

**FEATURES**

- 125 WATTS MAXIMUM OUTPUT POWER
- SINGLE OUTPUT UP TO 35A
- 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
- ADJUSTABLE OUTPUT VOLTAGE
- UNDER-VOLTAGE LOCKOUT
- INPUT TO OUTPUT ISOLATION (BASIC INSULATION)
- CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

**APPLICATIONS**

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

**OPTIONS**

Positive logic Remote on/off, Pin length

**DESCRIPTION**

QEB125 single output DC/DC converters provide up to 125 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 35A current rating.

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

OUTPUT SPECIFICATIONS		
Output power		125 Watts max.
Voltage accuracy	Full load and Normal Vin	± 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	See table
Remote Sense	(Note 5)	10% of Vout
Ripple and noise	20MHz bandwidth (Measured with a 1µF M/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% Vout max.
Over Current Protection threshold		110% ~ 140% of Iout Rated
Short circuit protection		Hiccup, automatics recovery
GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output	1600VDC,min
	Input to Case	1000VDC,min
	Output to Case	1000VDC,min
Isolation resistance		10 <sup>7</sup> ohms, min
Isolation capacitance		2500 pF, max
Switching frequency		270 KHz, typ
Approvals and standard		IEC60950-1, UL60950-1, EN60950-1
Case material		Aluminum base plate
Weight (approx)		42g (1.46 oz)
MTBF (Note 1)	BELLCORE TR-NWT-000332	2.500 x 10 <sup>6</sup> hrs
	MIL-HDBK-217F	1.257 x 10 <sup>5</sup> hrs

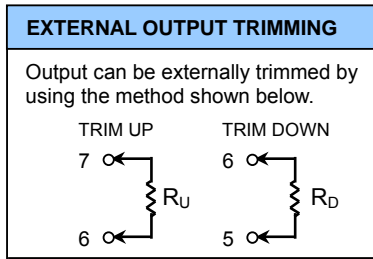
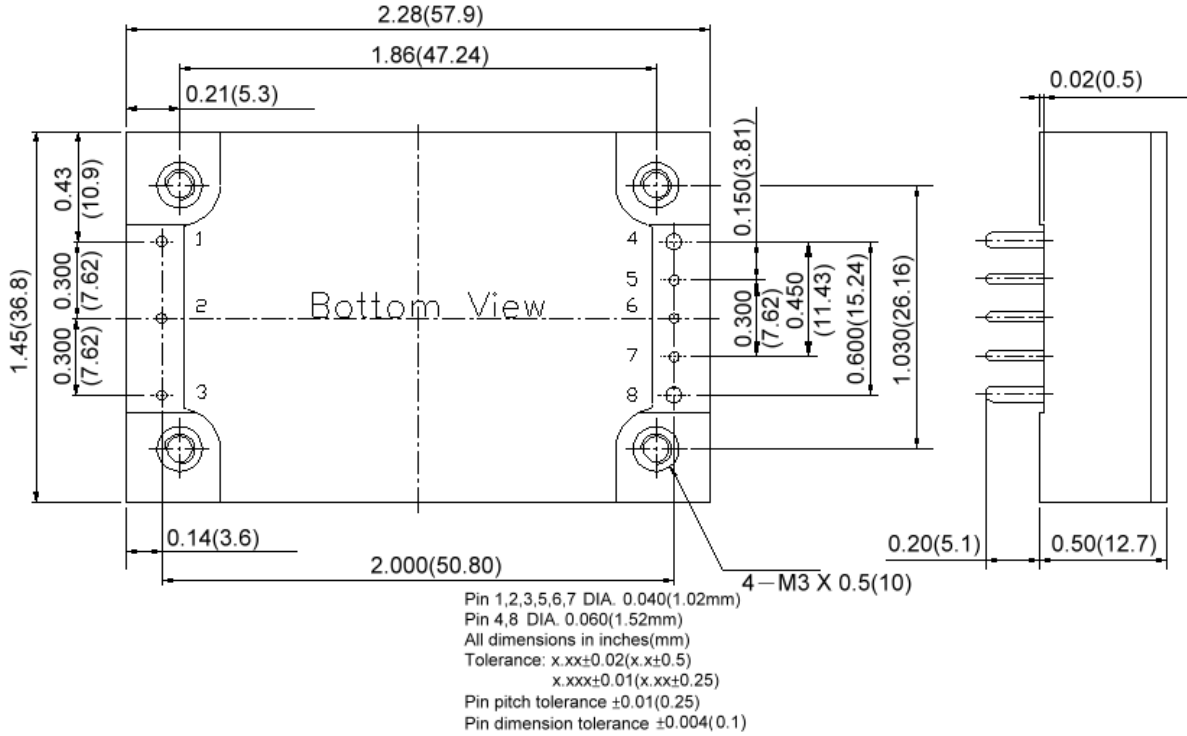
INPUT SPECIFICATIONS			
Input voltage range	24V nominal input		18 – 36VDC
	48V nominal input		36 – 75VDC
Input filter			L-C type
Input surge voltage 100mS max.	24V nominal input		50VDC
	48V nominal input		100VDC
Start up time	Nominal Vin and constant resistive load	Power up	25mS typ.
		Remote ON/OFF	25mS typ.
Start-up voltage	24V nominal input		17VDC
	48V nominal input		34VDC
Shutdown voltage	24V nominal input		15VDC
	48V nominal input		32VDC
Remote ON/OFF (Note 6)			
Negative logic(Standard)	DC-DC ON		Short or 0V < Vr < 1.2V
	DC-DC OFF		Open or 3V < Vr < 15V
Positive logic(OPTION)	DC-DC ON		Open or 3V < Vr < 15V
	DC-DC OFF		Short or 0V < Vr < 1.2V
Input current of remote control pin	Nominal Vin		-0.5~1.0mA
Remote off state input current	Nominal Vin		2.5mA
ENVIRONMENTAL SPECIFICATIONS			
Operating base-plate temperature range (Note 7)			-40°C to +100°C (with derating)
Over temperature protection			110°C, max.
Storage temperature range			-55°C to +125°C
Thermal shock			MIL-STD-810F
Vibration			10~55Hz, 2G, 30minutes along X,Y and Z
Humidity , Max. , Non-Condensing			95%
EMC CHARACTERISTICS			
EMI (Note 8)	EN55022		Class A
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>(4)</sup> Ripple & Noise	Input Current		Eff <sup>(4)</sup> (%)	Load regulation
			Min. load	Full load		No load <sup>(3)</sup>	Full load <sup>(2)</sup>		
QEB125-24S3P3	18 – 36 VDC	3.3 VDC	0mA	30A	100mVp-p	130mA	4970mA	87	10mV
QEB125-24S05	18 – 36 VDC	5 VDC	0mA	25A	100mVp-p	180mA	6127mA	89	15mV
QEB125-24S12	18 – 36 VDC	12 VDC	0mA	10.42A	100mVp-p	190mA	6129mA	89	36mV
QEB125-24S15	18 – 36 VDC	15 VDC	0mA	8.33A	100mVp-p	190mA	6125mA	89	45mV
QEB125-48S1P8	36 – 75 VDC	1.8 VDC	0mA	35A	100mVp-p	60mA	1641mA	84	5.4mV
QEB125-48S2P5	36 – 75 VDC	2.5 VDC	0mA	35A	100mVp-p	60mA	2223mA	86	7.5mV
QEB125-48S3P3	36 – 75 VDC	3.3 VDC	0mA	30A	100mVp-p	90mA	2455mA	88	10mV
QEB125-48S05	36 – 75 VDC	5 VDC	0mA	25A	100mVp-p	90mA	3028mA	90	15mV
QEB125-48S12	36 – 75 VDC	12 VDC	0mA	10.42A	100mVp-p	130mA	3029mA	90	36mV
QEB125-48S15	36 – 75 VDC	15 VDC	0mA	8.33A	100mVp-p	130mA	3027mA	90	45mV

**Note :**

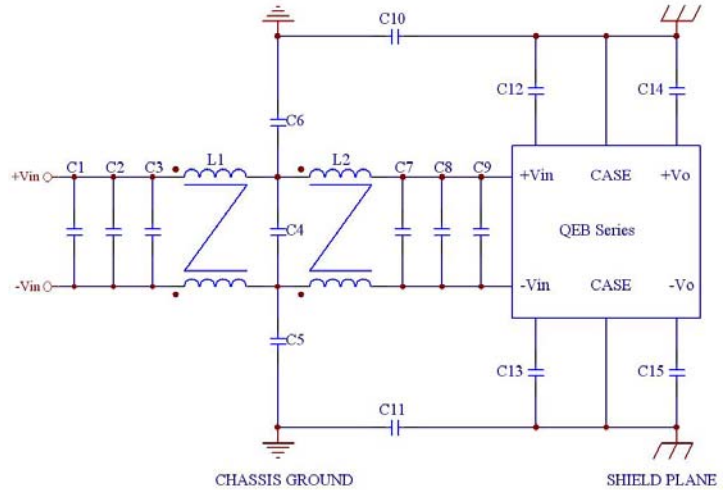
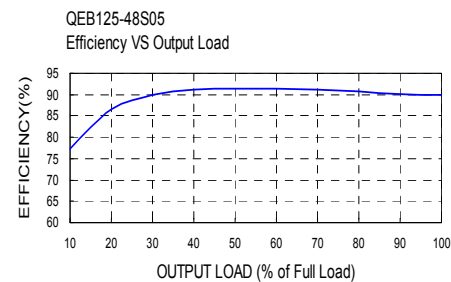
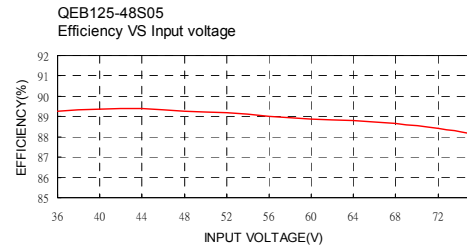
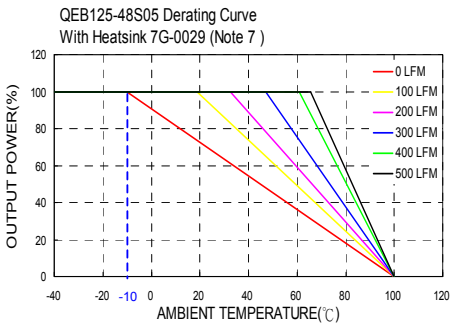
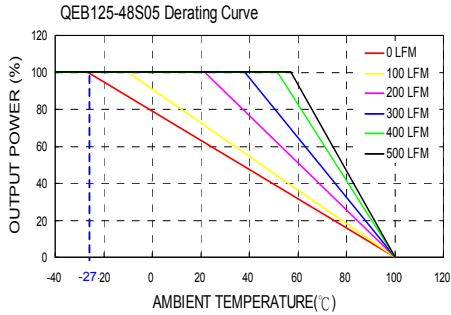
- 1.BELLCORE TR-NWT-000332. Case 1: 80% Stress, Temperature at 40°C.  
MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment)
- 2.Maximum value at nominal input voltage and full load of standard type.
- 3.Typical value at nominal input voltage and no load.
- 4.Typical value at nominal input voltage and full load.
- 5.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.
- 6.The positive logic and pin length are optional ( see table ). The pin voltage is referenced to –Vin.
- 7.Heat sink is optional and P/N : 7G-0029A-F, 7G-0030A-F, 7G-0031A-F, 7G-0032A-F.
- 8.The QEB125 meets EN55022 class A and class B only with external components connected before the input pin to the converter.
- 9.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, ESR 48m $\Omega$ .
- 10.BASEPLATE GROUNDING : Base-plate should be grounded at one of the four screw bolts prior to operation.
- 11.The converter is provided by basic insulation.



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

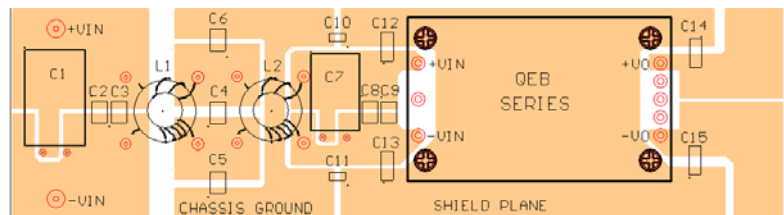
**Example : QEB125-48S3P3-P**



**Recommended Filter for EN5022 Class B Compliance**  
The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

	C1	C2	C3	C4	C5
QEB125-24Sxx	6.8μF/50V	6.8μF/50V	6.8μF/50V	6.8μF/50V	1.5nF/3KV
	C6	C7	C8	C9	C10
	1.5nF/3KV	6.8μF/50V	6.8μF/50V	6.8μF/50V	0.1μF/50V
	C11	C12	C13	C14	C15
	0.1μF/50V	1.0nF/3KV	1.0nF/3KV	1.0nF/3KV	1.0nF/3KV
	L1	L2			
	622μH	224μH			

	C1	C2	C3	C4	C5
QEB125-48Sxx	100μF/100V	1.5μF/100V	1.5μF/100V	1.5μF/100V	1.5nF/3KV
	C6	C7	C8	C9	C10
	1.5nF/3KV	47μF/100V	1.5μF/100V	1.5μF/100V	0.1μF/50V
	C11	C12	C13	C14	C15
	0.1μF/50V	1.0nF/3KV	1.0nF/3KV	1.0nF/3KV	1.0nF/3KV
	L1	L2			
	620μH	620μH			



**Recommended EN5022 Class B Filter Circuit Layout**