P-DUKE **POWER MATE TECHNOLOGY CO.,LTD.**

QEB50 SERIES Single output

- **SINGLE OUTPUT UP TO 20A**
- **INDUSTRY STANDARD FOOTPRINT**
- **NO MINIMUM LOAD**
- **ADJUSTABLE OUTPUT VOLTAGE**
- **UNDER-VOLTAGE LOCKOUT**
- **HIGH EFFICIENCY UP TO 91%**
- **COMPACT 2.28 X 1.45 X 0.50 INCH PACKAGE**
- **FIXED SWITCHING FREQUENCY**

UL E193009
TUV R50020744
CB JPTUV-5363
CE MARK

QEB50 single output DC/DC converters provide up to 50 watts of output power in an industry standard quarter-brick package and footprint. These units are specifically designed to meet the power needs of low-voltage silicon. All models feature a wide input range, trimmable output voltage and a 20A current rating. Remote sense and remote on/off facilities are included as standard, and the converters are comprehensively protected against over-current, over-voltage and over-temperature conditions. The QEB50 converters are especially suited to telecom, networking and industrial application.

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25ºC otherwise noted

OUTPUT SPECIFICATIONS		
Output power		50 Watts max
Voltage accuracy	Full load and nominal Vin	± 1.5%
Voltage adjustability	(Note1)	+ 10% , -20%
Minimum load		None
Line regulation	LL to HL at FL	±0.2%
Load regulation	No load to Full load	See table
Remote Sense		10% of Vout
Ripple and noise	20MHz bandwidth (Measured with a 1uF M/C and a 10uF T/C)	100mVp-p
Temperature coefficient		±0.02% / ºC, max
Transient response recovery time	25% load step change	200uS
Over voltage protection threshold(Non-latching Hiccup)		120% Vout max
Over Current Protection threshold		110% ~ 140% of Iout Rated
Short circuit protection		Hiccup, automatics recovery

INPUT SPECIFICATIONS			
Input voltage range	48V nominal input		36 – 75VDC
Under voltage lockout	Power up Power down		34V typ. 32V typ.
Input filter (Note 2)			L-C type
Input surge voltage 100mS max			100VDC
Start up time	Nominal Vin and constant resistor load	Power up Remote ON/OFF	25mS typ 25mS typ
Remote ON/OFF (Note 3)			$I_{ON/OFF}$ = 1mA max
(Negative logic)	DC-DC ON DC-DC OFF		Short or 0V < Vr < 1.2V Open or 3.5V < Vr < 15V
(Positive logic)	DC-DC ON DC-DC OFF		Open or 3.5V < Vr < 15V Short or 0V < Vr < 1.2V

GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output Input to Case Output to Case	1600VDC,min 1000VDC,min 1000VDC,min
Isolation resistance		10^7 ohms, min
Isolation capacitance		2500 pF, max
Switching frequency		270 KHz, typ
Approvals and standard		IEC60950, UL60950, EN60950
Case material		Aluminum base plate
Weight (approx)		42g (1.46 oz)
MTBF	Bellcore TR-NWT-000332, Tc=40 ºC , Io=80%,max	2.5 x 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS		
Operating base-plate temperature range (Note 4)		-40ºC to +100ºC
Over temperature protection		110ºC, max
Storage temperature range		-55ºC to +125ºC
Thermal shock		MIL-STD-810D
Vibration	10~55Hz, 2G, 3minutes period, 30minutes along X,Y and Z	
Humidity , Max , Non-Condensing		95%

EMC CHARACTERISTICS		
Conducted emissions	EN55022 (Note 5) EN55022 (Note 5)	Level A Level B
Radiated emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria2
Radiated immunity	EN61000-4-3	Perf. Criteria2
Fast transient	EN61000-4-4	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Conducted immunity	EN61000-4-6	Perf. Criteria2

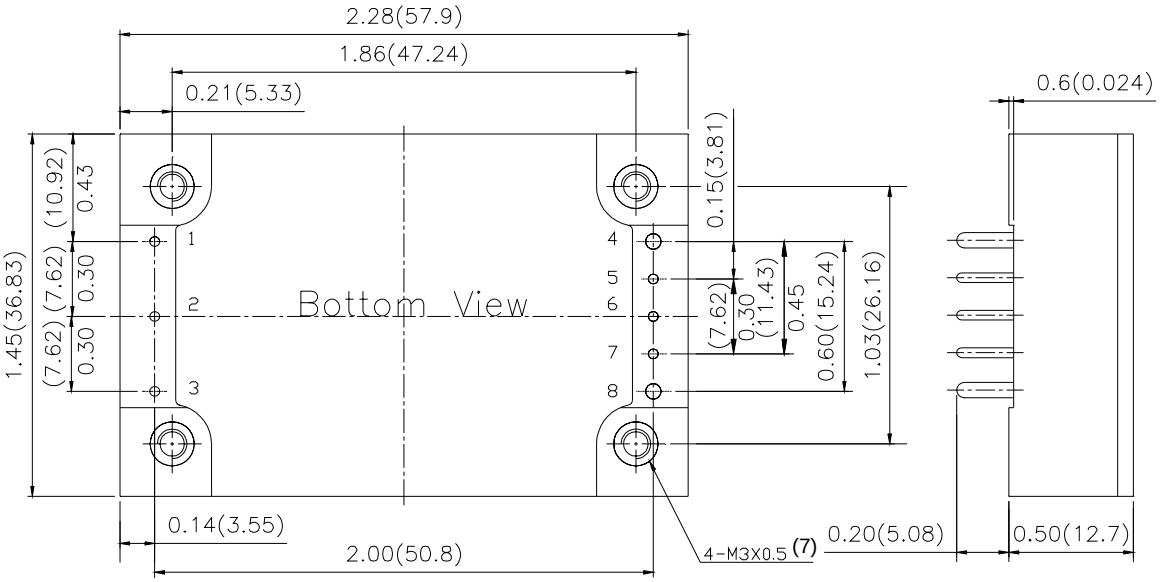
POWER MATE TECHNOLOGY CO.,LTD.

50WATTS SINGLE OUTPUT DC-DC CONVERTER

Model Number	Input Range	Output Voltage	Output Current	Eff (6) (%)	Load regulation
QEB50-48S1P8	36 – 75 VDC	1.8 VDC	20A	87	5.4mV
QEB50-48S2P5	36 – 75 VDC	2.5 VDC	20A	88	7.5mV
QEB50-48S3P3	36 – 75 VDC	3.3 VDC	15A	90	10mV
QEB50-48S05	36 – 75 VDC	5 VDC	10A	91	15mV

Note

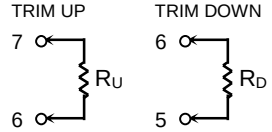
1. Maximum output deviation is 10% inclusive of trim. If remote sense is not being used, the +V sense should be connected to its corresponding +OUTPUT and likewise the –sense should be connected to its corresponding –OUTPUT.
2. An external filter capacitor is required for normal operation. The capacitor should be capable of handing 1A ripple current for 48V models. Power mate suggest: Nippon chemi-con KMF series, 220μF/100V, ESR 90mΩ.
3. The negative / positive logic and pin length are optional (see table). The pin voltage is referenced to negative input.
4. Heat sink is optional and P/N：7G-0029，7G-0030，7G-0031，7G-0032.
5. The QEB50 meets level A and level B conducted emissions only with external components connected before the input pin to the converter.
6. Typical value at nominal input voltage and full load
7. BASEPLATE GROUNDING：Base-plate should be grounded at one of the four screw bolts prior to operation.
8. The converter is provided by basic insulation.



PIN1,2,3,5,6,7. DIM. 0.040(1.016mm)
PIN4,8. DIM. 0.060(1.57mm)
ALL DIMENSIONS IN INCHES(mm)
PIN PITCH TOLERANCE ±0.014(0.35)
Tolerance : x.xx±0.02(x.x±0.5)
x.xxx±0.01(x.xx±0.25)

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.



PIN CONNECTION

PIN	Define
1	- INPUT
2	ON/OFF
3	+ INPUT
4	- OUTPUT
5	- SENSE
6	TRIM
7	+ SENSE
8	+ OUTPUT

PRODUCT OPTIONS TABLE

Option	Suffix
Negative remote ON/OFF logic, 0.20” pin length (standard)	-
Negative remote ON/OFF logic, 0.145” pin length	-L
Negative remote ON/OFF logic, 0.11” pin length	-K
Positive remote ON/OFF logic, 0.20” pin length	-P
Positive remote ON/OFF logic, 0.145” pin length	-S
Positive remote ON/OFF logic, 0.11” pin length	-M

Example：QEB50-48S3P3-P