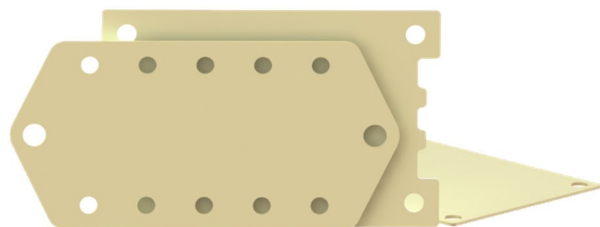




TP SERIES

ACCESSORY THERMAL PADS



TP-xxx - Exact products may differ from that shown

Models Available

Hybrid Package Product Thermal Pads

Metal Packaged COTS Product Thermal Pads

Epoxy Encapsulated V-SHIELD® COTS Product Thermal Pads

1.0 DESCRIPTION

The TP Series of accessory thermal pads provide an effective method of ensuring a low thermal resistance path, good thermal performance, and excellent isolation between the DC-DC converter and the mounting plane. They are intended to fill air gaps between DC-DC converters and printed circuit boards, heat sinks, or chassis without the use of thermal greases in order to improve heat conduction. VPT thermal pads are not assigned a serial number or date code, however a standard CofC is included with each shipment.

The thermal pads have good thermal conductivity and extremely high conformability. They consist of an extremely soft silicone elastomer loaded with aluminum oxide particles, laminated to a thin thermally conductive reinforcing material which resists puncture and eases handling. They are non-toxic, do not require grease and do not exhibit the cracking problems of ceramic materials. The pads may temporarily react to some cleaning agents by swelling, but are not damaged after the solvent is removed.

Additional information can be found in:

Application Note:

AN002 - Hand Soldering Guidelines for VPT DC-DC Converters and Accessory Products

<https://www.vptpower.com/data/application-notes/>

Technical Video:

Hybrid DC-DC Converters: Mounting & Thermal Considerations

<https://www.vptpower.com/videos/>

1.1 FEATURES

- Bergquist Gap Pad TGP A2600
- Color: Gold
- Thickness: 0.020" $\pm$ 0.002"
- Specific Gravity: 3.2 g/cc
- Heat Capacity: 1 J/g-K
- Continuous Use Temperature: -60° C to 200° C
- Hardness (Short Type 00): 80
- Dielectric Breakdown Voltage: >5 kV
- Dielectric Constant: 7
- Volume Resistivity: 10^{10} Ω -m
- Thermal Conductivity: 2.6 W/m-K
- NASA Outgassing Compliant <1% TML

1.2 MECHANICAL TOLERANCES

- Hole $\varnothing$: $\pm$ 0.020"
- Radius: $\pm$ 0.010"
- Hole locations: $\pm$ 0.010"
- Thickness: 0.020" $\pm$ 0.002"
- Unless otherwise specified: $\pm$ 0.040"
- The recommended usage of these Thermal Pads is to provide thermal relief in an assembly. The Thermal Pads are not affected by shelf life.

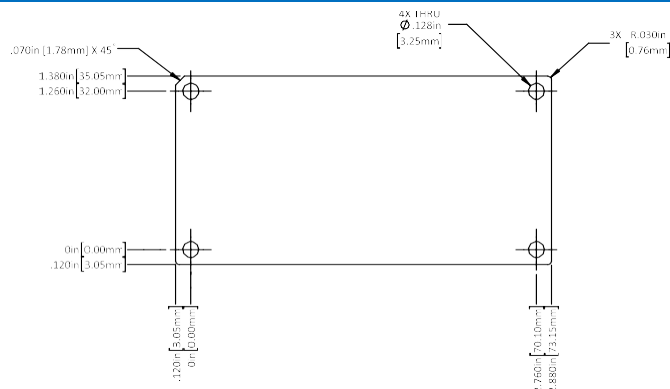
2.0 CROSS REFERENCE

Thermal Pad Part Number	Applicable VPT Product			Figure
HYBRIDS				
A = TP-xxx Series, B = TP2-xxx Series				
TP-001	• DVFL2800S • SVFL2800S • SVRFL2800S • SVLFL2800S	• DVFL2800D • SVFL2800D • SVRFL2800D • SVLFL2800D	• SVLFL5000S • SVLFL5000D	Figure-1 A
TP-002 or TP2-002	• DVHF2800S • SVHF2800S • SVRHF2800S • SVLHF2800S	• DVHF2800D • SVHF2800D • SVRHF2800D • SVLHF2800D	• SVLHF5000S • SVLHF5000D • SVRSA2800S • SVRSA2800D	Figure-2, A or B
TP-003 or TP2-003	• DVTR2800S • SVTR2800S • SVRTR2800S • SVLTR2800S	• DVTR2800D • SVTR2800D • SVRTR2800D • SVLTR2800D	• SVLTR5000S • SVLTR5000D • DVHV2800S • DVHV2800D • DVEHF2800T • DVHE2800S	Figure-3, A or B
TP-004 or TP2-004	• DVTR2800T	• DVETR2800S • DVETR2800D	• DVWR2800T	Figure-4, A or B
TP-005 or TP2-005	• DVSA2800S • SVSA2800S • SVLSA2800S	• DVSA2800D • SVSA2800D • SVLSA2800D	• SVLSA5000S • SVLSA5000D • SVRCH2800S	Figure-5, A or B
TP-007 or TP2-007	• DVHF+2800T	• DVSB2800D	• DVGF+2800T	Figure-7, A or B
TP-019	• DVFL2800SF • SVFL2800SF • SVRFL2800SF • SVLFL2800SF	• DVFL2800DF • SVFL2800DF • SVRFL2800DF • SVLFL2800DF	• SVLFL5000SF • SVLFL5000DF	Figure-19, A
TP2-020	• DVSA2800SF • SVSA2800SF • SVLSA2800SF	• DVSA2800DF • SVSA2800DF • SVLSA2800DF		Figure-20 B
TP-021 or TP2-021	• DVPL0520S • DVPL0510S	• SVPL3R312S • SVPL1209S	• SVPL3R306S	Figure-21, A or B
TP-022 or TP2-022	• DVCH2800S	• SVLCH2800S	• DVCH2800D	Figure-22, A or B
COTS - METAL AND EPOXY ENCAPSULATED (V-SHIELD®)				
TP-008 or TP2-008	• VPT5-2800S • VSC5-2800S	• VPT5-2800D • VSC5-2800D	• VPTF1-28 • VSCF1-28	Figure-18, A or B
TP-009 or TP2-009	• VPT15-2800S • VSC15-2800S	• VPT15-2800D • VSC15-2800D	• VPTF3-28 • VSCF3-28	Figure-9, A or B
TP-010 or TP2-010	• VPT30-2800S • VSC30-2800S	• VPT30-2800D • VSC30-2800D	• VPT30-2800T • VPTF10-28 • VSCF10-28	Figure-10, A or B
TP-011 or TP2-011	• VPT100-2800S • VPT100+2800S • VPT100+2800D	• VPTF20-28 • VSCF20-28	• VPTPCM-12 • VPTHVM-270 • VPTi10-28 • VPTc10-28	Figure-11, A or B
TP-012 or TP2-012	• VXR7-2800S	• VXR7-2800D	• VXRF2-28	Figure-12, A or B
TP-013 or TP2-013	• VXR15-2800S	• VXR15-2800D	• VXRF5-28	Figure-13, A or B
TP-014 or TP2-014	• VXR15-2800SM	• VXR15-2800DM	• VXRF5-28M	Figure-14, A or B
TP-015 or TP2-015	• VXR30-2800S	• VXR30-2800D	• VXRF10-28	Figure-15, A or B
TP-016 or TP2-016	• VXR100-2800S • VSC100-2800S	• VXRF20-28	• VXR125-27000S • VXRF2-270	Figure-16, A or B
TP-017 or TP2-017	• VXR250-2800S • VXRF50-28	• VXR250-27000S • VXRF4-270		Figure-17, A or B
TP-018 or TP2-018	• VXR100-2800D	• VSC100-2800D		Figure-18, A or B

3.0 MECHANICAL OUTLINES

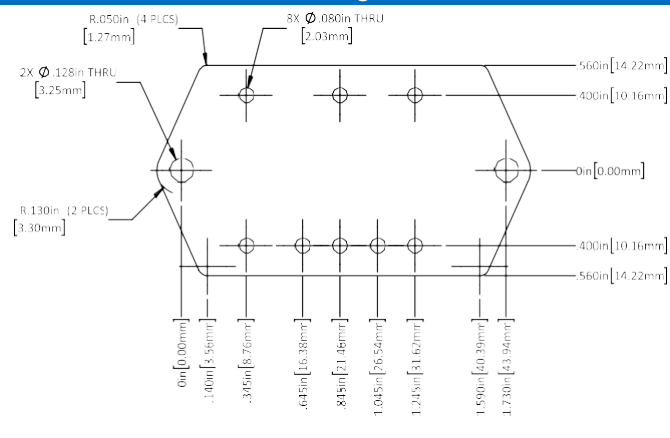
TP and TP2 Series Thermal Pads

TP-001 - Figure 1A

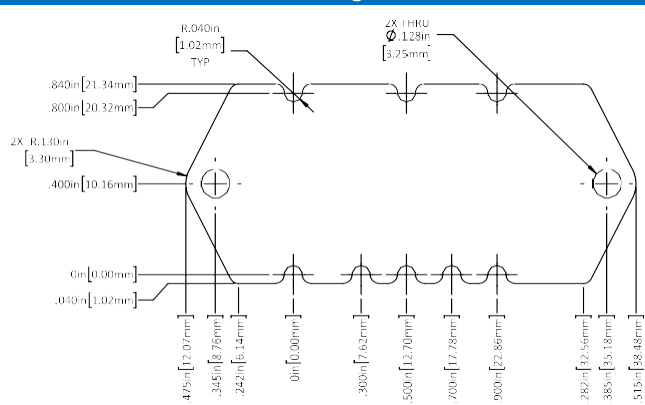


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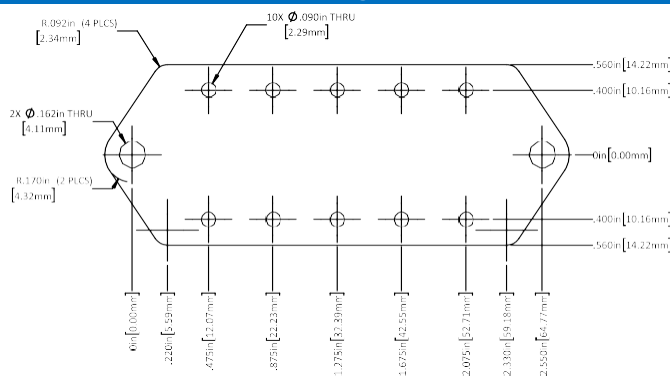
TP-002 - Figure 2A



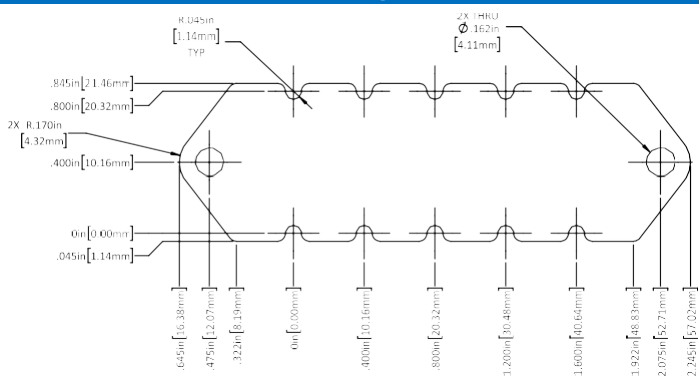
TP2-002 - Figure 2B



TP-003 - Figure 3A



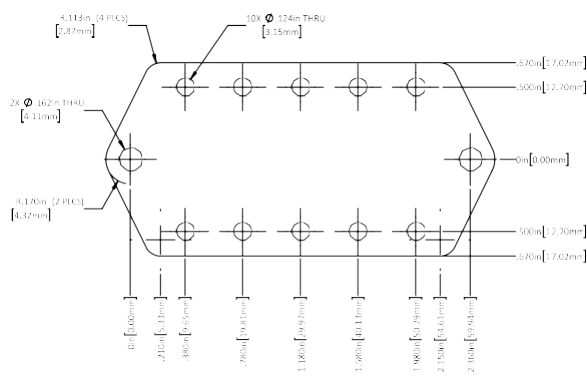
TP2-003 - Figure 3B



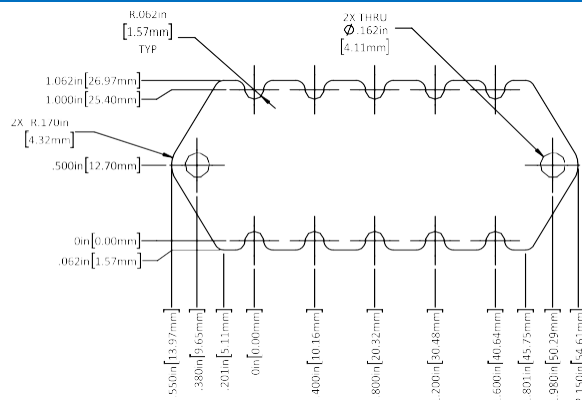
3.0 MECHANICAL OUTLINES (CONTINUED)

TP and TP2 Series Thermal Pads

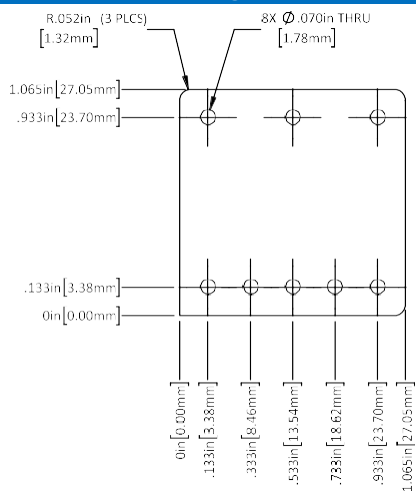
TP-004 - Figure 4A



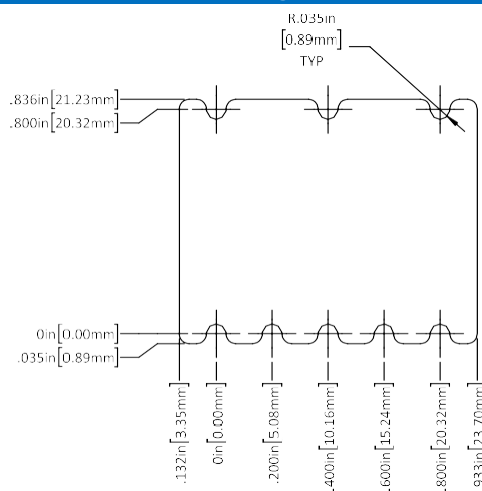
TP2-004 - Figure 4B



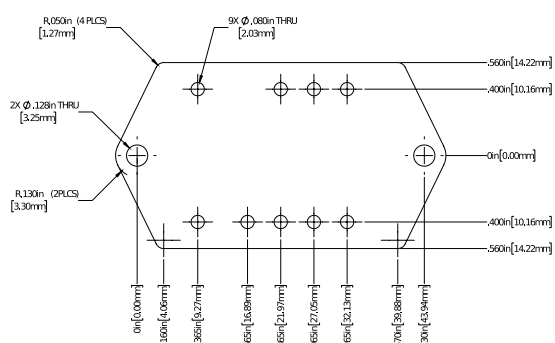
TP-005 - Figure 5A



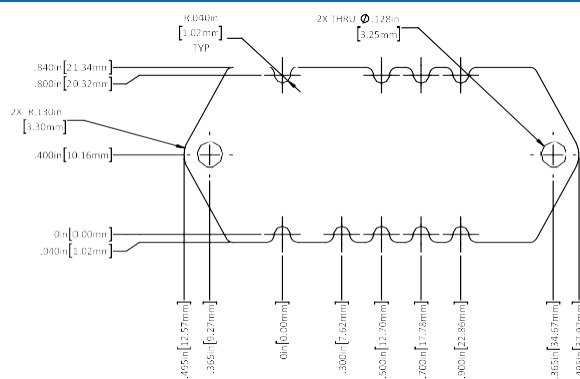
TP2-005- Figure 5B



TP-007 - Figure 7A



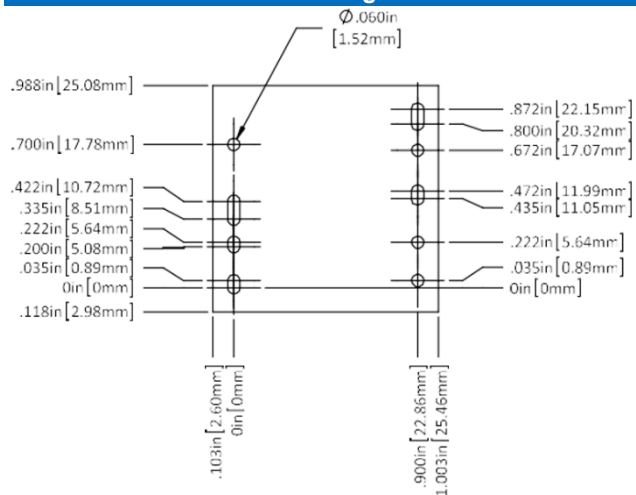
TP2-007 - Figure 7B



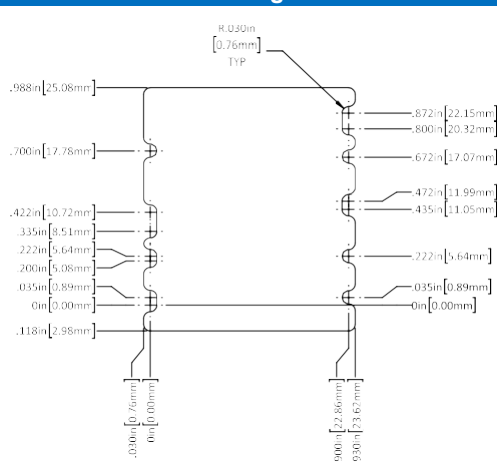
3.0 MECHANICAL OUTLINES (CONTINUED)

TP and TP2 Series Thermal Pads

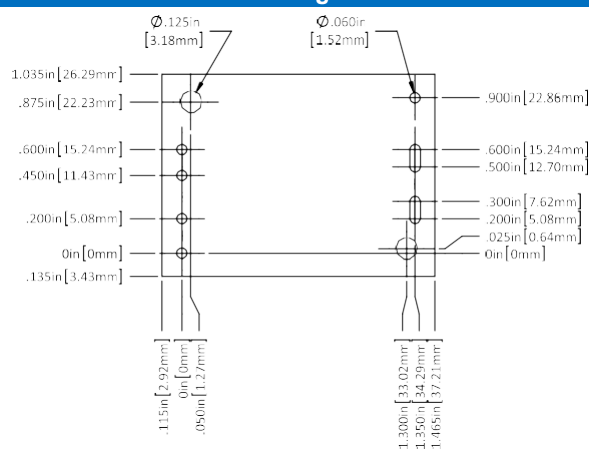
TP-008 - Figure 8A



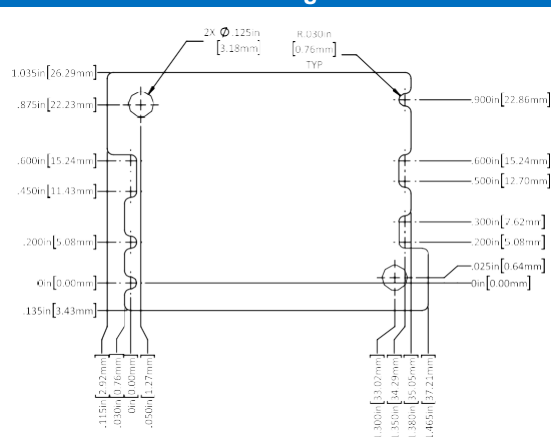
TP2-008 Figure 8B



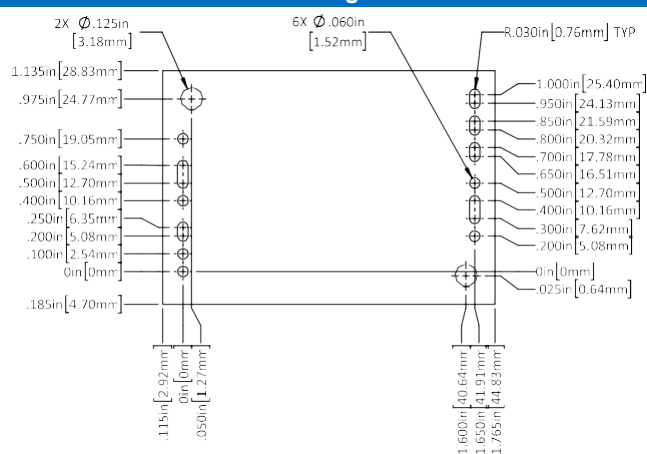
TP-009 - Figure 9A



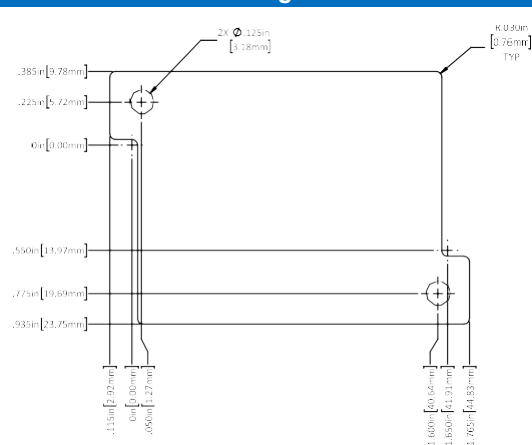
TP2-009 - Figure 9B



TP-010- Figure 10A



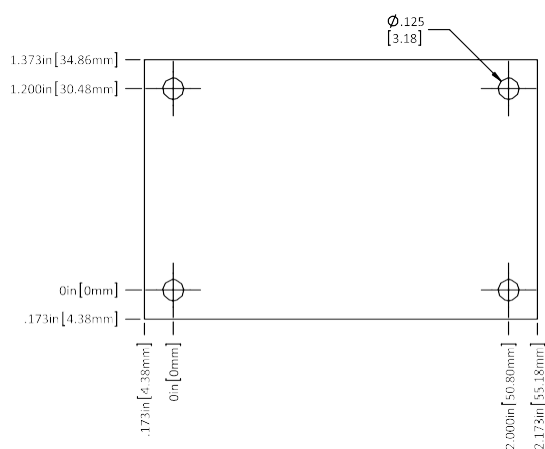
TP2-010 - Figure 10B



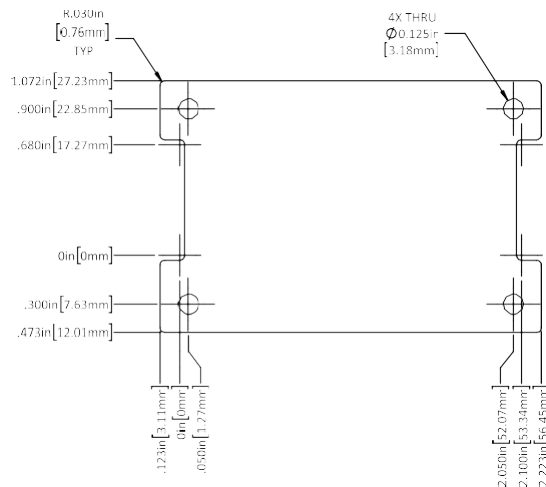
3.0 MECHANICAL OUTLINES (CONTINUED)

TP and TP2 Series Thermal Pads

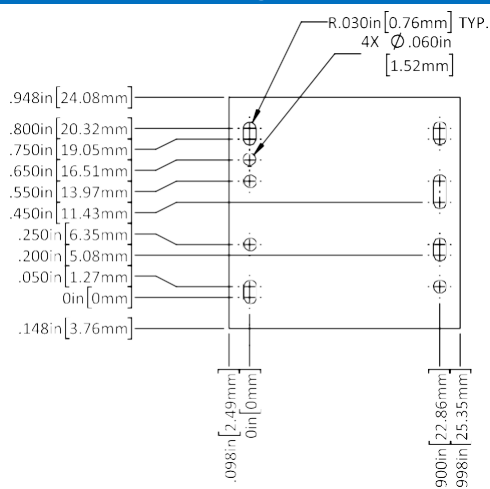
TP-011 – Figure 11A



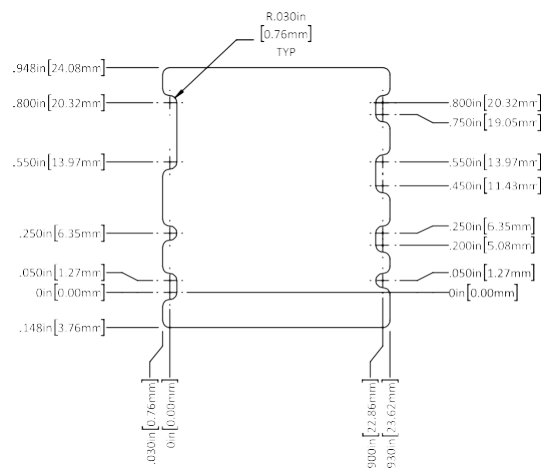
TP2-011 - Figure 11B



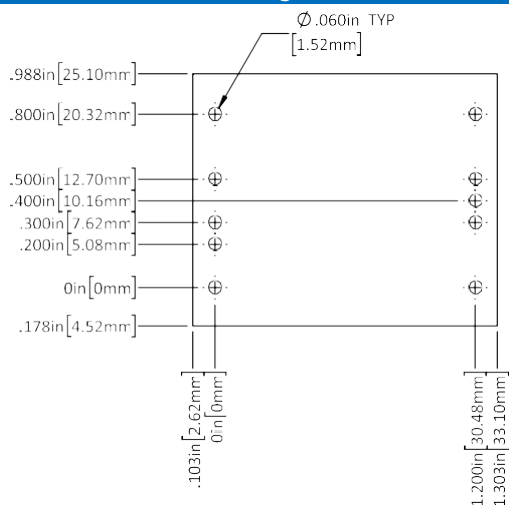
TP-012- Figure 12A



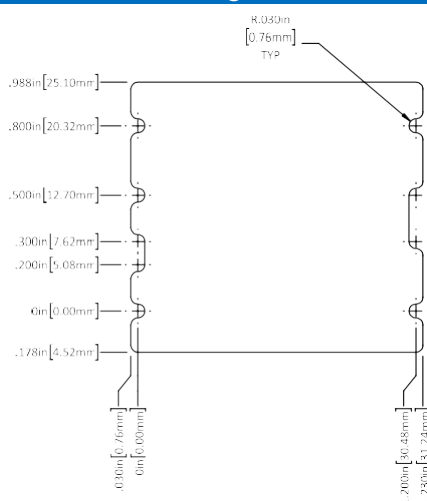
TP2-012 - Figure 12B



TP-013 - Figure 13A



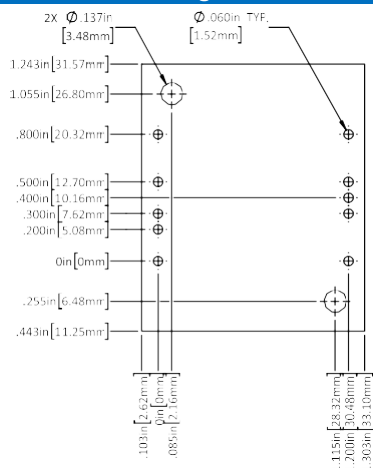
TP2-013 - Figure 13B



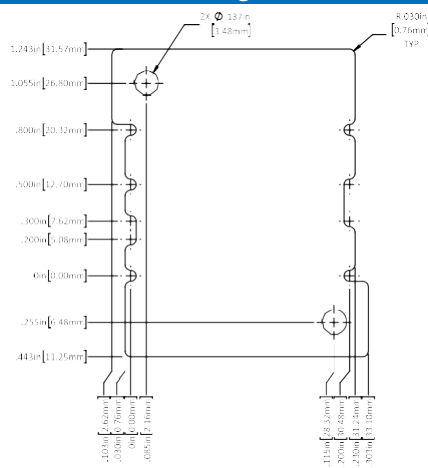
3.0 MECHANICAL OUTLINES (CONTINUED)

TP and TP2 Series Thermal Pads

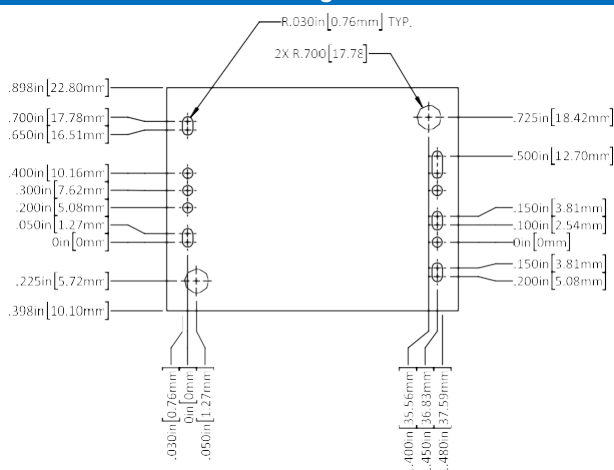
TP-014- Figure 14A



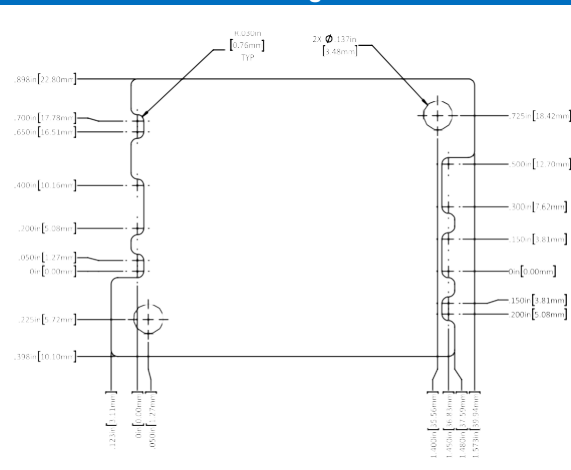
TP2-014 - Figure 14B



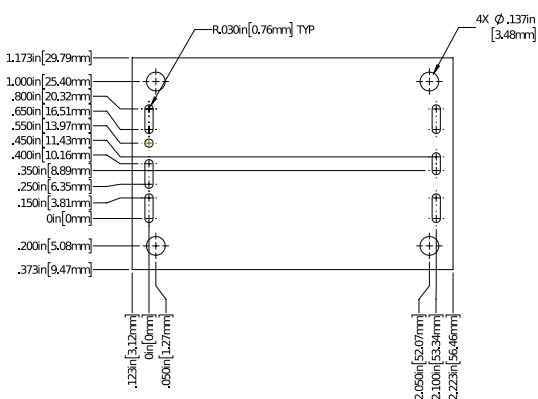
TP-015 - Figure 15A



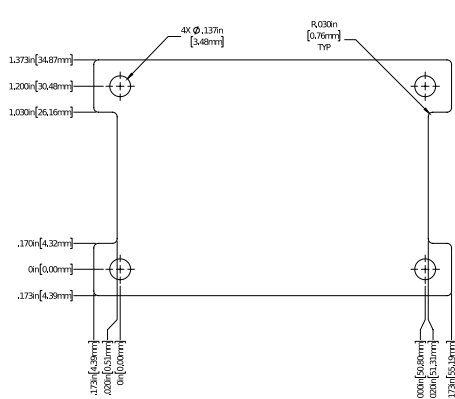
TP2-015 - Figure 15B



TP-016 - Figure 16A



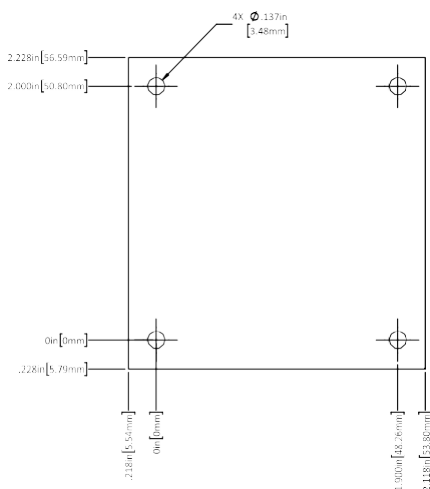
TP2-016 - Figure 16B



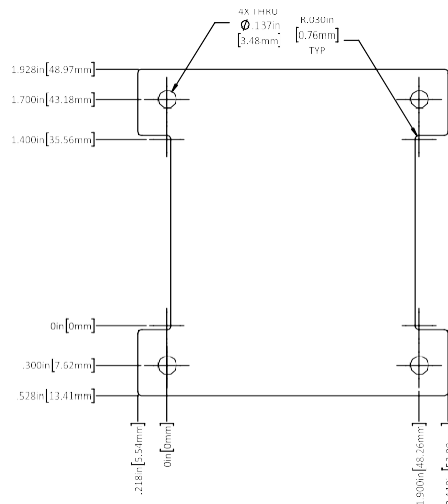
3.0 MECHANICAL OUTLINES (CONTINUED)

TP and TP2 Series Thermal Pads

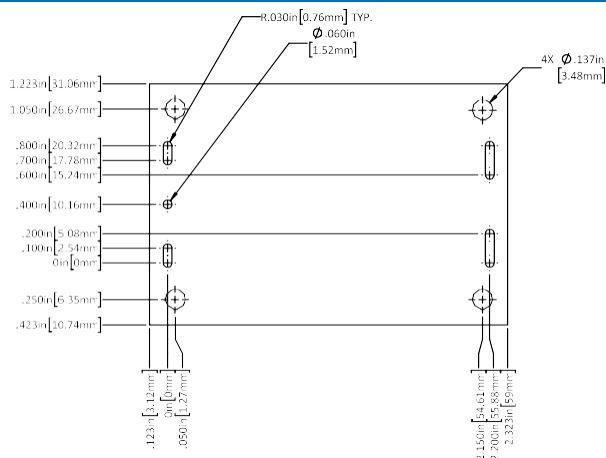
TP-017 - Figure 17A



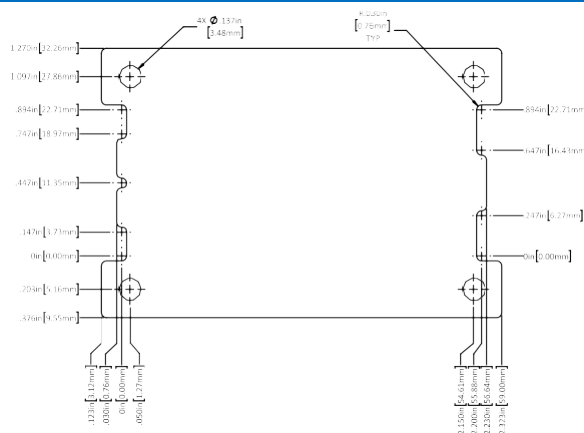
TP2-017 - Figure 17B



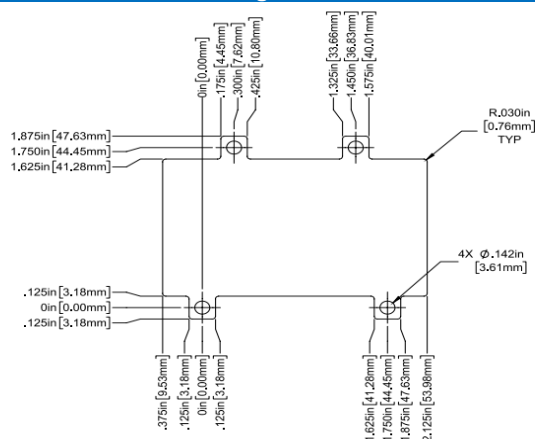
TP-018 - Figure 18A



TP2-018 - Figure 18B



TP-019 - Figure 19A



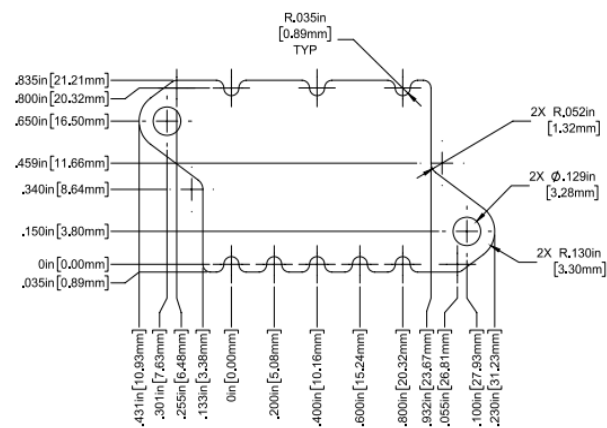
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3.0 MECHANICAL OUTLINES (CONTINUED)

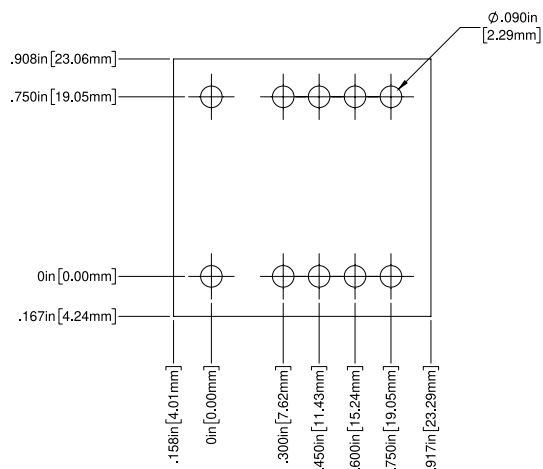
TP and TP2 Series Thermal Pads

TP2-020- Figure 20B

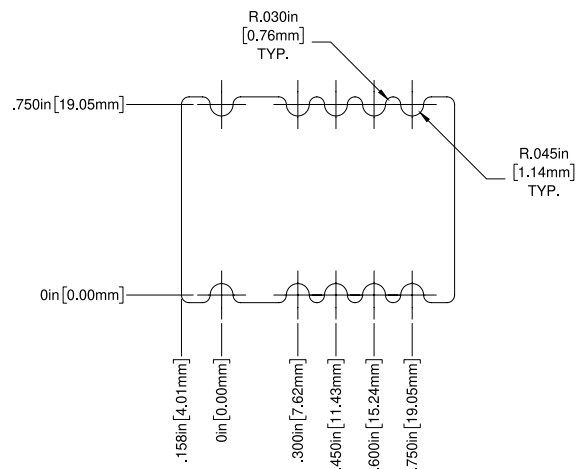
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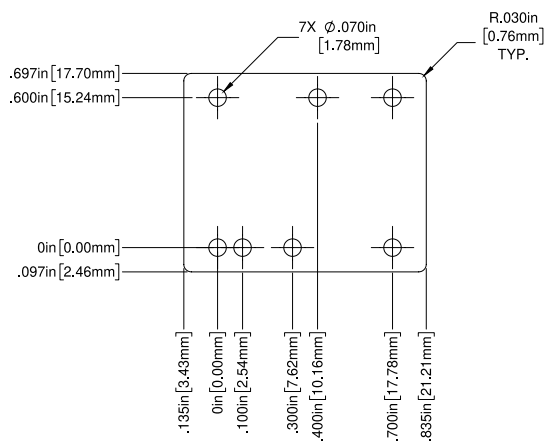
TP-021 - Figure 21A



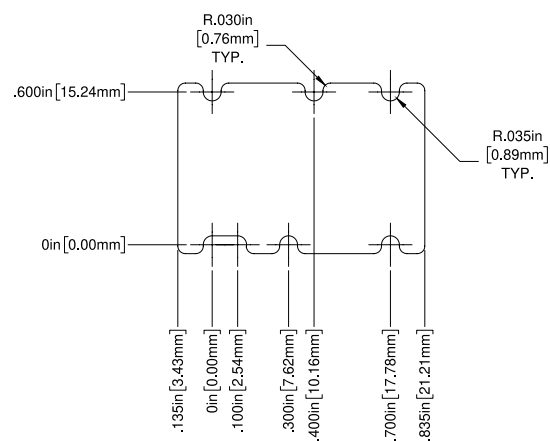
TP2-021 - Figure 21B



TP-022- Figure 22A



TP2-022- Figure 22B



4.0 TECHNICAL NOTES

Please note additional information can be found on the VPT website.

5.0 GENERAL INFORMATION

5.1.1 Thermal Conductivity

Standard and Notched Thermal Pads have a near-identical thermal conductivity in the pad center region, where a significant portion of the heat flow is expected. Notched thermal pads have cutouts that create an escape path for gasses generated during the through-hole soldering process, which assists in maximizing solder coverage of the pin within the barrel of the PCB.

6.0 ORDERING INFORMATION

TP2 - 011
1 2

(1) Product Series Configuration	(2) Dash Number ^{1,2}
TP (Standard) or TP2 (Notched)	- 001 002 003 004 005 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022

1. The TP2 Series is nonapplicable to the -001 or -019 versions.
2. The TP Series is nonapplicable to the -020.

7.0 CONTACT INFORMATION

To request a quotation or place orders please contact your sales representative or the VPT, Inc. Sales Department at:

Phone: (425) 353-3010
Fax: (425) 353-4030
E-mail: vptsales@vptpower.com

All information contained in this datasheet is believed to be accurate, however, no responsibility is assumed for possible errors or omissions. The products or specifications contained herein are subject to change without notice.

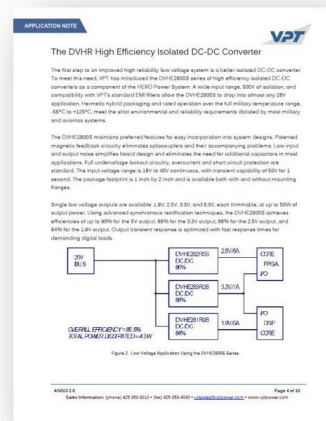
8.0 ADDITIONAL INFORMATION

Visit the VPT website for additional technical resources, including:

[Product Catalogs](#)



[Application Notes and White Papers](#)



[Technical Video Labs](#)



Additional Products For [Avionics/Military](#), [Hi-Rel COTS](#), and [Space Applications](#)

