Specifications Continued

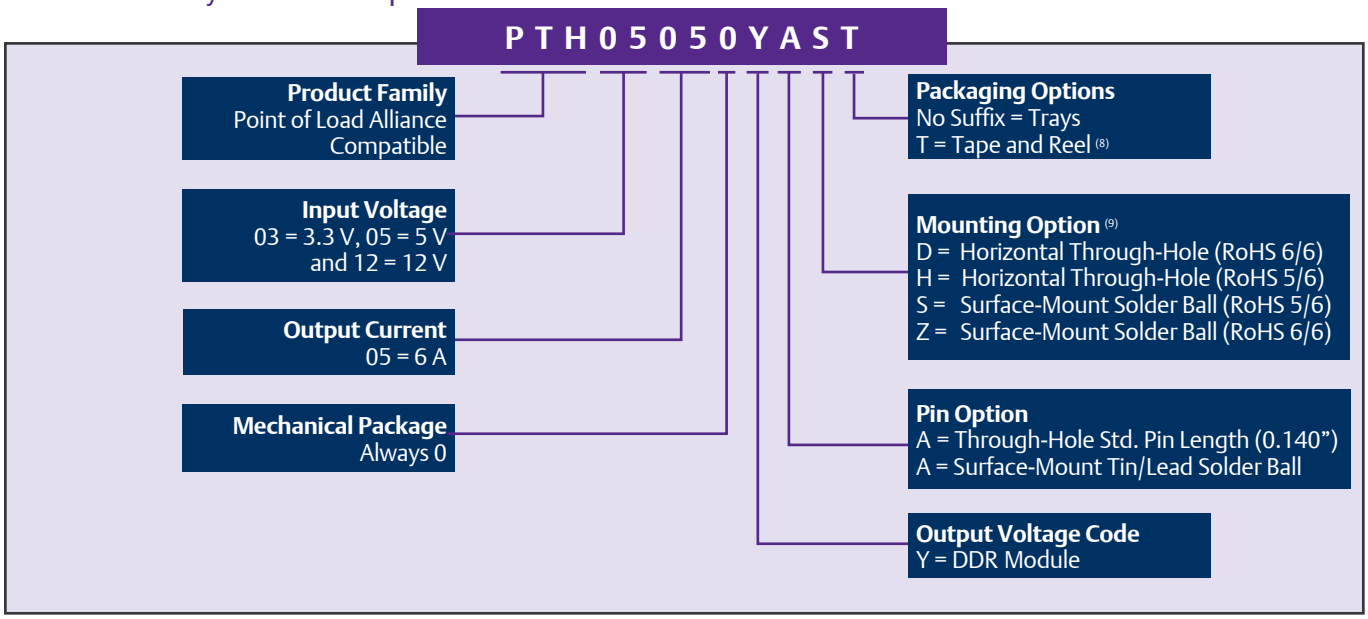
Output		
Output current: (over V_{REF} range)	All models Continuous (See Note 1, page 3) Repetitive pulse (See Note 2, page 3)	 ± 6 A ± 8 A
Tracking range for V_{REF}:		0.55 - 1.8 V
Tracking tolerance to V_{REF} (V_{TT} - V_{REF}): (over line, load & temperature)		-10 mV to + 10 mV
Ripple and noise:	20 MHz bandwidth	20 mV pk-pk
Load transient response: (See Note 5, page 3)		80 µs settling time Overshoot/undershoot 25 mV typ.
Output capacitance:		
Non-ceramic values (See Notes 5 & 6, page 3)	PTH03050Y PTH05050Y PTH12050Y	470 µF typ., 3,300 µF max. 470 µF typ., 3,300 µF max. 940 µF typ., 3,300 µF max.
Ceramic values (See Note 5, page 3)	PTH03050Y PTH05050Y PTH12050Y	200 µF typ., 300 µF max. 200 µF typ., 300 µF max. 400 µF typ., 600 µF max.
(See Note 7, page 3)	ESR (non-ceramic)	4 mΩ min.

General Specifications		
Efficiency: Io = 4 A	PTH03050Y PTH05050Y PTH12050Y	88% typ. 87% typ. 84% typ.
Insulation voltage:		Non-isolated
Switching frequency:	PTH03050Y PTH05050Y PTH12050Y	550 - 650 kHz 550 - 650 kHz 200 - 300 kHz
Approvals and standards:		EN60950 UL/cUL60950
Material flammability:		UL94V-0
Dimensions:	(L x W x H)	22.10 x 12.57 x 8.50 mm 0.870 x 0.495 x 0.335 in
Weight:		2.9 g (0.10 oz)
MTBF:	Telcordia SR-332	6,000,000 hours
Environmental Specifications		
Thermal Performance: (See Note 2, page 3)	Operating ambient, temperature Non-operating	-40 °C to +85 °C -40 °C to +125 °C
MSL ('Z' suffix only):	JEDEC J-STD-020C	Level 3
Protection		
Overcurrent threshold (auto reset):	All models	12 A typ.

Ordering Information

Output Power (max)	Input Voltage	V_{TT} Range	Output Currents		Efficiency (max)	Model Numbers (9, 10)
			Min	Max		
10.8 W	2.95 - 3.65 Vdc	0.55 - 1.8 Vdc	0 A	± 6 A	88%	PTH03050Y
10.8 W	4.5 - 5.5 Vdc	0.55 - 1.8 Vdc	0 A	± 6 A	88%	PTH05050Y
10.8 W	10.8 - 13.2 Vdc	0.55 - 1.8 Vdc	0 A	± 6 A	85%	PTH12050Y

Part Number System with Options



Notes

1 Rating is conditional on the module being soldered to a 4 layer PCB with 1 oz. copper. See the SOA curves or contact the factory for appropriate derating. The PTH03050Y and PTH05050Y require no dearting up to 85 °C operating temperature and natural convection airflow.

2 Up to 10 ms pulse period at 10% maximum duty.

3 This control pin has an internal pull-up to the input voltage Vin. If it is left open-circuit the module will operate when input power is applied. A small low-leakage (< 100 nA) MOSFET is recommended for control. For further information, consult Application Note 178.

4 An input capacitor is required for proper operation. The capacitor must be rated for a minimum of 300 mA rms (750 mA rms for 12 V input) of ripple current.

5 The typical value of external output capacitance value ensures that V_{TT} meets the specified transient performance requirements for the memory bus terminations. Lower values of capacitance may be possible when the measured peak change in output current is consistently less than 3 A. Test conditions were 15 A/µs load step, -1.5 A to +1.5 A.

5 This is the calculated maximum. The minimum ESR limitation will often result in a lower value. Consult Application Note 178 for further details.

6 This is the typical ESR for all the electrolytic (non-ceramic) output capacitance. Use 7 mΩ as the minimum when using max-ESR values to calculate.

7 Tape and reel packaging only available on the surface-mount versions.

8 To order Pb-free (RoHS compatible) surface-mount parts replace the mounting option 'S' with 'Z', e.g. PTHXX050YAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTHXX050YAD.

9 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.

Characteristic Data

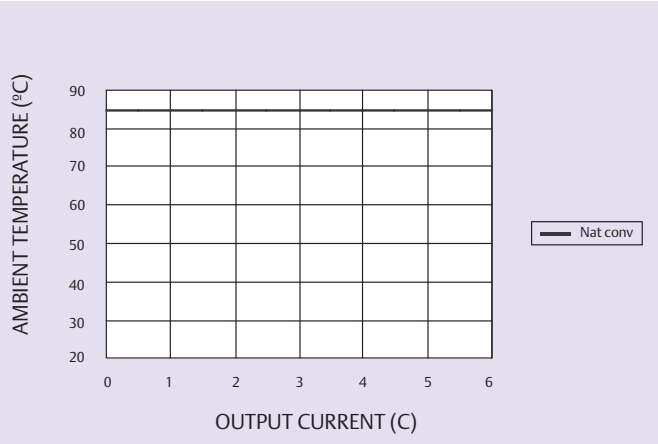


Figure 1 - Safe Operating Area
Vin = 3.3 V, V_{REF} = 1.25 V, Iout = 6 A (See Note A)

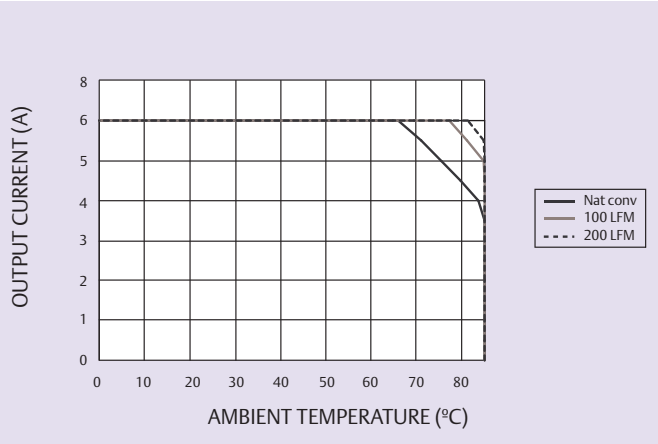


Figure 2 - Safe Operating Area
Vin = 12 V, V_{REF} = 1.25 V, Iout = 6 A (See Note A)

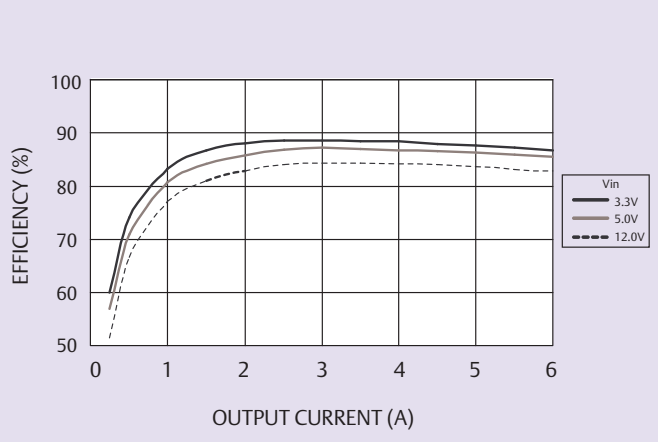


Figure 3 - Efficiency vs Load Current
V_{REF} = 1.25 V (See Note B)

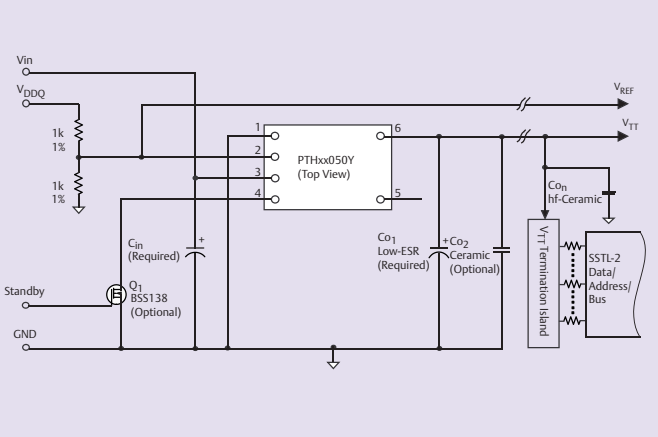


Figure 4 - Standard Application

Notes

A SOA curves represent the conditions at which internal components are within the Emerson Network Power derating guidelines.
B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

Mechanical Drawings

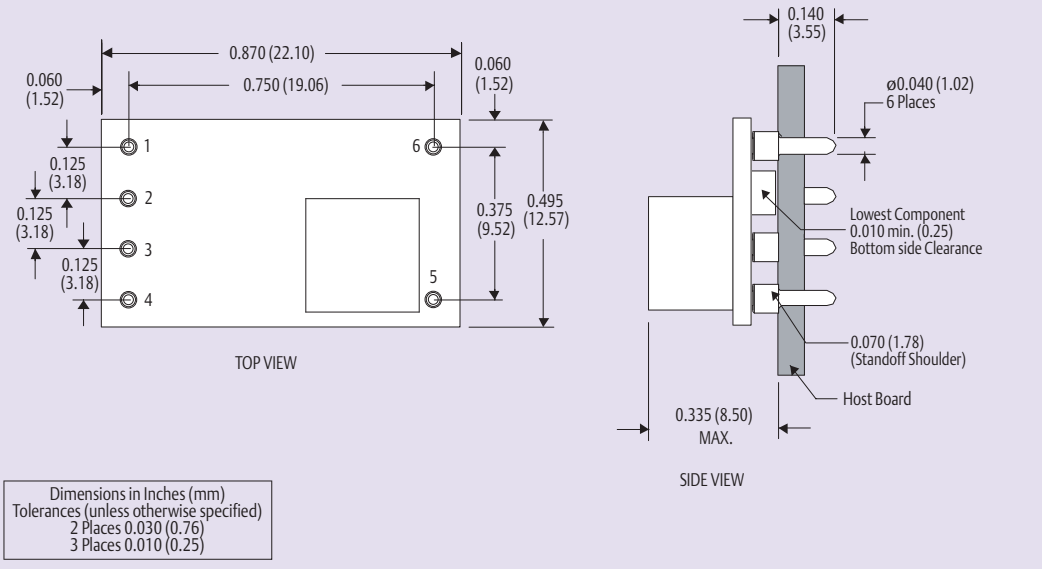


Figure 5 - Plated Through-Hole

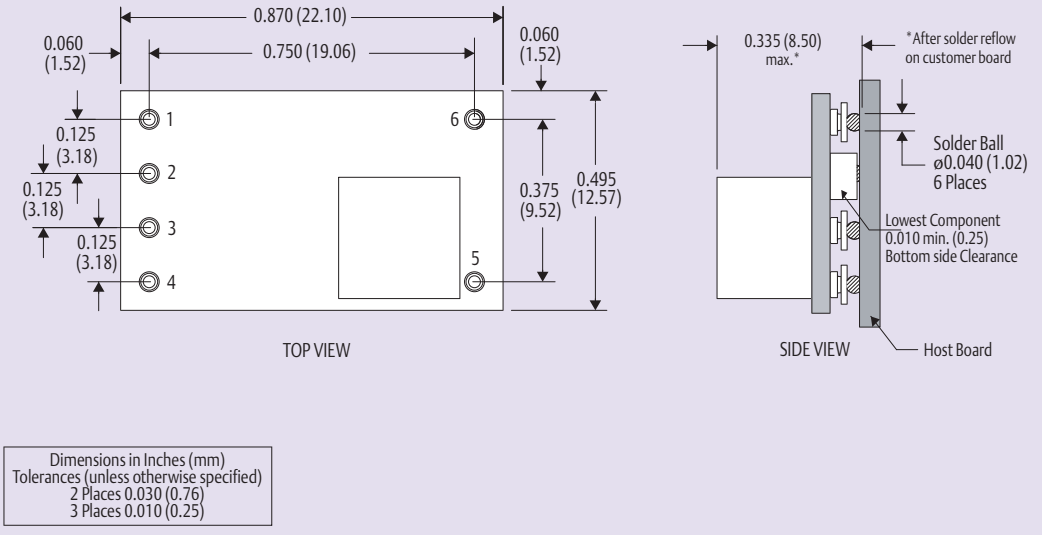


Figure 6 - Surface-Mount

Pin Connections	
Pin No.	Function
Pin 1	Ground
Pin 2	V_{REF}
Pin 3	V_{in}

Pin Connections cont.	
Pin No.	Function
Pin 4	Inhibit*
Pin 5	N/C
Pin 6	V_{TT}

* Denotes negative logic:
Open = Normal operation
Ground = Function active

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