

POEB3FB

Power over ethernet (PoE)/PD flyback transformer



Product features

- Flyback topology
- IEEE 802.3xx
- Up to 200 kHz switching frequency
- Input range from 10 V to 57 V
- EFD25 SMT package (32.8 mm x 26.8 mm x 14.8 mm)
- 1500 Vac isolation between primary and secondary
- Two power levels: 48 and 84 watts
- Low leakage inductance
- Ferrite core material
- Moisture sensitivity level (MSL): 1

Applications

- Lighting
- Industrial automation
- Security systems
- VoIP phone systems
- Network and Bluetooth access points
- Network routers, repeaters
- Uninterruptible power supplies (UPS)
- Retail point-of-information (POI) systems
- Vending and gaming machines
- Remote cameras

Environmental compliance and general specifications

- Storage temperature (component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)

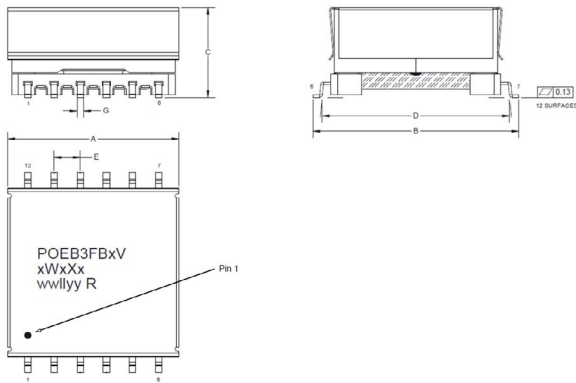


Product specifications

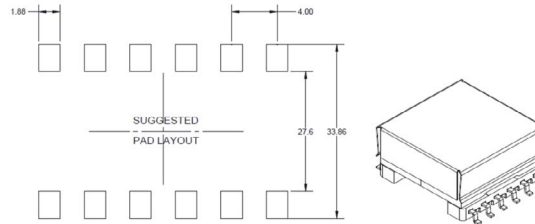
Part number ⁴	Output power (W)	OCL ¹ (μH) ±10%	SCL ² (μH) maximum	I _{sat} ³ (A)	Turns Ratio Schematic 1: Pri : Sec 1 : Aux Schematic 2: Pri : Sec 1 : Sec 2 : Aux ±3%	Output	DCR (mΩ)	DCR (mΩ)	DCR (mΩ)	DCR (mΩ)	Schematic
							maximum @ +25 °C (Pri)	maximum @ +25 °C (Sec 1)	maximum @ +25 °C (Sec 2)	maximum @ +25 °C (Aux)	
POEB3FB1V48W1X12	48	30	1	5	1:1.07:1.07	(1) x 12.0 V @ 4.0 A	30	50	-	500	1
POEB3FB1V84W2X12	84	17.5	1	22	1:0.273:0.273:0.227	(2) x 12.0 V	85	7	35	100	2

- Open circuit inductance (OCL) is for the primary, test parameters: 100 kHz, 0.1 V_{rms}, 0.0 Adc, +25 °C
- Short circuit inductance (SCL) is for the primary with the other windings shorted, test parameters: 100 kHz, 0.1 V_{rms}, 0.0 Adc, +25 °C
- I_{sat} is for the primary, peak current for less than or equal to 10% rolloff @ +25 °C
- Part Number Definition: POEB3FBxVxWxXx
POEB3FB=Product code and size
xVxW, xV=Version indicator, xW= Output power, xXx=number of outputs and output voltage

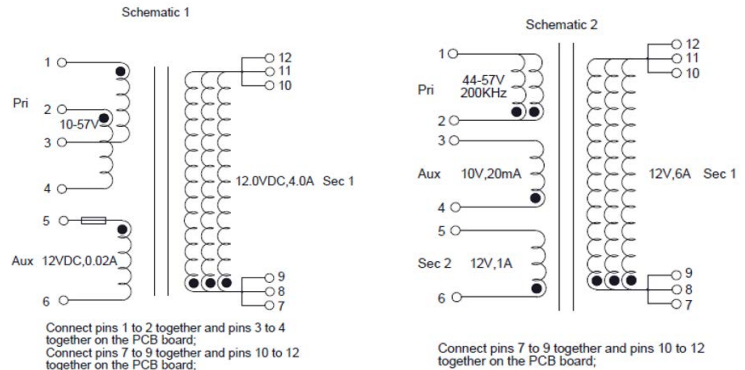
Mechanical parameters, schematic, pad layout (mm)



Recommended PCB Layout



Schematic

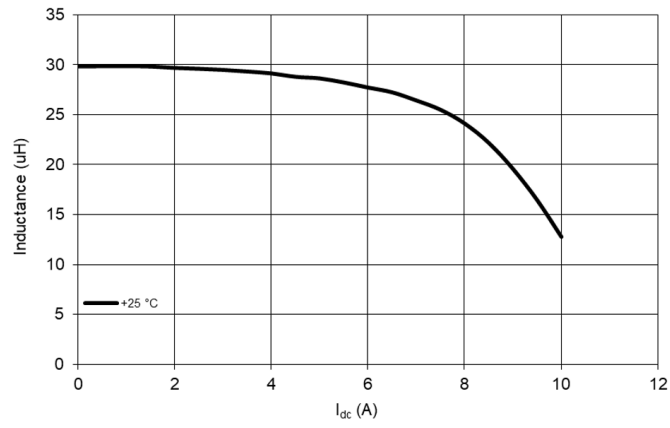


Dimension	Value
A	26.8 maximum
B	32.8 maximum
C	14.8 maximum
D	29.5 typical
E	4.0 ± 0.3
G	1.1 ± 0.2

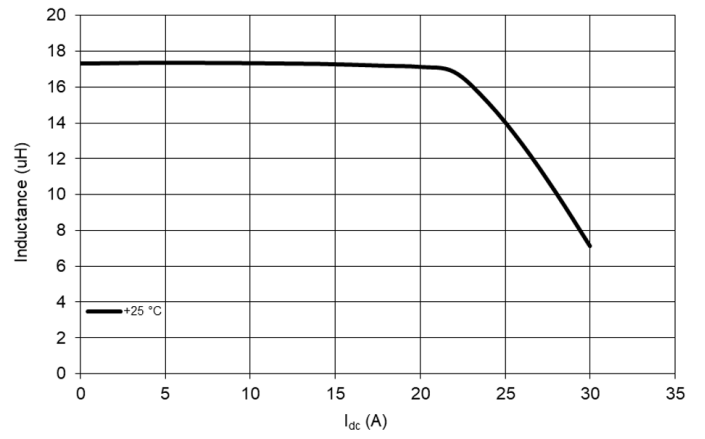
Part marking: Dot indicates pin 1, POEB3FB = Product code and size,
xV=Version indicator, xW= Output power,
xXx=number of outputs and output voltage.
wwllyy R= Lot code
All pin length doesn't include tin icicles
All soldering surfaces to be coplanar within 0.13 millimeters
Tolerances are ±0.25 millimeters unless stated otherwise
Pad layout tolerances are ±0.1 millimeters unless stated otherwise
Traces or vias underneath the transformer is not recommended

OCL (inductance) vs current characteristics

POEB3FB1V48W1X12

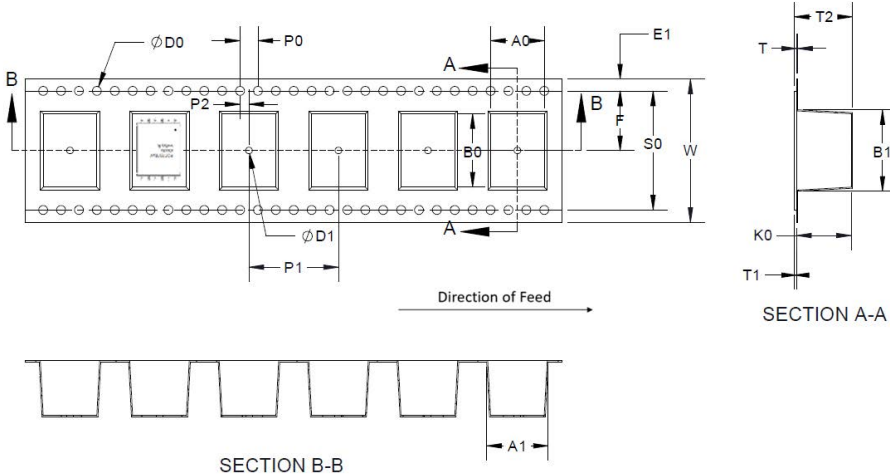


POEB3FB1V84W2X12



Packaging information (mm)

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)
100 parts per reel



Dimension	Value
$W \pm 0.30$	56
$F \pm 0.10$	26.2
$E1 \pm 0.10$	1.75
$P0 \pm 0.10$	4
$P1 \pm 0.10$	36
$P2 \pm 0.15$	2
$D0 + 0.10/-0$	1.5
$D1$ minimum	2
$A0 \pm 0.10$	28
$A1$ ref.	25.4
$B0 \pm 0.10$	33.6
$B1 \pm 0.1$	26.4
$K0 \pm 0.10$	14.8
$T \pm 0.05$	0.5
$T1$ maximum	0.1
$T2$ maximum	15.5
$S0$	52.4

General specifications

Reflow: MIL-STD-202G Condition J, +245 °C ± 5 °C, 30 s ± 5 s, 1 times reflow

Solderability: J-STD-002. 8 hours steam age test, Flux type: ROL0, Solder: +245 °C ± 5 °C

Mechanical shock: MIL-STD-202 Method 213. Half-sine shock pulse, peak=100 g's, 6.0 ms, total 18 shocks

Vibration: MIL-STD-202, Method 204. Gravity= 10 g, Frequency= 10 Hz to 55 Hz to 10 Hz, Direction: 3 (X,Y, Z), each 12 cycles, Duration= 20 minutes in each direction

Salt spray: GB/T6461-2002, Salt spray concentration= 5% ± 1%, Test temperature= +35 ± 2 °C, pH value= 6.5 to 7.2, Time= 48 hours, After removing the product, wash in warm water or salted water, then natural air-dried for 1 hour

High temperature storage test: MIL-STD-202G Method 108, +125 °C, Duration= 1000 hours

Temperature cycling: JESD22 Method JA-104, High temperature= +125 °C, low temperature -40 °C, conversion time 30 minutes, 100 cycles.

Biased humidity: MIL-STD-202G Method 103, +85 °C, 85% RH, Duration= 1000 hours.

Life: MIL-STD-202 Method 108, 1000 hours, +85 °C at rated I_{rms} (Ambient plus self temperature rise no more than +125 °C)

Solder reflow profile

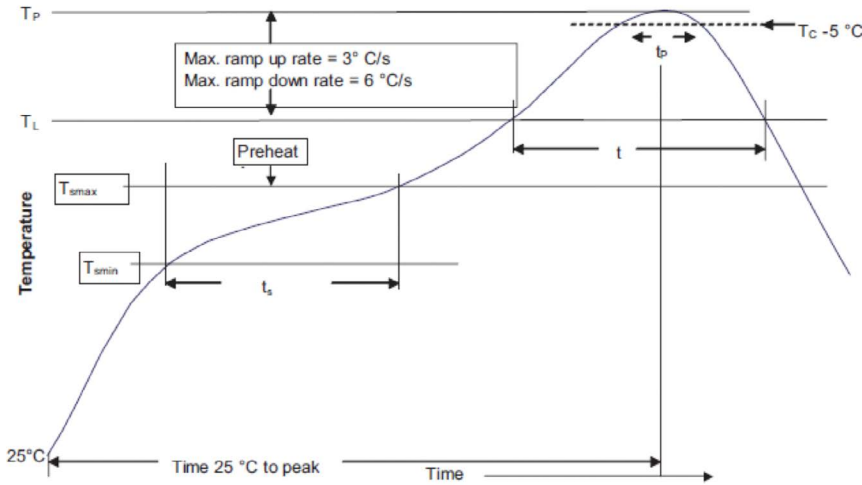


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm^3 <350	Volume mm^3 \geq 350
<2.5 mm)	235 °C	220 °C
\geq 2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T_{smin})	100 °C	150 °C
• Temperature max. (T_{smax})	150 °C	200 °C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L)	183 °C	217 °C
Time (t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature (T_p)*	Table 1	Table 2
Time (t_p)* within 5 °C of the specified classification temperature (T_C)	10 seconds*	10 seconds*
Ramp-down rate (T_p to T_L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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