's new 12CMD50 is a rugged miniaturized current mode control switching regulator providing fully isolated high efficiency power conversion from a broad DC input range. Excellent transient response is achieved. Pulse by pulse current limiting and 100kHz switching are features of

this state-of-the-art design. These units are parallelable to achieve higher total power out (consult Powercube when paralleling more than 2 units). Other features are continuous overload and short circuit protection, over voltage zener protection, $\pm$ remote sense and remote on/off control.

DIMENSIONAL DRAWING:



12CMD50**60 Watt ICECUBE™****Current Mode DC-DC Converter****SPECIFICATIONS:****ELECTRICAL:**

Input:	16-36VDC plus MIL-STD-704A positive transients
Output Voltage:	12.0VDC
Setting:	±1%
I _{out} :	5.0 Amps
Temperature Coefficient:	±.012%/°C (for output voltage)
Turn-On Overshoot:	5% any input voltage, 10% to full load, full temperature range
Efficiency:	75% (see curves)
Line Regulation:	.03% Max. at F.L.
Load Regulation:	.03% Max. for 10% to F.L.
Output Ripple:	100mV P-P, 10% to F.L.
Transient Response:	-150mV Max., 25% to 75% load +150mV Max., 75% to 25% load Return to within 1% of V _{Nom} within 100μs.
Stability:	54° Phase Margin, 10 dB Gain Margin typical. Crossover frequency 10.5kHz (curves available)
EMI:	Meets MIL-STD-461B CE03 Part 4 when operated with Powercube XF730 filter (optional extra module)
Isolation:	Pin to case, 500VDC Min. input to output 1500V

ENVIRONMENTAL:

Temperature Range:	-55°C to +100°C (baseplate) operating -65°C to +125°C storage
Thermal Shock:	MIL-STD-202, Method 107D Cond. B
Humidity:	MIL-STD-810, Method 507.1 Proc. 1
Vibration:	MIL-STD-202, Method 204C Cond. D and 215 Cond. J (operating)
Shock:	MIL-STD-202, Method 213B Cond. A (operating)
Acceleration:	MIL-STD-202, Method 212A Cond. A 100 G's (operating)
Pressure/Altitude:	MIL-STD-202, Method 105C Cond. D (operating)
Sand/Dust:	MIL-STD-810, Method 510 Proc. L
Salt Spray:	MIL-STD-202, Method 101D Cond. D

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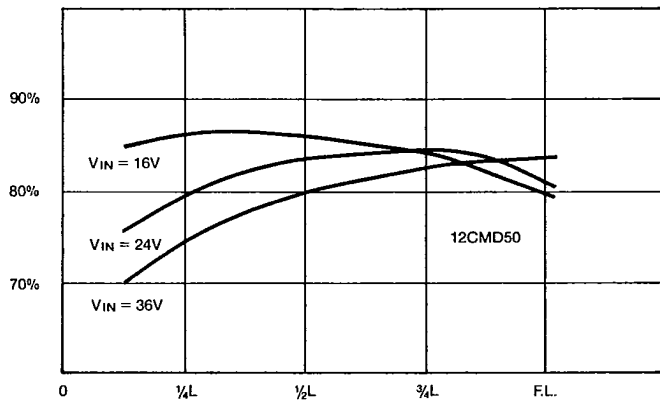
TYP. EFFICIENCY VS. INPUT VOLTAGE AT $T = 25^{\circ}\text{C}$ 

FIGURE 1

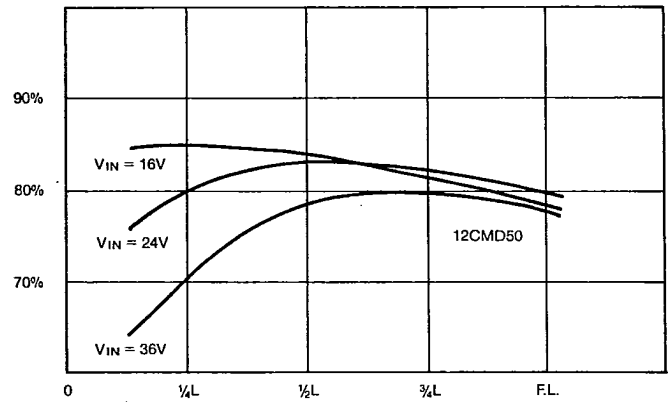
TYP. EFFICIENCY VS. INPUT VOLTAGE AT $T = 100^{\circ}\text{C}$ 

FIGURE 2

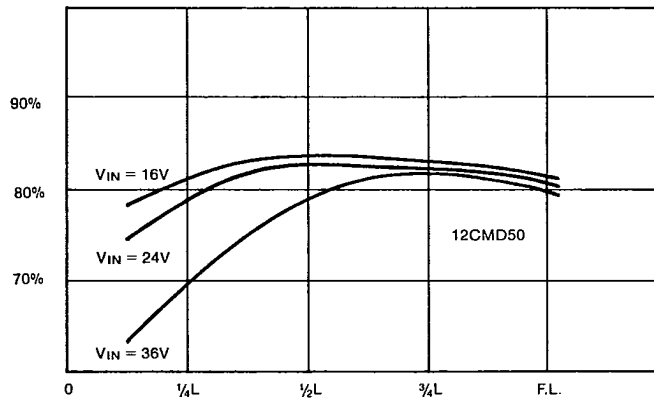
TYP. EFFICIENCY VS. INPUT VOLTAGE AT $T = -55^{\circ}\text{C}$ 

FIGURE 3

COMBINED LOAD (.1L TO 1.0 F.L.) & LINE REG. VS. TEMP.

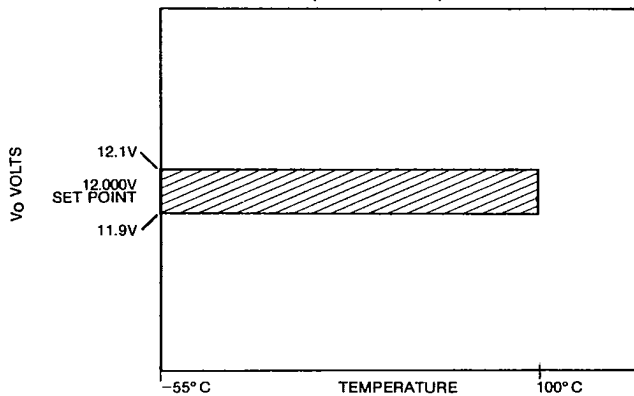


FIGURE 4

CLOCK FREQUENCY VARIATION VS. TEMP.

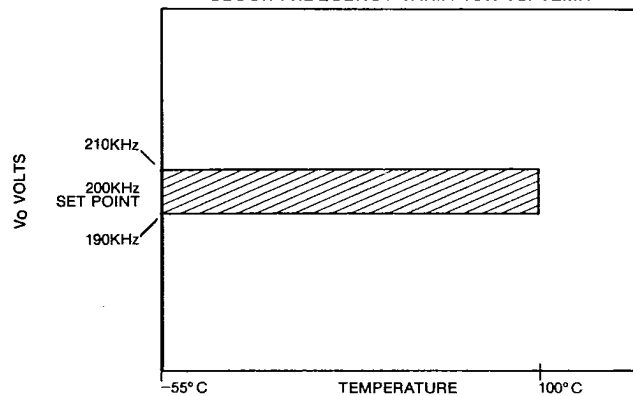


FIGURE 5