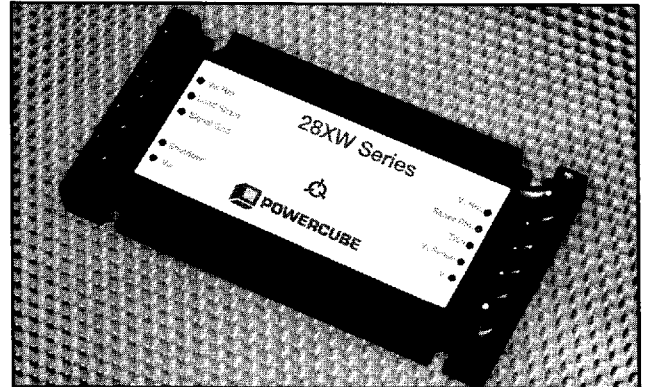


28XW Series

Powercube's newest entry into the Quasi-Mil market offers the customer a solution to the problems of line conditioning for systems that must operate through MIL-STD-1275 transients. The 28XW Series is a continuous mode Flyback converter with primary side referenced, current mode control. Current mode control allows the output voltage to be regulated very precisely over an extremely wide variation of line and load conditions.

The 28XW Series features auto-recovery over voltage protection, over current protection, the ability to parallel like output models and have them share the load within 5% of each other, remote on/off control, remote sense capability to compensate for line losses and "oring diode" drops, and a user adjustable output voltage.



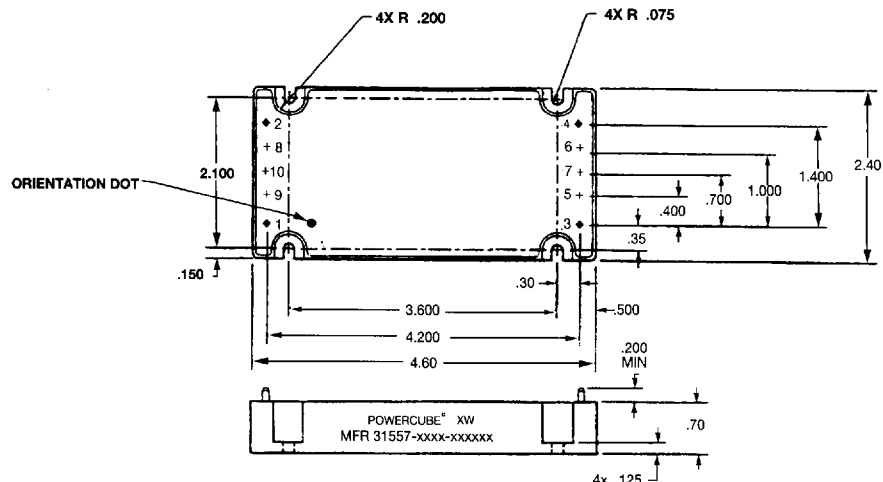
The factory has the ability to easily add a synchronization function to the 28XW Series which gives the customer the ability to synchronize the converter with a system clock.

Features

- Up to 12 Watts/Cubic Inch
- Up to 85% Efficient
- Fixed Frequency Operation
- Synchronization Option
- Current Mode Control
- Industry Standard Foot Print and Pin Out
- Modular Design with Load Sharing Capability
- Extra Wide Continuous Input Range (15V to 60V)
- MIL-STD-1275 Compliant with 6V Droop, 100V Surge and 250V Transient Line Requirements

Product Specifications

Pin	Pin ϕ +.005	Function
1	0.08	Vin
2	0.08	Vin Rtn.
3	0.08	Vo
4	0.08	Vo Rtn.
5	0.04	Vo Sense
6	0.04	Sense Rtn.
7	0.04	Trim
8	0.04	Load Share
9	0.04	Shutdown
10	0.04	Signal Gnd.



POWERCUBE
A NATEL COMPANY

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28XW Series

STANDARD OUTPUTS AVAILABLE

Model	Input Range		Output VDC	Rated Output ADC	Power Watts
	Min.	Max.			
28XW5-75	15VDC	60VDC	5	15	75
28XW12-100	15VDC	60VDC	12	8.3	100
28XW15-100	15VDC	60VDC	15	6.7	100
28XW24-100	15VDC	60VDC	24	4.2	100
28XW28-100	15VDC	60VDC	28	3.6	100

Applicable Specifications
MIL-STD-1275
MIL-STD-810
MIL-STD-740D

GENERAL SPECIFICATIONS

Construction	Anodized five-sided aluminum housing filled with epoxy resin.
Weight typ. oz.	11

MINIMUM START-UP

Start-Up Voltage (VDC) min.	15
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TEMPERATURE SPECIFICATIONS

Operating Temp. (Note 7)	-55°C to 100°C (-55°C to 85°C with no derating)
Storage Temp.	-65°C to 125°C
Output Voltage Drift max.	0.015%/°C

INPUT SPECIFICATIONS

Model Number	28XW5-75	28XW12-100	28XW15-100	28XW24-100	28XW28-100
Input Voltage Range (VDC)(Note 1)	15 to 60	15 to 60	15 to 60	15 to 60	15 to 60
Quiescent Input Current (mADC) (No Load)	30	30	30	30	30
Input/Output Ripple Rejection (dB) (DC to 5KHz) typ.	-40	-40	-40	-40	-40
Max. Surge Voltage (VDC)(Note 8)	100	100	100	100	100
Max. Spike Voltage (VDC)(Note 9)	±250	±250	±250	±250	±250

ISOLATION SPECIFICATIONS

Input to Output max.	500VDC
Input to Baseplate	500VDC
Output to Baseplate	500VDC
In-Out Capacitance	1500pF

OUTPUT SPECIFICATIONS (25°C unless otherwise specified)

Model Number	28XW5-75	28XW12-100	28XW15-100	28XW24-100	28XW28-100
Output Voltage (VDC) nom.	5	12	15	24	28
Setpoint Accuracy (%) max.	±1	±1	±1	±1	±1
Rated Output Current (ADC) max. Minimum Load (ADC) min.	15 1.5	8.3 0.83	6.7 0.67	4.2 0.42	3.6 0.36
Output Power Watts max.	75	100	100	100	100
Output Ripple & Noise 20Mhz BW (mV _{p-p}) typ. (mV _{p-p}) max.	100 150	100 150	150 200	200 300	250 350
Switching Frequency (KHz) nom.	135	135	135	135	135
Line Regulation (%) (Note 2) max.	0.2	0.2	0.2	0.2	0.2
Load Regulation (%) (Note 3) max.	0.2	0.2	0.2	0.2	0.2
Transient Resp. Excur. (mVpk) /Time (µSec.) (Note 4) typ.	250 /500	200 /500	200 /500	200 /500	200 /500
Turn On Time(µSec.)(Note 5) typ.	5	5	5	5	5
Turn On Overshoot (%) Vout max.	5	5	5	5	5
Over-Current Limit (ADC) max. Automatic Restart	22.5	12.5	10	6.3	5.4
Over-Voltage Protect (VDC) typ. Automatic Restart	6.8	16	19	31	34
Efficiency (Note 6)(%) typ. (%) min.	77 74	81 78	83 80	85 82	85 82

USER ADJUSTABLE SPECIFICATIONS

Module Input Quiescent Current when turned off	2 mADC
Shutdown Voltage (Note 10) (Off)	<0.5VDC
Shutdown Voltage (Note 10) (On)	≥3.5VDC (12VDC max.)
Vout Trim Range	±10%
Sense Line Comp. max.	0.5VDC
# of Parallel Modules max.	5
Load Sharing Error Typ.	5%
Sw Freq. Synchronization (OPTION)	Consult Factory

Notes

1. Steady state operating range.
2. Regulation at 6Vin, full-rated load is 10%
3. Spec. applies for 10% full load to full load, unit will regulate to 3% of Vout nom. at no load.
4. With a load change of 25% using an H.P. model #6050A load programmed for a 10A/µSec. slew rate.
5. With a 28V, 10µSec. rise time step, unit at full load.
6. With a unit at Vin nom., full load.
7. Derate output current linearly 1.7% per °C from 85°C to 100°C.
8. Per figure 6 of MIL-STD-1275(AT) (50ms duration).
9. Per figure 5 and 7 of MIL-STD-1275(AT) (50µs duration, 15m Joule).
10. Applied voltage to shutdown pin (Ref. to signal gnd. Pin 10.)



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