CUI INC®

SERIES: VQE50W | DESCRIPTION: DC-DC CONVERTER

FEATURES

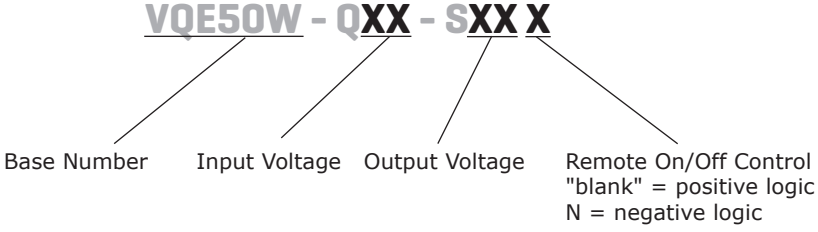
- up to 50 W isolated output
- industry standard quarter brick package
- 4:1 input range (9~36 V, 18~75 V)
- single output from 3.3~48 V
- 1,500 V isolation
- tantalum free capacitors used
- over current, over temperature, over voltage, and short circuit protections
- remote on/off
- very high efficiency up to 92%

RoHS c UL us CE

MODEL	input voltage range (Vdc)	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency typ (%)
VQE50W-Q24-S3R3	9 ~ 36	3.3	10	33	100	90.5
VQE50W-Q24-S5	9 ~ 36	5	10	50	100	91.5
VQE50W-Q24-S12	9 ~ 36	12	4.16	50	150	91.5
VQE50W-Q24-S15	9 ~ 36	15	3.33	50	150	91.5
VQE50W-Q24-S24	9 ~ 36	24	2.08	50	240	90
VQE50W-Q24-S48	9 ~ 36	48	1.04	50	480	88.5
VQE50W-Q48-S3R3	18 ~ 75	3.3	10	33	100	90
VQE50W-Q48-S5	18 ~ 75	5	10	50	100	92
VQE50W-Q48-S12	18 ~ 75	12	4.16	50	150	92
VQE50W-Q48-S15	18 ~ 75	15	3.33	50	150	91
VQE50W-Q48-S24	18 ~ 75	24	2.08	50	240	90.5
VQE50W-Q48-S48	18 ~ 75	48	1.04	50	480	89

Notes: 1. ripple and noise are measured at 20 MHz BW with 10μF tantalum capacitor and 1μF ceramic capacitor across output

PART NUMBER KEY



INPUT

parameter	conditions/description		min	typ	max	units
operating input voltage	24 V input 48 V input		9 18	24 48	36 75	Vdc Vdc
surge voltage	100 ms max.	24 V input 48 V input			500 100	Vdc Vdc
under voltage lockout	power up power down	24 V input 48 V input 24 V input 48 V input		8.8 17 8 16		Vdc Vdc Vdc Vdc
positive logic remote on/off[1]						
filter	PI type					

Notes:
1. logic compatibility, open collector ref to -input
   Module ON, 3.5 ~ 75 Vdc or open circuit
   Module OFF, <1.2 Vdc
2. negative logic remote on/off available
   Module ON, <1.2 Vdc current limit, 110~165% nominal output
   Module OFF, 3.5 ~ 75 Vdc or open circuit

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	measured from high line to low line			±0.2	%
load regulation	measured from full load to zero load			±0.2	%
voltage accuracy				±1.5	%
transient response	25% step load change			500	µs
external trim adj. range			±10		%
switching frequency	100% load, input voltage range		300		kHz
temperature coefficient			±0.03		%/°C

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	%Vo	115		140	%
short circuit protection	continuous				
current limit	% nominal output current	110		165	%
thermal shutdown case temp.			110		°C

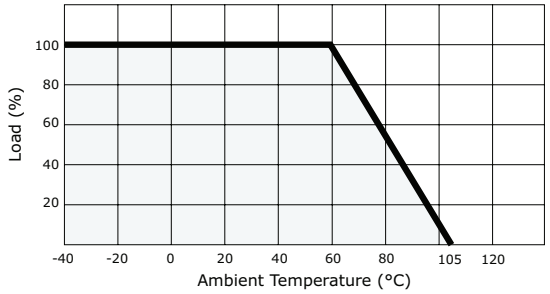
SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output input to case output to case	1,500 1,500 1,500			Vdc Vdc Vdc
isolation resistance		10			MΩ
isolation capacitance			1,000		pF
safety approvals	UL 60950-1, CE				
RoHS compliant	yes				
MTBF	MIL-STD-217F, GB, 25°C, full load		TBD		hours

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
case operating temperature		-40		105	°C
storage temperature		-55		125	°C
humidity	non-condensing			95	%

DERATING CURVE

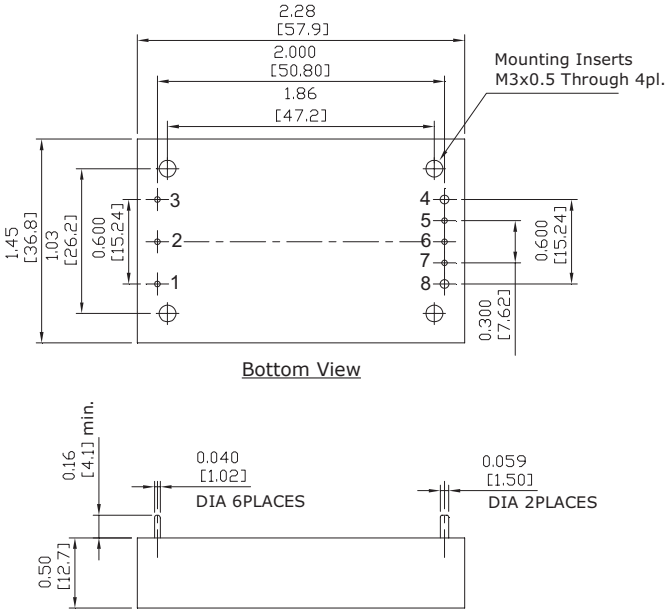


MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	1.45 x 2.28 x 0.50 (36.8 x 57.9 x 12.7 mm)				inch
case material	aluminum				
weight			63		g

MECHANICAL DRAWING

units: inches[mm]
tolerance:
inches: X.XX = ±0.02
X.XXX = ±0.010
mm: X.XX = ±0.5
X.XXX = ±0.25



PIN CONNECTIONS	
PIN	FUNCTION
1	+Vin
2	On/Off
3	-Vin
4	-Vo
5	-S
6	TRIM
7	+S
8	+Vo

Note: All specifications measured at 25°C, nominal input voltage, and full load unless otherwise noted.

REVISION HISTORY

rev.	description	date
1.0	initial release	08/22/2012
1.01	added negative logic option to part number key, updated derating curve	03/04/2013
1.02	updated spec	03/18/2013

The revision history provided is for informational purposes only and is believed to be accurate.

CUI INC®

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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