



# CQE50W SERIES

## 50 WATT 4:1 INPUT DC-DC CONVERTERS SINGLE OUTPUT

### FEATURES

- \* 50W Isolated Output
- \* No Tantalum Capacitor Inside
- \* Quarter-Brick Size, Six-Sided Shield Metal Case
- \* High Efficiency up to 92%
- \* 300KHz Switching Frequency
- \* 4 : 1 Input Range
- \* Regulated Outputs
- \* Continuous Short Circuit Protection
- \* Full Load Operation up to 80°C  
with Heat-sink M-C421 Natural Convection
- \* Over Temperature/Voltage/Current Protection
- \* CE Mark Meets 2004/108/EC
- \* Safety Meets UL60950-1, EN60950-1, and IEC60950-1



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.		Capacitor Load max.
			MIN.	MAX.	NO LOAD	FULL LOAD	(2)	(3)	
CQE50W-24S3V3	9-36 VDC	3.3 VDC	0mA	10A	100mA	1528mA	90	90.5	10000µF
CQE50W-24S05	9-36 VDC	5.0 VDC	0mA	10 A	100mA	2277mA	91	91.5	10000µF
CQE50W-24S12	9-36 VDC	12 VDC	0mA	4.16A	100mA	2261mA	91	91.5	4160µF
CQE50W-24S15	9-36 VDC	15 VDC	0mA	3.33 A	100mA	2287mA	91.5	91.5	3330µF
CQE50W-24S24	9-36 VDC	24 VDC	0mA	2.08A	60mA	2311mA	90	90	2080µF
CQE50W-24S48	9-36VDC	48 VDC	0mA	1.04 A	60mA	2311mA	88.5	88.5	1040µF(4)
CQE50W-48S3V3	18-75VDC	3.3 VDC	0mA	10A	60mA	764mA	90	90	10000µF
CQE50W-48S05	18-75VDC	5.0 VDC	0mA	10 A	60mA	1132mA	91.5	92	10000µF
CQE50W-48S12	18-75VDC	12 VDC	0mA	4.16A	60mA	1130mA	92	92	4160µF
CQE50W-48S15	18-75VDC	15 VDC	0mA	3.33 A	60mA	1144mA	91	91	3330µF
CQE50W-48S24	18-75VDC	24 VDC	0mA	2.08A	60mA	1156mA	91	90.5	2080µF
CQE50W-48S48	18-75VDC	48 VDC	0mA	1.04 A	60mA	1156mA	89	89	1040µF(4)

NOTE: 1. Nominal Input Voltage 24, 48VDC

2. Measured at 12VDC for 24SXX, 24VDC for 48SXX

3. Measured at Nominal Input Voltage

4. Require a 10uF Aluminum Capacitor Connected Between +Vout and -Vout for 48Vout Models

# SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

## INPUT SPECIFICATIONS:

Input Voltage Range	24V	9-36V
	48V	18-75V
Input Surge Voltage (100ms max.)	24V	50Vdc max.
	48V	100Vdc max.
Under voltage lockout	24Vin power up	8.8V
	24Vin power down	8.0V
	48Vin power up	17V
	48Vin power down	16V
Positive Logic Remote ON/OFF ( see note 4 & 5 )		
Input Filter		PI Type

## OUTPUT SPECIFICATIONS:

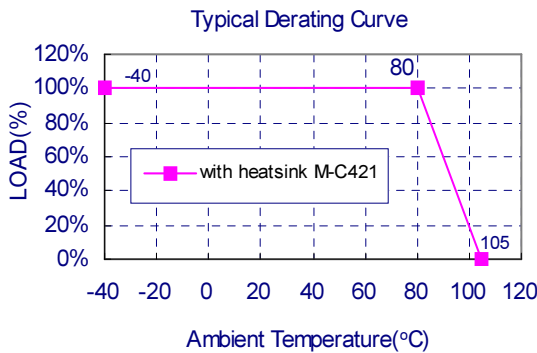
Voltage Accuracy:	±1.5% max.
Transient Response: 75% to 100% Step Load Change	
Error Band	±5% Vout
Recover Time	<500us
External Trim Adj. Range	±10%
Ripple & Noise, 20MHz BW ( see note 3)	
3.3V & 5V	40mV RMS, 100mV pk-pk max.
12V & 15V	60mV RMS, 150mV pk-pk max.
24V	100mV RMS, 240mV pk-pk max.
48V	200mV RMS, 480mV pk-pk max.
Temperature Coefficient	±0.03%/°C
Short Circuit Protection	Continuous
Line Regulation (note 1)	±0.2% max.
Load Regulation (note 2)	±0.2% max.
Over Voltage Protection trip Range, % Vo nom.	115-140%
Current Limit	110% ~165% Nominal Output
Start up time	20ms typ.

## GENERAL SPECIFICATIONS:

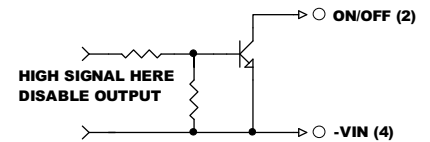
Efficiency	See Table
Isolation Voltage	Input/Output 1500VDC min.
	Input/Case 1500VDC min.
	Output/Case 1500VDC min.
Isolation Resistance	10 <sup>7</sup> ohm min.
Isolation Capacitance	1000pF typ
Switching Frequency	300KHz typ.
Operating Case Temperature	-40°C to 105°C
Storage Temperature	-55°C to +125°C
Thermal Shutdown, Case Temp.	110°C typ.
Humidity	95% RH max. Non condensing
MTBF ... MIL-STD-217F, GB, 25°C, Full Load	XXS24, XXS48 ... 800Khrs typ.
	Others ... 600Khrs typ.
Dimensions	1.45 x 2.28 x 0.50 inches(36.8 x 57.9 x 12.7 mm)
Case Material	Aluminum with Non-Conducted Base
Weight	63g

## NOTE:

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10uF aluminum and 1uF ceramic capacitor across output for 48Vout and with 10uF tantalum and 1uF ceramic capacitor for others.
4. Logic compatibility ..... open collector ref to -Input
  - Module on ..... >3.5Vdc to 75Vdc or open circuit
  - Module off ..... < 1.2Vdc
5. Suffix "N" to the model number with negative logic remote on/off
  - Module on ..... < 1.2Vdc
  - Module off ..... >3.5Vdc to 75Vdc or open circuit

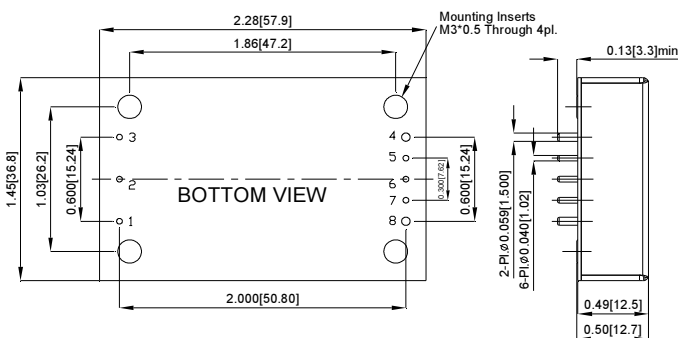


## REMOTE ON/OFF CONTROL

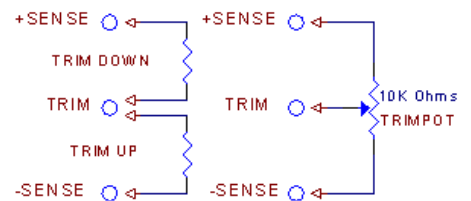


## CASE QB

All Dimensions In Inches(mm)  
 Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010  
 Millimeters: X.X= ±0.5, X.XX=±0.25



## External Output Trim



PIN CONNECTION	
Pin	Function
1	+V Input
2	ON/OFF
3	-V Input
4	-V Output
5	-Sense
6	Trim
7	+Sense
8	+V Output