

# Quarter-Brick Series

## 2nd Generation IBC

**Total Power:** 336 - 450W  
**Input Voltage:** 36 - 75 Vdc



### Special Features

- 48V input with isolated 12 V output
- Ultra-high efficiency, 95.5% 12 V @ 37.5 A
- High power density (337 W/in<sup>3</sup>) open-frame technology
- Wide operating ambient temperature range
- Industry standard quarter-brick footprint and pinout
- Low profile, 0.40 " (10.2 mm)
- Meets basic insulation requirements of EN60950-1
- Remote ON/OFF and overtemperature protection
- Available RoHS compliant
- 2 Year Warranty

### Safety

UL/cUL : CAN/CSA 22.2  
No. 60950-1  
UL60950-File No. E135734

VDE File No. 10401-3336-0206  
Licence No. 40012752

## Electrical Specifications

### Output

Output setpoint accuracy		See table
Line regulation:	Low line to high line	See table
Load regulation	Full load to min. load	See table
Total error band	IBC38AQT4812J	9.70 - 13.40 Vdc
(including setpoint, line, load and temperature)	IBC30AQS4812J	11.52 - 12.48 Vdc
	IBC28AQW4812J	11.40 - 12.60 Vdc
Minimum load		0 A
Overshoot	At turn on and turn-off	None
Undershoot		None
Ripple and noise	(See note 2)	100 mV pk-pk typ. 40 mV rms typ.
5 - 20 MHz		

### Input

Input voltage range		See table
Input current	Remote OFF	6 mA typ.
Input current (max.)	(See note 1)	12 A max. @ I <sub>o</sub> max. and V <sub>in</sub> = min. rated
Input reflected ripple	(See note 4)	1000 - 1560 mA (pk-pk)
Remote ON/Off	(See note 6)	
Logic compatibility		Open collector ref. to- input
On		>2.4 Vdc
OFF		<0.4 Vdc
Undervoltage lockout (non-latching):	Power-up	40 V
	Power-down	38 V
IBC38AQT4812J and	Power up	35.2 V
IBC30AQS4812J	Power down	34 V
IBC28AQW4812J		
Startup time (see note 3)	Power-up	15 ms
	Remote ON/OFF	5 ms



All specifications are typical at nominal input, full load at 25° C unless otherwise stated.

### EMC Characteristics

Immunity:		
ESD air enclosure	EN61000-4-2 8 kV, 6 kV	(O/P within spec.)
Radiated field enclosure	EN61000-4-3 10 V/m	(O/P within spec.)
Conducted (DC power)	EN61000-4-6 10 V	(O/P within spec.)
Input transients	60 V to 100 V, 100 ms	

### General Specifications

Efficiency		See table
Basic insulation	Input/output	2250 Vdc
Switching frequency	Fixed	400 kHz typ.
Approvals and standards (see note 5)		EN60950-1 VDE UL/cUL60950-1
Material flammability		UL94V-0
Weight		49 g (1.73 oz)
MTBF	Telcordia Tech SR-332	5,500,000 hours
Representative model:	48 Vin, 40 °C, 50% load ground benign	

## Environmental Specifications

Thermal performance	Operating ambient, temperature	-40 °C to +85 °C
	Non-operating	-55 °C to +125 °C

### Protection

Short-circuit		Hiccup
Overvoltage	(See note 9)	Non-latching
Thermal		125 °C hot spot

### Ordering Information

Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typ.)	Set Point Accuracy %	Regulation <sup>2</sup>		Model Number
							Line %	Load	
450 W	42 - 53 Vdc	12 V	0 A	37.5 A <sup>(7)</sup>	95.5%	---	+10, -12.5%	±1.5%	IBC38AQT4812J
360 W	42 - 53 Vdc	12 V	0 A	30 A	94.5%	±0.25%	±0.3%	±1.5%	IBC30AQS4812J
336 W	36 - 75 Vdc	12 V	0 A	28 A	94.5%	±0.25%	±1.0%	±1.5%	IBC28AQW4812J

**CAUTION: Hazardous internal voltages and high temperatures. Ensure that unit is not user accessible.**

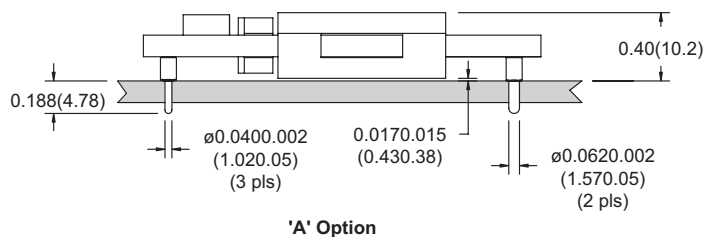
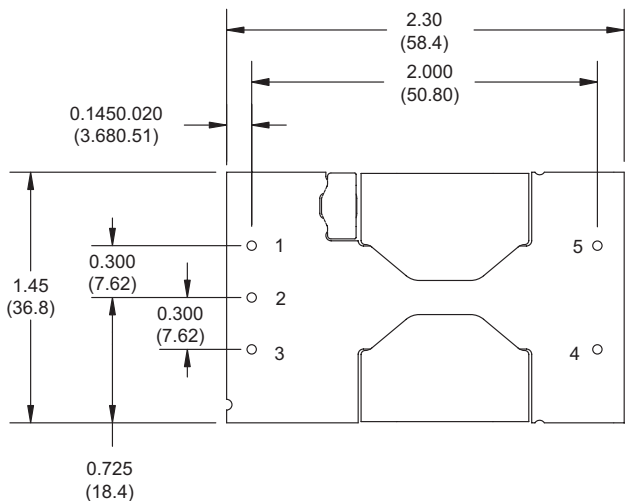
## Part Number System with Options

Product Family	Rated Output Current	Form Factor	Input Voltage Type	Input Voltage	Output Voltage	Remote ON/OFF Logic	Package, Body Height	Pin Length Options	RoHS Compliance <sup>(7,8)</sup>	
<b>IBC</b>	<b>30A</b>	<b>Q</b>	<b>S</b>	<b>48</b>	<b>12</b>	<b>-</b>	<b>R</b>	<b>A</b>	<b>N</b>	<b>J</b>
IBC = 2nd Generation IBC	30 A = 30 Amps etc.	Q = Quarter-brick	T = Narrow Input Fixed Ratio S = Narrow Input Semi-regulated W = Wide Telecom Semi-regulated	48 = 48 V	12 = 12 V	Blank = Positive R = Negative (See Note 6)	A = Open-frame 0.40 in (10.2 mm) E = Open-frame, 0.45 in (11.4 mm)	Blank = 0.188 " (4.78 mm) N = 0.145 " (3.68 mm) K = 0.110 " (2.79 mm)	J = Pb-free (RoHS 6/6 compliant)	

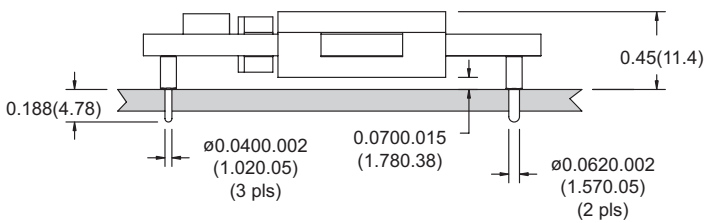
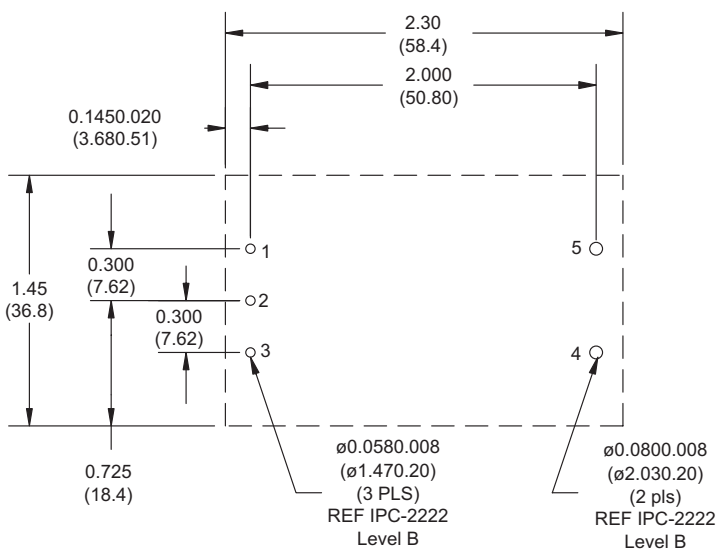
### Notes

- Recommended input fusing is a 20 A HRC 200 V rated fuse.
- Maximum is model dependent, Measured with external filter. See Application Note 190 for details.
- Start-up into resistive load.
- Maximum is model dependent, measured without external Pi filter. Significant reduction is possible with external filter. See Application Note 190 for details.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- Negative remote ON/OFF option is available. Please add the suffix '-R' to the part number, e.g. IBC30AQS4812-RAJ.
- Output is rated at 450W constant power.  
 $V_{in} = 42 V: I_{max} = 42.9 A$   
 $V_{in} = 48 V: I_{max} = 37.5 A$   
 $V_{in} = 53 V: I_{max} = 34.0 A$
- 'E' option clearance is required to maintain 'Basic' creepage and clearance requirements when minimally insulated conductor paths are placed directly underneath the converter.
- TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- NOTICE: Some models do not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at <http://www.powerconversion.com> to find a suitable alternative.

Mechanical Drawing



'A' Option



'E' Option  
(See Note 8)

RECOMMENDED HOLE PATTERN

Dimensions in Inches (mm)  
Tolerances (unless otherwise specified)  
x.xx 0.02 (x.x 0.5)  
x.xxx 0.010 (x.xx 0.25)

Pin connections

Pin Number	Function
1	+Vin
2	Remote ON/OFF
3	-Vin
4	-Vout
5	+Vout

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