Applications

- Telecommunications
- Data communications
- Wireless communications
- Servers, workstations

Benefits

- High efficiency – no heat sink required
- Higher current capability at elevated temperatures than most competitors' 40 A half-bricks

Features

- RoHS lead free solder and lead-solder-exempted products are available
- Delivers up to 40 A
- Industry-standard quarter-brick pinout
- On-board input differential LC-filter
- Start-up into pre-biased load
- No minimum load required
- Dimensions: 1.45" x 2.30" x 0.482" (36.83 x 58.42 x 12.24 mm)
- Weight: 1.22 oz [34.98 g]
- Meets Basic Insulation requirements of EN60950
- Withstands 100 V input transient for 100 ms
- Fixed-frequency operation
- Fully protected
- Latching and non-latching protection available
- Remote output sense
- Positive or negative logic ON/OFF option
- Output voltage trim range: +10%/−20% with industry-standard trim equations
- High reliability: MTBF = 9.7 million hours, calculated per Telcordia TR-332, Method I Case 1
- UL60950 recognized in US and Canada and DEMKO certified per IEC/EN60950
- Designed to meet Class B conducted emissions per FCC and EN55022 when used with external filter
- All materials meet UL94, V-0 flammability rating

Description

The QME48T40050 converter of the QME-Series provides outstanding thermal performance in high temperature environments. This performance is accomplished through the use of patented/patent-pending circuits, packaging, and processing techniques to achieve ultra-high efficiency, excellent thermal management, and a low-body profile.

The low-body profile and the preclusion of heat sinks minimize impedance to system airflow, thus enhancing cooling for both upstream and downstream devices. The use of 100% automation for assembly, coupled with advanced electronic circuits and thermal design, results in a product with extremely high reliability.

Operating from a 36-75 V input, the QME-Series converters provide outputs that can be trimmed from –20% to +10% of the nominal output voltage, thus providing outstanding design flexibility.

Electrical Specifications

Conditions: T_A = 25 ºC, Airflow = 300 LFM (1.5 m/s), Vi n = 48 VDC, unless otherwise specified.

Parameter	Notes	Min	Typ	Max	Units
Absolute Maximum Ratings					
Input Voltage	Continuous	0		80	VDC
Operating Ambient Temperature		-40		85	°C
Storage Temperature		-55		125	°C
Isolation Characteristics					
I/O Isolation		2000			VDC
Isolation Capacitance			3		ηF
Isolation Resistance		10			MΩ
Feature Characteristics					
Switching Frequency			440		kHz
Output Voltage Trim Range[1]	Industry-std. equations	-20		+10	%
Remote Sense Compensation[1]	Percent of V_{OUT}(NOM)			+10	%
Output Overvoltage Protection	Latching or Non-latching	117	122	127	%
Overtemperature Shutdown (PCB)	Non-latching		125		°C
Auto-Restart Period (For non-latching option)	Applies to all protection features		200		ms
Turn-On Time			4		ms
ON/OFF Control (Positive Logic)					
Converter Off (logic low)		-20		0.8	VDC
Converter On (logic high)		2.4		20	VDC
ON/OFF Control (Negative Logic)					
Converter Off (logic high)		2.4		20	VDC
Converter On (logic low)		-20		0.8	VDC

Additional Notes:

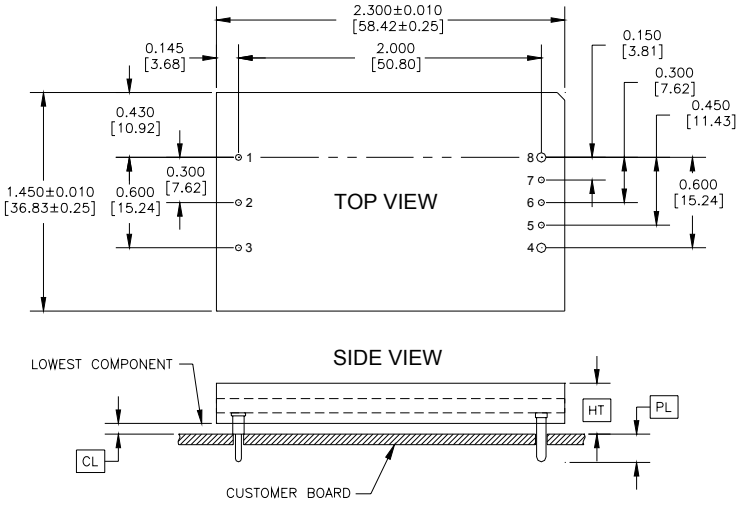
1. Vout can be increased up to 10% via the sense leads or up to 10% via the trim function. However, the total output voltage trim from all sources should not exceed 10% of V_{OUT}(NOM), in order to ensure specified operation of overvoltage protection circuitry.
2. Operating ambient temperature range of -40 ºC to 85 ºC for converter.

Electrical Specifications (continued)

Conditions: T_A = 25 ºC, Airflow = 300 LFM (1.5 m/s), Vin = 48 VDC, unless otherwise specified.

Parameter	Notes	Min	Typ	Max	Units
Input Characteristics					
Operating Input Voltage Range		36	48	75	VDC
Input Under Voltage Lockout	Non-latching				
Turn-on Threshold		33	34	35	VDC
Turn-off Threshold		31	32	33	VDC
Input Voltage Transient	100 ms			100	VDC
Maximum Input Current	40 ADC, 5.0 VDC Out @ 36 VDC In			6.1	ADC
Input Stand-by Current	Vin = 48 V, converter disabled		3		mADC
Input No Load Current (0 load on the output)	Vin = 48 V, converter enabled		90		mADC
Input Reflected-Ripple Current	25 MHz bandwidth		14		mA_{PK-PK}
Input Voltage Ripple Rejection	120 Hz		75		dB
Output Characteristics					
Output Voltage Set Point (no load)		4.950	5.000	5.050	VDC
Output Regulation					
Over Line			±2	±5	mV
Over Load			±2	±5	mV
Output Voltage Range	Over line, load and temperature[2]	4.925		5.075	VDC
Output Ripple and Noise – 25 MHz bandwidth	Full load + 10 µF tantalum + 1 µF ceramic		60	120	mV_{PK-PK}
External Load Capacitance	Plus full load (resistive)			10,000	µF
Output Current Range		0		40	ADC
Current Limit Inception	Non-latching	42	47	52	ADC
Peak Short-Circuit Current	For non-latching option, Short = 10 mΩ		50		A
RMS Short-Circuit Current	For non-latching option		9		Arms
Dynamic Response					
Load Change 50%-75%-50%, di/dt = 0.1 A/µs	Co = 1 µF ceramic		40		mV
di/dt = 5 A/µs	Co = 470 µF POS + 1 µF ceramic		140		mV
Settling Time to 1%			15		µs
Efficiency					
100% Load			92		%
50% Load			93		%

Physical Information



QME48T Pinout (Through-hole)

Pad/Pin Connections	
Pad/Pin #	**Function**
1	Vin (+)
2	ON/OFF
3	Vin (-)
4	Vout (-)
5	SENSE(-)
6	TRIM
7	SENSE(+)
8	Vout (+)

QME48T Platform Notes

- All dimensions are in inches [mm]
- Pins 1-3 and 5-7 are Ø 0.040" [1.02] with Ø 0.078" [1.98] shoulder
- Pins 4 and 8 are Ø 0.062" [1.57] without shoulder
- Pin Material & Finish: Brass Alloy 360 with Matte Tin over Nickel
- Converter Weight: 1.22 oz [34.98 g]

Height Option	HT (Max. Height)	CL (Min. Clearance)
	+0.000 [+0.00] -0.038 [- 0.97]	+0.016 [+0.41] -0.000 [- 0.00]
G	0.482 [12.24]	0.035 [0.89]

Pin Option	PL Pin Length
	±0.005 [±0.13]
A	0.188 [4.78]
B	0.145 [3.68]

Converter Part Numbering/Ordering Information

Product Series	Input Voltage	Mounting Scheme	Rated Load Current	Output Voltage		ON/OFF Logic	Maximum Height [HT]	Pin Length [PL]	Special Features	Environmental
QME	**48**	**T**	**40**	**050**	**-**	**N**	**G**	**B**	**0**	
Quarter-Brick Format	36-75 V	T⇒ Through-hole	40 A	050 ⇒ 5.0 V		N ⇒ Negative P ⇒ Positive	Through hole G ⇒ 0.482"	Through hole A ⇒ 0.188" B ⇒ 0.145"	0 ⇒ STD L ⇒ Latching Option	No Suffix ⇒ RoHS lead-solder-exempt compliant G ⇒ RoHS compliant for all six substances

The example above describes P/N QME48T40050-NGB0: 36-75 V input, through-hole mounting, 40 A @ 5.0 V output, negative ON/OFF logic, a maximum height of 0.482", a through the board pin length of 0.145", standard (non-latching), and Eutectic Tin/Lead solder. Please consult factory for the complete list of available options.