

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 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

OPTIONS

Positive logic Remote on/off, Pin length

APPLICATIONS

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

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 silicone. 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		± 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 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% 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	1600 VDC, min. 1minute
	Input(Output) to Base-plate	1000 VDC, min. 1minute
Isolation resistance	500VDC	10 ⁷ ohms, min.
Isolation capacitance		2500 pF, max.
Switching frequency		270kHz±10%
Safety approvals	QEB125-48S1P8	IEC60950-1
	QEB125-48S2P5	UL60950-1
	QEB125-48S3P3	EN60950-1
	QEB125-48S05	
Case material		Aluminum base-plate
Weight (approx)		42g (1.46 oz)
MTBF (Note 1)	MIL-HDBK-217F	3.774 x 10 ⁵ hrs

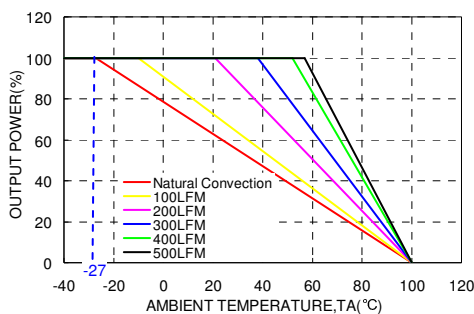
INPUT SPECIFICATIONS			
Input voltage range	24VDC nominal input		18 ~ 36VDC
	48VDC nominal input		36 ~ 75VDC
Input filter			L-C type
Input surge voltage	24VDC input		50VDC 100ms, max.
	48VDC input		100VDC 100ms, max.
Start up time	Nominal input and constant resistive load	Power up	25ms
		Remote ON/OFF	25ms
Start-up voltage	24VDC input		18VDC, max.
	48VDC input		36VDC, max.
Shutdown voltage	24VDC input		15VDC
	48VDC 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(Optional)	DC-DC ON		Open or 3V < Vr < 15V
	DC-DC OFF		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		10~55Hz, 2G, 30minutes along X,Y and Z	
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 ⁽²⁾ Ripple & Noise	No load ⁽³⁾ Input Current	Eff(%) ⁽⁴⁾
			Min. load	Full load			
QEB125-24S3P3	18 ~ 36 VDC	3.3 VDC	0mA	30A	100mVp-p	90mA	87
QEB125-24S05	18 ~ 36 VDC	5 VDC	0mA	25A	100mVp-p	165mA	89
QEB125-24S12	18 ~ 36 VDC	12 VDC	0mA	10.42A	100mVp-p	50mA	89
QEB125-24S15	18 ~ 36 VDC	15 VDC	0mA	8.33A	100mVp-p	60mA	89
QEB125-48S1P8	36 ~ 75 VDC	1.8 VDC	0mA	35A	100mVp-p	65mA	84
QEB125-48S2P5	36 ~ 75 VDC	2.5 VDC	0mA	35A	100mVp-p	50mA	86
QEB125-48S3P3	36 ~ 75 VDC	3.3 VDC	0mA	30A	100mVp-p	75mA	88
QEB125-48S05	36 ~ 75 VDC	5 VDC	0mA	25A	100mVp-p	110mA	90
QEB125-48S12	36 ~ 75 VDC	12 VDC	0mA	10.42A	100mVp-p	40mA	90
QEB125-48S15	36 ~ 75 VDC	15 VDC	0mA	8.33A	100mVp-p	40mA	90

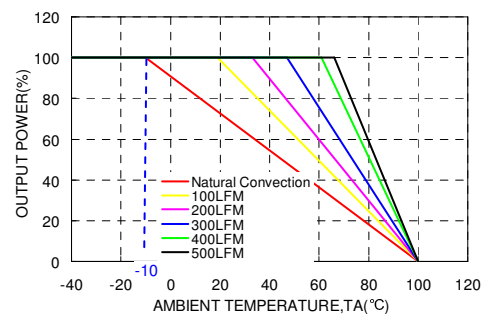
- Note :
- MIL-HDBK-217F @Tc=70 °C, Full load.
 - Typical value at nominal input and full load. (20MHz BW)
 - Typical value at nominal input and no load.
 - Typical value at nominal input and full load.
 - Maximum output deviation is 10% inclusive of trim. If remote sense is not being used, the +SENSE 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 QEB125 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 μ 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.

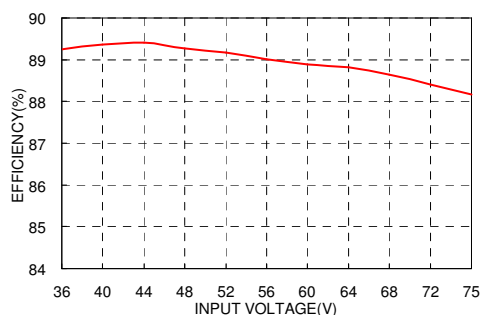
QEB125-48S05 Derating Curve



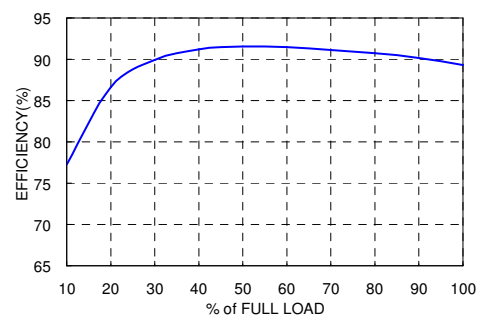
QEB125-48S05 Derating Curve With Heat-sink 7G-0029(Note 7)



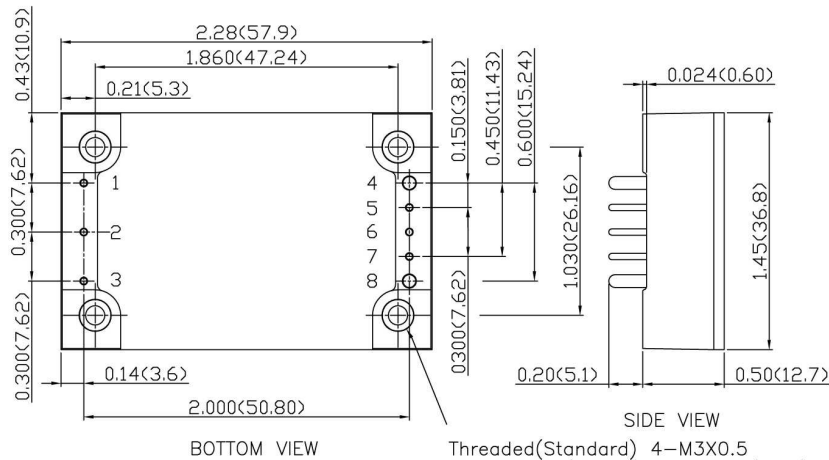
QEB125-48S05 Efficiency VS Voltage



QEB125-48S05 Efficiency VS Output Load



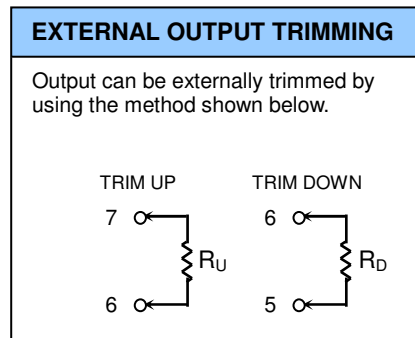
MECHANICAL DRAWING :



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

1. 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)
2. Pin pitch tolerance \pm 0.01 (0.25)
3. 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)



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	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 : QEB125-48S3P3-PHS

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