



POWERCUBE

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POWERCUBE CORPORATION, EIGHT SUBURBAN PARK DRIVE,

BILLERICA, MASSACHUSETTS 01821 • (617) 667-9500

"Better Always/By Design"

28CMD20 56 Watt ICECUBE™ Current Mode DC-DC Converter

Features:

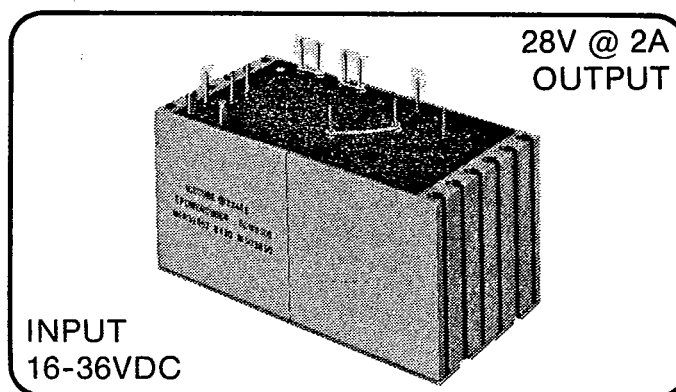
- Current Mode Control
- Power MOSFET Design
- 85% Efficiency
- MIL-STD-704A Positive Input
Transient Protected

56 Watt ICECUBE

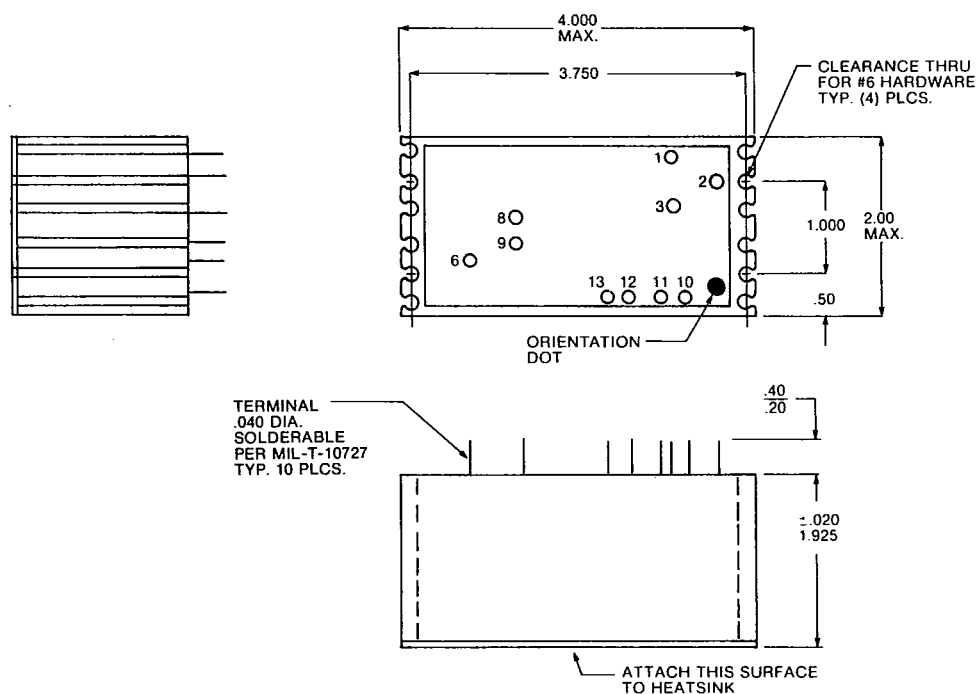
Powercube's new 28CMD20 is a rugged miniaturized current mode control switching regulator providing fully isolated high efficiency power conversion from a broad DC input range. Excellent transient response is achieved. Pulse by pulse current limiting and 100kHz switching are features of

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.

— OTHER OUTPUT VOLTAGES AVAILABLE —



DIMENSIONAL DRAWING:



28CMD20

56 Watt ICECUBE™

Current Mode DC-DC Converter

SPECIFICATIONS:

ELECTRICAL:

Input:	16-36VDC plus MIL-STD-704A positive transients
Output Voltage:	28.0VDC
Setting:	±1%
I _{OUT} :	2.0 Amps
Temperature Coefficient:	±.015%/°C (for output voltage)
Turn-On Overshoot:	5% any input voltage, 10% to full load, full temperature range
Efficiency:	85% (see curves)
Line Regulation:	.05% Max. at F.L.
Load Regulation:	.05% Max. for 10% to F.L.
Output Ripple:	110mV 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°C

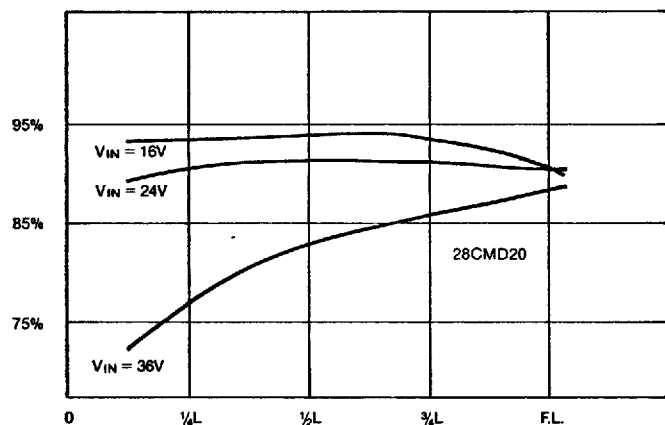


FIGURE 1

TYP. EFFICIENCY VS. INPUT VOLTAGE AT T = 100°C

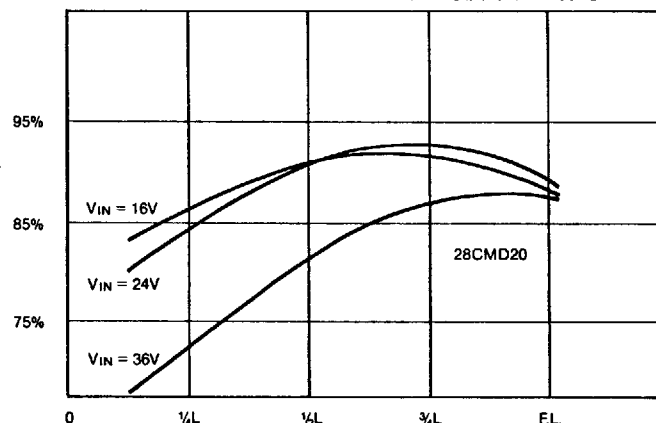


FIGURE 2

TYP. EFFICIENCY VS. INPUT VOLTAGE AT T = -55°C

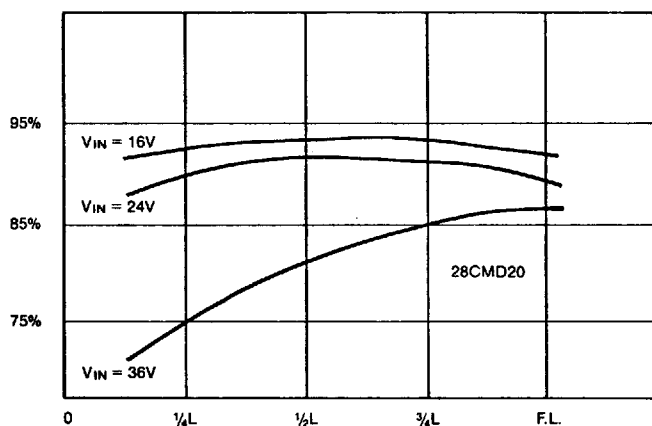


FIGURE 3

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

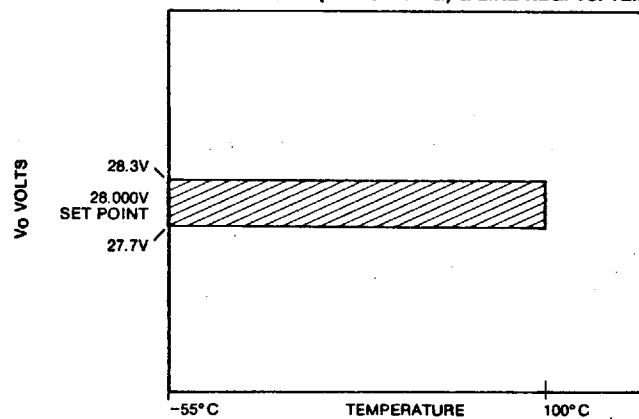


FIGURE 4

CLOCK FREQUENCY VARIATION VS. TEMP.

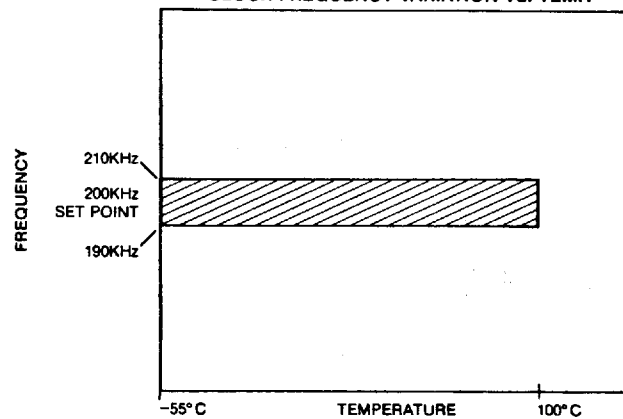


FIGURE 5

28CME20

56 Watt ICECUBE™

Current Mode DC-DC Converter

SPECIFICATIONS:

ELECTRICAL:

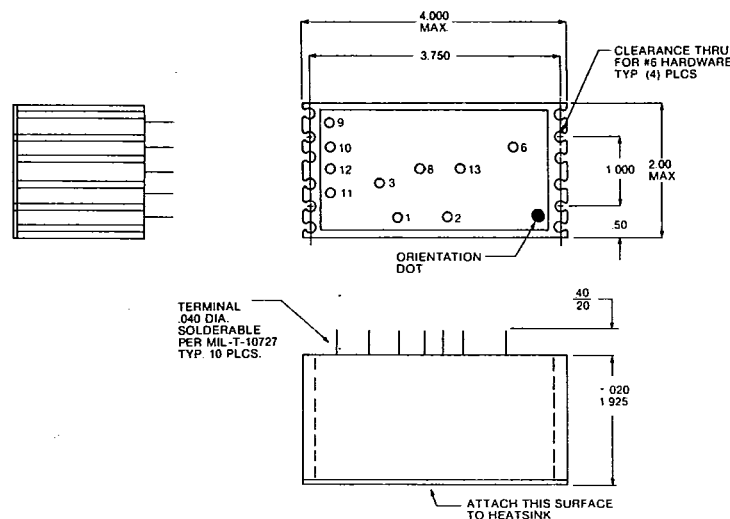
Input:	100-165 VDC (or rectified 95-132 VAC with MIL-STD-704A Positive Transients)
Output Voltage:	28.0 VDC
Setting:	±1%
I _{out} :	2.0 Amps
Temperature Coefficient:	±.015%/°C (for output voltage)
Turn-On Overshoot:	5% any input voltage, 10% to full load, full temperature range
Efficiency:	85% (see curves)
Line Regulation:	0.1% Max. at F.L.
Load Regulation:	0.1% Max. for 10% to F.L.
Output Ripple:	60mV 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, 500 VDC Min. input to output 1500 VDC

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 214 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

WEIGHT: 22 oz. Max.

DIMENSIONAL DRAWING:



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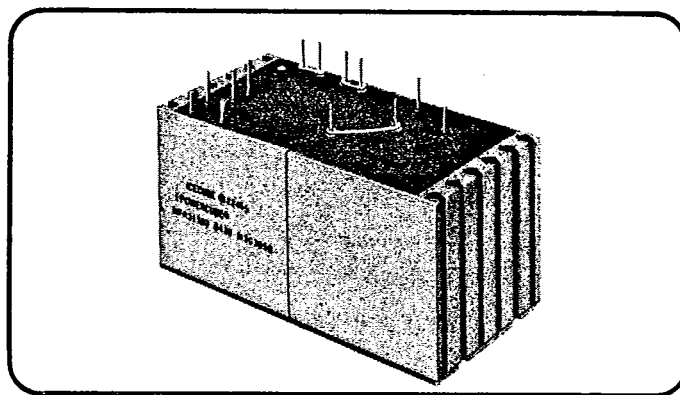
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"Better Always/By Design"

15CMD35 50 Watt ICECUBE™ Current Mode DC-DC Converter

Features:

- Current Mode Control
- Power MOSFET Design
- 80% Efficiency
- MIL-STD-704A Positive Input Transient Protected



50 Watt ICECUBE

Powercube's new 15CMD35 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:

