



### FEATURES

- 75 WATTS MAXIMUM OUTPUT POWER
- SINGLE OUTPUT UP TO 25A
- COMPACT 2.28 X 1.45 X 0.50 INCH PACKAGE
- HIGH EFFICIENCY UP TO 90%
- 2:1 WIDE INPUT VOLTAGE RANGE
- FIXED SWITCHING FREQUENCY
- INDUSTRY STANDARD FOOTPRINT
- NO MINIMUM LOAD REQUIRED
- ADJUSTABLE OUTPUT VOLTAGE
- UNDER-VOLTAGE LOCKOUT
- INPUT TO OUTPUT ISOLATION: 1600VDC
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

### APPLICATIONS

Wireless Network  
Telecom/Datacom  
Industry Control System  
Distributed Power Architectures  
Semiconductor Equipment

### OPTIONS

Positive logic Remote on/off, Pin length

### DESCRIPTION

QEB75 single output DC/DC converters provide up to 75 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 silicone. All models feature a wide input range, trimmable output voltage and a 25A current rating.

## TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS		
Output power		75 Watts, max.
Voltage accuracy		± 1.5%
Minimum load		0%
Voltage adjustability	(Note 5)	+ 10% , -20%
Line regulation	LL to HL at Full Load	±0.2%
Load regulation	No load to Full Load	±0.3%
Remote Sense	(Note 5)	10% of Vout(nom)
Ripple and noise	20MHz bandwidth (Measured with a 1µFM/C and a 10µFT/C)	See table
Temperature coefficient		±0.02% / °C, max.
Transient response recovery time	25% load step change	200µs
Over voltage Protection threshold (Non-latching Hiccup)		120% of Vout(nom) max.
Over Current Protection threshold		110% ~ 140% of Iout Rated
Short circuit protection		Continuous, automatic recovery
GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output Input(Output) to Base-plate	1600 VDC, min. 1minute 1000 VDC, min. 1minute
Isolation resistance	500VDC	10 <sup>7</sup> ohms, min.
Isolation capacitance		2500 pF, max.
Switching frequency		270kHz±10%
Safety approvals	QEB75-48S1P8 QEB75-48S2P5 QEB75-48S3P3 QEB75-48S05	IEC60950-1 UL60950-1 EN60950-1
Case material		Aluminum base-plate
Weight (approx)		42g (1.46 oz)
MTBF (Note 1)	MIL-HDBK-217F	4.632 x 10 <sup>5</sup> hrs

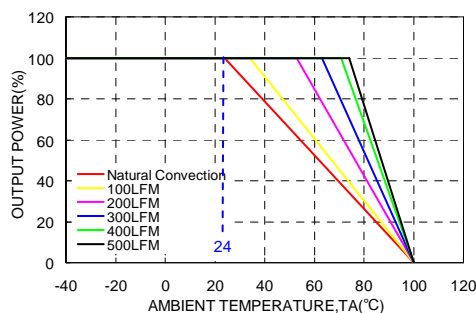
INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input 48VDC nominal input		18 ~ 36VDC 36 ~ 75VDC
Input filter			L-C type
Input surge voltage	24VDC input 48VDC input		50VDC 100ms, max. 100VDC 100ms, max.
Start up time	Nominal input and constant resistive load	Power up Remote ON/OFF	25ms 25ms
Start-up voltage	24VDC input 48VDC input		18VDC, max. 36VDC, max.
Shutdown voltage	24VDC input 48VDC input		15VDC 32VDC
Remote ON/OFF (Note 6)			
Negative logic(Standard)	DC-DC ON DC-DC OFF		Short or 0V < Vr < 1.2V Open or 3V < Vr < 15V
Positive logic(Option)	DC-DC ON DC-DC OFF		Open or 3V < Vr < 15V Short or 0V < Vr < 1.2V
Input current of remote control pin	Nominal input		-0.5~1.0mA
Remote off state input current	Nominal input		2.5mA
ENVIRONMENTAL SPECIFICATIONS			
Operating base-plate temperature range (Note 7)			-40°C ~ +100°C
Over temperature protection			+110°C
Storage temperature range			-55°C ~ +125°C
Thermal shock			MIL-STD-810F
Vibration			MIL-STD-810F
Relative humidity(non-condensing)			5% to 95% RH
EMC CHARACTERISTICS			
EMI (Note 8)	EN55022		Class A, Class B
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (Note 9)	EN61000-4-4	± 2kV	Perf. Criteria B
Surge (Note 9)	EN61000-4-5	± 1kV	Perf. Criteria B
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Model Number	Input Range	Output Voltage	Output Current		Output <sup>(2)</sup> Ripple & Noise	No load <sup>(3)</sup> Input Current	Eff(%) <sup>(4)</sup>
			Min. load	Full load			
QEB75-24S3P3	18 ~ 36 VDC	3.3 VDC	0mA	20A	100mVp-p	65mA	89
QEB75-24S05	18 ~ 36 VDC	5 VDC	0mA	15A	100mVp-p	110mA	90
QEB75-24S12	18 ~ 36 VDC	12 VDC	0mA	6.25A	100mVp-p	40mA	90
QEB75-24S15	18 ~ 36 VDC	15 VDC	0mA	5A	100mVp-p	50mA	90
QEB75-48S1P8	36 ~ 75 VDC	1.8 VDC	0mA	25A	100mVp-p	60mA	85
QEB75-48S2P5	36 ~ 75 VDC	2.5 VDC	0mA	25A	100mVp-p	50mA	87
QEB75-48S3P3	36 ~ 75 VDC	3.3 VDC	0mA	20A	100mVp-p	70mA	90
QEB75-48S05	36 ~ 75 VDC	5 VDC	0mA	15A	100mVp-p	80mA	90
QEB75-48S12	36 ~ 75 VDC	12 VDC	0mA	6.25A	100mVp-p	50mA	90
QEB75-48S15	36 ~ 75 VDC	15 VDC	0mA	5A	100mVp-p	50mA	90

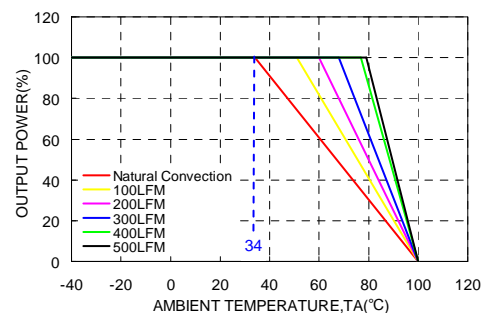
- Note :
- MIL-HDBK-217F @Tc=70 °C, Full load.
  - Typical value at nominal input and full load. (20MHZ BW)
  - Typical value at nominal input and no load.
  - Typical value at nominal input and full load.
  - Maximum output deviation is 10% inclusive of trim. If remote sense is not being used, the +SENSE should be connected to its corresponding +OUTPUT and likewise the -SENSE should be connected to its corresponding -OUTPUT.
  - The positive logic and pin length are optional ( see table ). The CTRL pin voltage is referenced to -INPUT.
  - Heat-sink is optional and P/N : 7G-0029A-F, 7G-0030A-F, 7G-0031A-F, 7G-0032A-F.
  - The QEB75 series standard module meets EN55022 Class A and Class B with external components.  
For more detail information, please contact with P-DUKE.
  - An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.  
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220  $\mu$  F/100V.
  - BASE-PLATE GROUNDING : When connect the four screw bolts to shield plane, the EMI could be reduced.
  - The converter is provided by basic insulation.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.

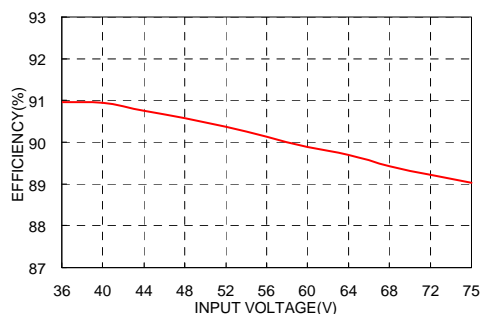
QEB75-48S05 Derating Curve



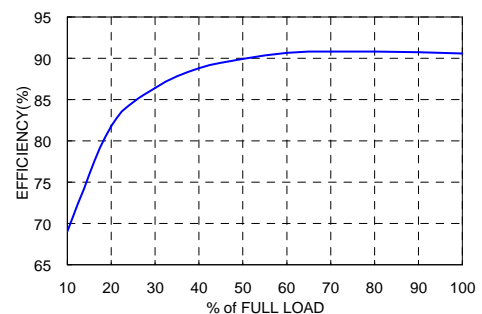
QEB75-48S05 Derating Curve With Heat-sink 7G-0029(Note 7)

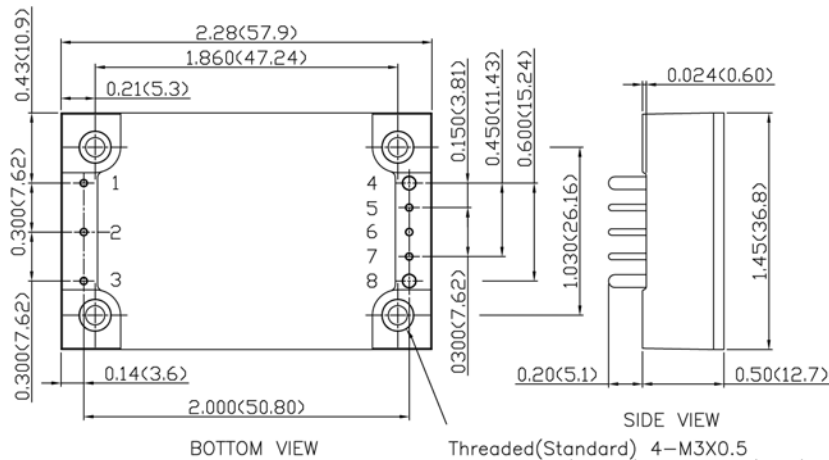


QEB75-48S05 Efficiency VS Voltage



QEB75-48S05 Efficiency VS Output Load



**MECHANICAL DRAWING :**


Threaded(Standard) 4-M3X0.5  
 Trough hole(Option) 4- $\phi$ 0.126( $\phi$ 3.2)  
 The screw locked torque:  
 MAX 0.34N.M/3.5kgf-cm/0.34N-M(Note10)

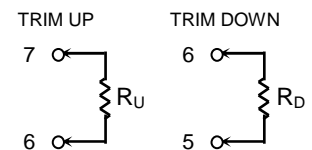
- All dimensions in Inch (mm)  
 Tolerance: X.XX $\pm$ 0.02 (X.X $\pm$ 0.5)  
 X.XXX $\pm$ 0.01 (X.XX $\pm$ 0.25)
- Pin pitch tolerance  $\pm$ 0.01(0.25)
- Pin dimension tolerance  $\pm$ 0.004 (0.1)

**PIN CONNECTION**

PIN	DEFINE	DIAMETER
1	-INPUT	0.040 Inch ( 1.02mm )
2	CTRL	0.040 Inch ( 1.02mm )
3	+INPUT	0.040 Inch ( 1.02mm )
4	-OUTPUT	0.060 Inch ( 1.52mm )
5	-SENSE	0.040 Inch ( 1.02mm )
6	TRIM	0.040 Inch ( 1.02mm )
7	+SENSE	0.040 Inch ( 1.02mm )
8	+OUTPUT	0.060 Inch ( 1.52mm )

**EXTERNAL OUTPUT TRIMMING**

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


**Remote On/Off and Pin Options**

Remote On/Off and Pin Options	Suffix
Negative remote ON/OFF logic, 0.200" pin length (standard)	-
Negative remote ON/OFF logic, 0.145" pin length	-L
Positive remote ON/OFF logic, 0.200" pin length	-P
Positive remote ON/OFF logic, 0.145" pin length	-S

**Heat-Sink and Mounting Hole Tread Options**

Heat-Sink and Mounting Hole Tread Options	Suffix
Without heat-sink	-
7G-0029A-F	-HS
7G-0030A-F	-HS1
7G-0031A-F	-HS2
7G-0032A-F	-HS3
Through hole (No thread)	-TH

Example : QEB75-48S3P3-PHS

\* The module can't equip heat-sink with TH option.