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%

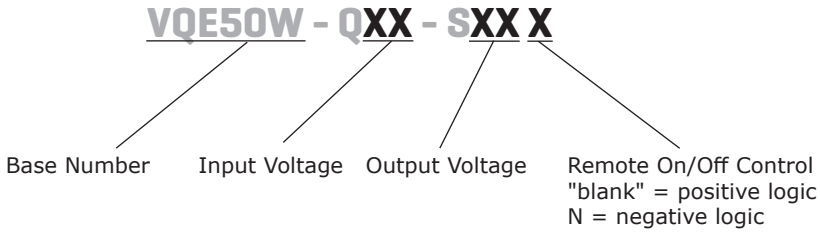


MODEL

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	10.0	33	100	90.5
VQE50W-Q24-S5	9 ~ 36	5	10.0	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	90.0
VQE50W-Q24-S48	9 ~ 36	48	1.04	50	480	88.5
VQE50W-Q48-S3R3	18 ~ 75	3.3	10.0	33	100	90.0
VQE50W-Q48-S5	18 ~ 75	5	10.0	50	100	92.0
VQE50W-Q48-S12	18 ~ 75	12	4.16	50	150	92.0
VQE50W-Q48-S15	18 ~ 75	15	3.33	50	150	91.0
VQE50W-Q48-S24	18 ~ 75	24	2.08	50	240	90.5
VQE50W-Q48-S48	18 ~ 75	48	1.04	50	480	89.0

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

PART NUMBER KEY



Please read our datasheet & drawing disclaimer here.

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			50 100	Vdc Vdc
under voltage lockout	power up	24 V input 48 V input		8.8 17.0		Vdc Vdc
	power down	24 V input 48 V input		8.0 16.0		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

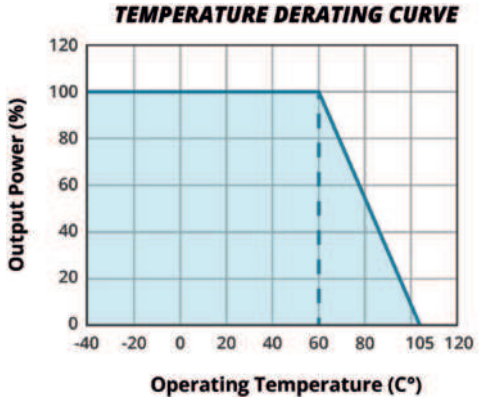
SAFETY AND COMPLIANCE

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	certified to 60950-1: UL 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

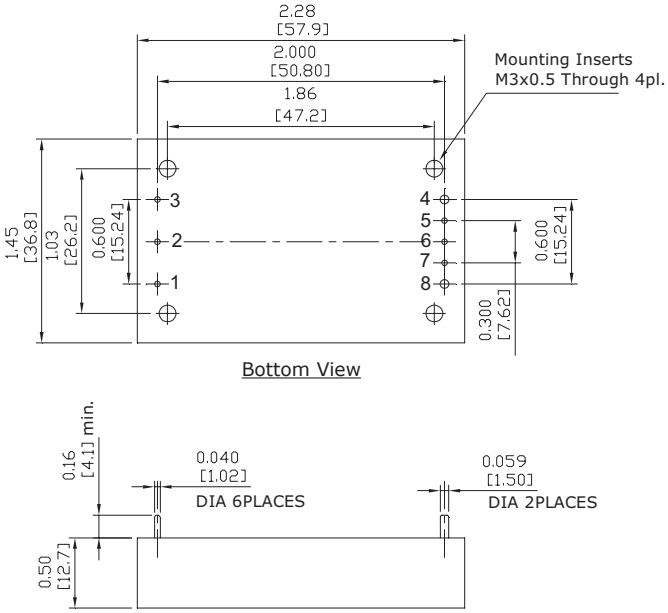


MECHANICAL

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
1.03	company logo & derating curve updated	02/08/2021
1.04	company address updated	11/13/2024
1.05	datasheet updated	05/01/2025

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

CUI INC
a bel group

Headquarters
15575 SW Sequoia Pkwy #100
Portland, OR 97224
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.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.