



VPTHVM-270 Series

SPECIFICATIONS (T_{CASE} = -55°C to +100°C, V_{IN} = +270V ± 5%, Full Load, Unless Otherwise Specified)

ABSOLUTE MAXIMUM RATINGS

Input Voltage (Continuous)	400 V _{DC}	Junction Temperature Rise to Case	+15°C
Input Voltage (Transient, 1 second)	500 Volts	Storage Temperature	-55°C to +125°C
Output Power	200 Watts	Lead Solder Temperature (10 seconds)	300°C
Power Dissipation (Full Load, T _{CASE} = +100°C)	25 Watts	Weight	88g

Parameter	Conditions	VPTHVM-270			Units
		Min	Typ	Max	
STATIC					
INPUT Voltage	Continuous	180	-	350	V
	Continuous, P _{out} ≤ 150W	160	-	400	V
	Transient, 1 sec ³	160	-	500	V
Current	Inhibited	-	2	4	mA
	No Load ⁴	-	3	6	mA
Ripple Current	20Hz to 10MHz	-	50	250	mA _{p-p}
Inhibit Pin Input ³		0	-	1.5	V
Inhibit Pin Open Circuit Voltage ³		3	4.5	6	
UVLO Turn On		-	156	159	V
UVLO Turn Off ³		145	150	-	V
OUTPUT Voltage	V _{OUT} Vin = 270V	26	27	30	V
	V _{OUT} Vin = 160V to 500V	16	27	30	V
Power ¹		0	-	200	W
Ripple Voltage	V _{OUT} 20Hz to 10MHz	-	100	250	mV _{p-p}
Load Regulation	V _{OUT} No Load to Full Load	-	100	300	mV
EFFICIENCY ⁵		88	91	-	%
CAPACITIVE LOAD ³		-	-	250	μF
Load Fault Power Dissipation ³	Overload	-	27	35	W
	Short Circuit	-	19	35	W
SWITCHING FREQUENCY		350	450	550	kHz
SYNC FREQUENCY RANGE	V _H -V _L =5V, Duty=50%	550	-	650	kHz
ISOLATION	2250 V _{DC}	100	-	-	MΩ
MTBF (MIL-HDBK-217F)	GM @ T _C = 55°C	-	429	-	kHrs
DYNAMIC					
Load Step Output Transient	V _{OUT} Half Load to Full Load	-	1	3	V _{PK}
Load Step Recovery ²		-	100	300	μSec
Turn On Delay	V _{IN} = 0V to 270V	-	10	20	mSec
Turn On Overshoot		-	0	150	mV _{PK}

- Notes:
1. Derate linearly to 0 at 110°C
 2. Time for output voltage to settle within 1% of its nominal value.
 3. Verified by qualification testing
 4. Maximum no load input current at -55°C = 8mA (Epoxy Encapsulated Package only)
 5. Minimum efficiency at -55°C = 86% (Epoxy Encapsulated Package only)

BLOCK DIAGRAM

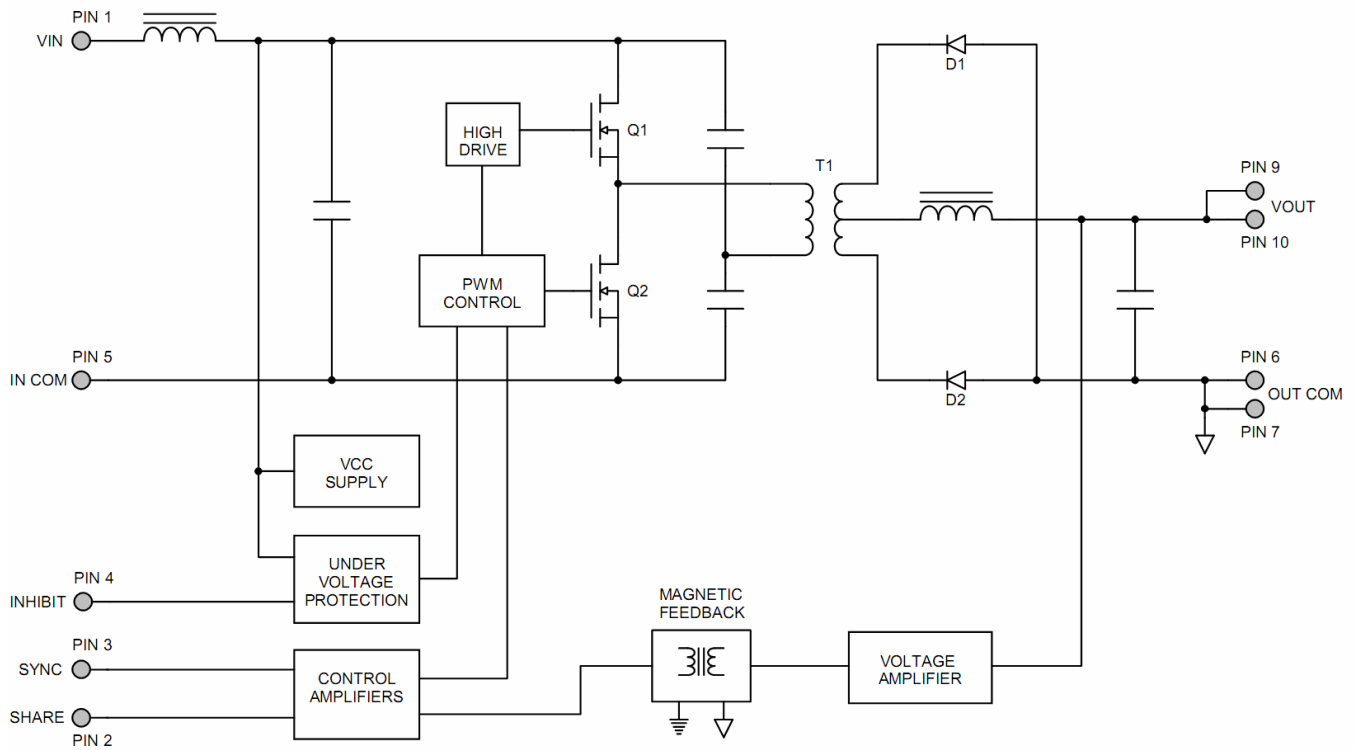


Figure 3

CONNECTION DIAGRAM

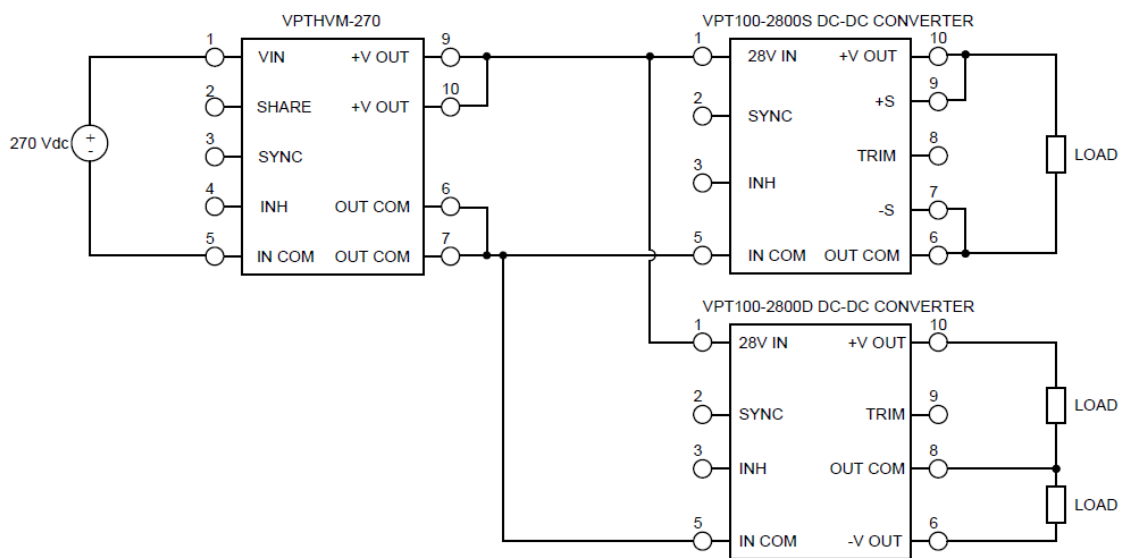


Figure 4

CONNECTION DIAGRAM

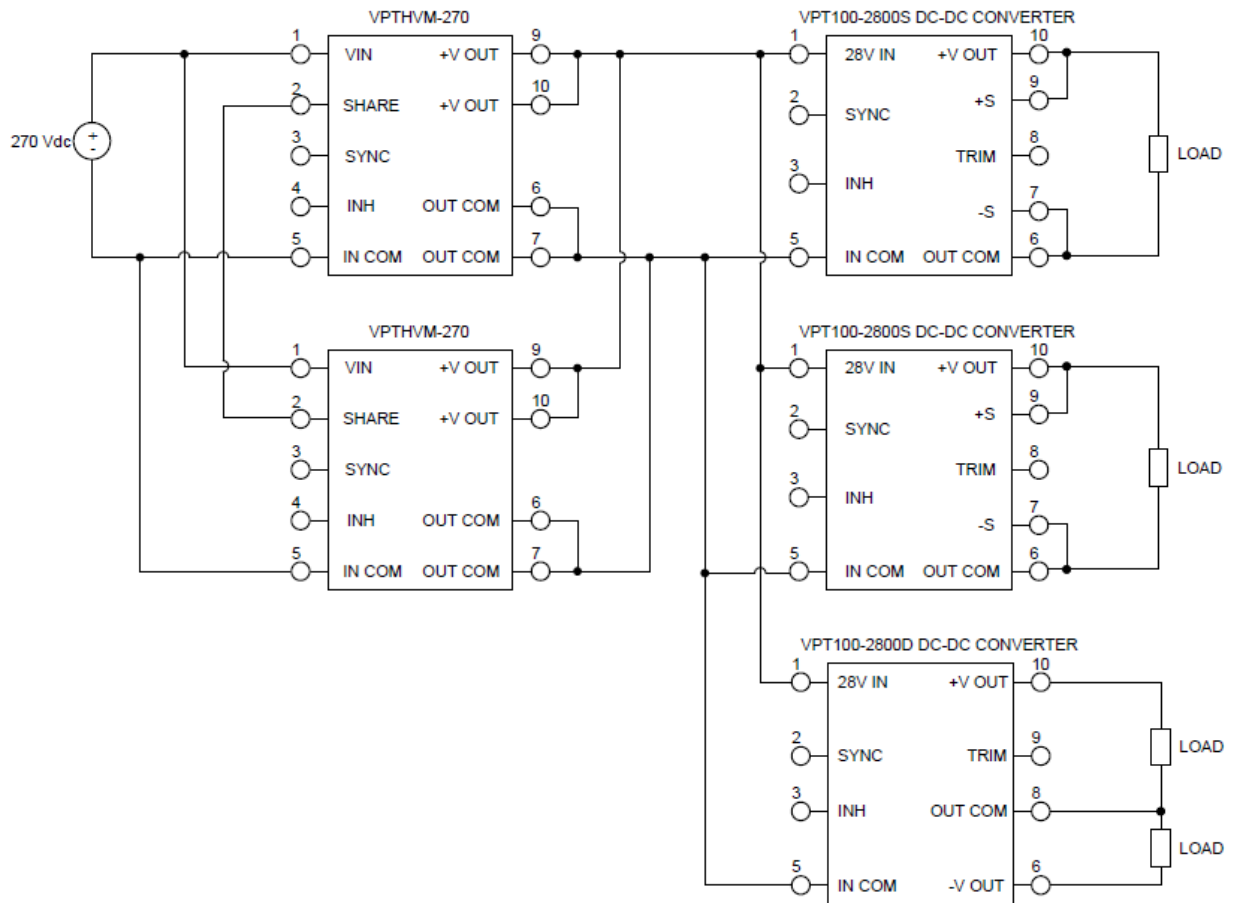


Figure 5

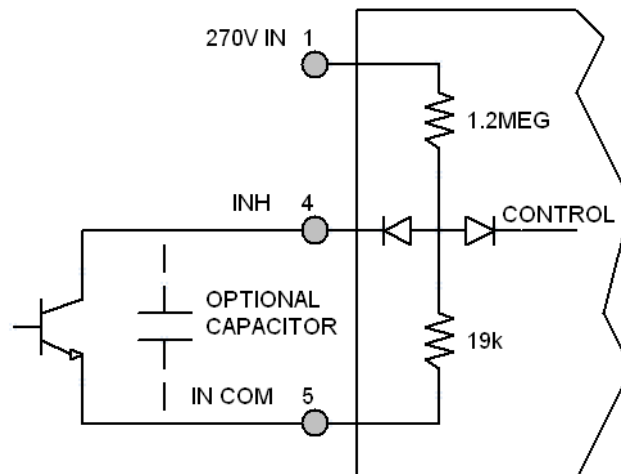


Figure 6 - Inhibit Circuit
(Shown with optional capacitor for turn-on delay)

PERFORMANCE CURVES ($T_{CASE} = 25^{\circ}C$, Full Load, Unless Otherwise Specified)

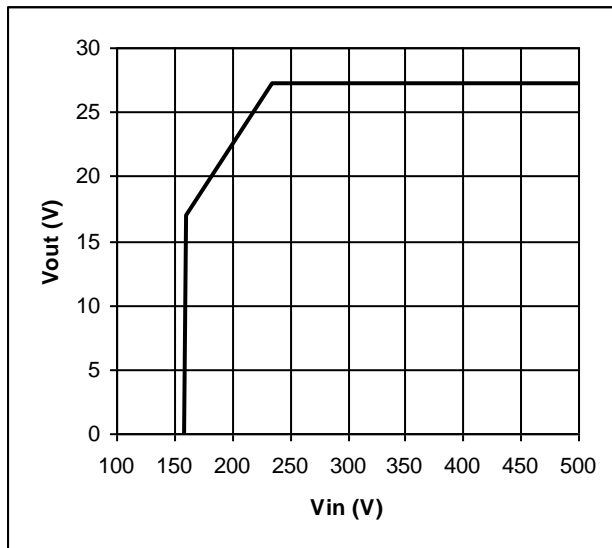


Figure 7 – Output Voltage vs Input Voltage

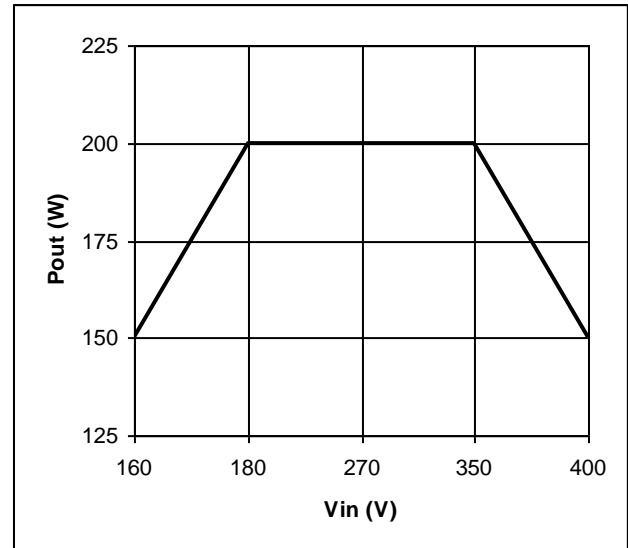


Figure 8 – Output Power vs Input Voltage

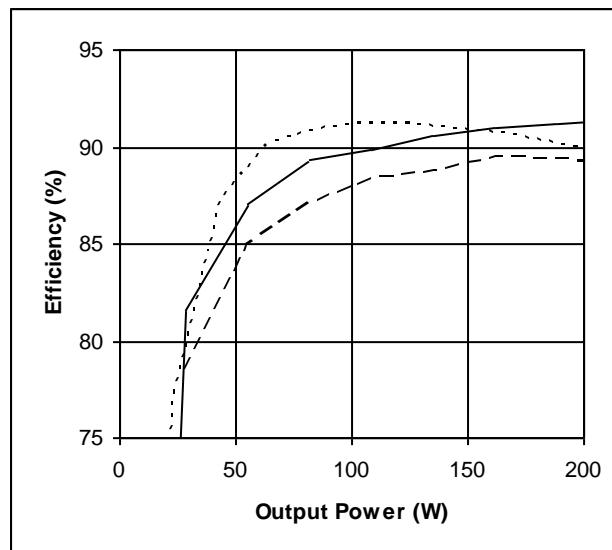
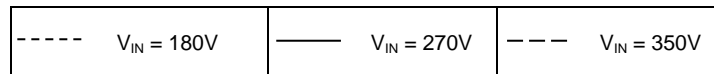
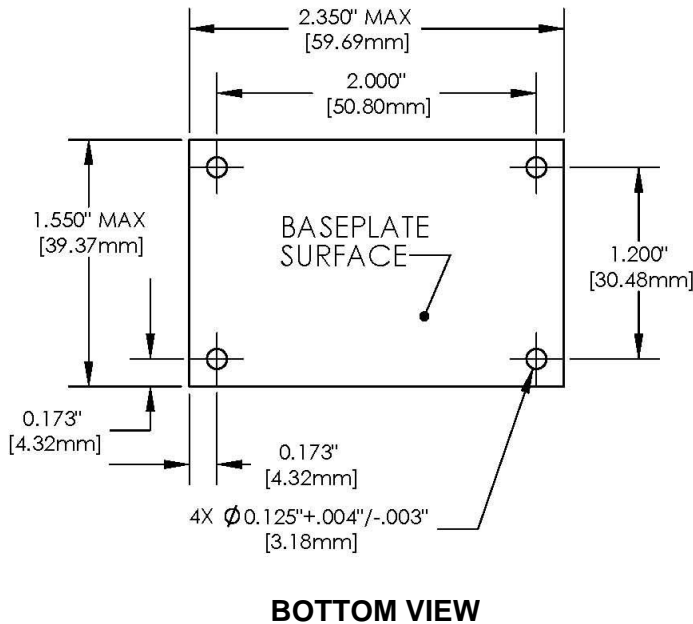
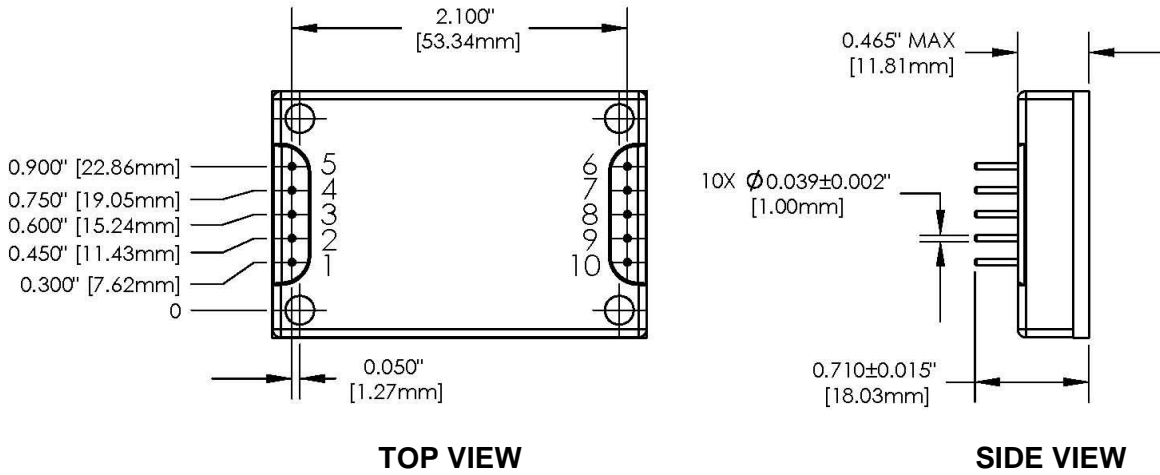


Figure 9 – Efficiency (%) vs. Output Power (W)

STANDARD METAL PACKAGE



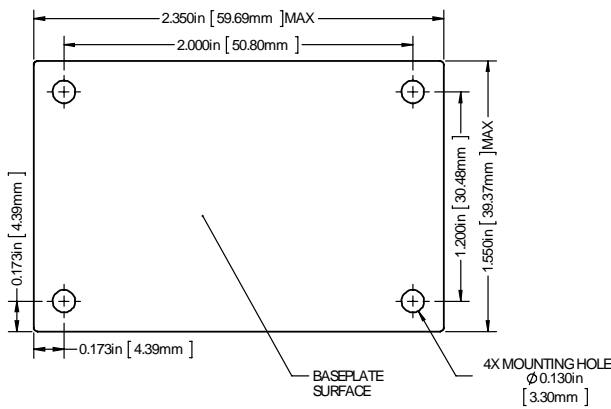
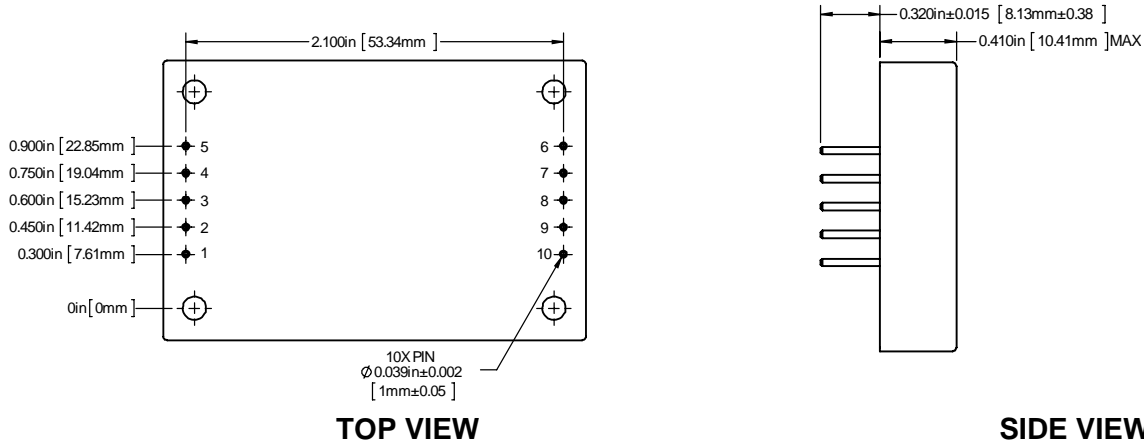
Pin	Function
1	VIN
2	SHARE
3	SYNC
4	INHIBIT
5	INCOM
6	OUTCOM
7	OUTCOM
8	CASE
9	VOUT
10	VOUT

Figure 10 – Package and Pinout
(Dimensional Limits are ± 0.005 " Unless Otherwise Stated)

Package Notes

- Case temperature is measured on the center of the baseplate surface.
- Materials: Baseplate – aluminum, conductive conversion coating.
Cover – nickel plated.
Pins - copper, gold over nickel plating.
- Mounting holes are not threaded. Recommended fastener is 4-40.
- This Package is not hermetic. VPT offers a wide range of hermetic products. Please contact VPT for details if hermetic products are required. ~~not hermetic. VPT offers a wide range of hermetic products. Please contact VPT for details if hermetic products are required.~~

OPTIONAL EPOXY ENCAPSULATED PACKAGE



Pin	Function
1	VIN
2	SHARE
3	SYNC
4	INHIBIT
5	INCOM
6	OUTCOM
7	OUTCOM
8	CASE
9	VOUT
10	VOUT

Figure 11 –Package and Pinout
(Dimensional Limits are ±0.005" Unless Otherwise Stated)

Package Notes

1. Case temperature is measured on the center of the baseplate surface.
2. Materials: Body - [epoxy with integral metalized EMI shield](#). Pins - [copper, gold over nickel plating](#).
3. Mounting holes are not threaded. Recommended fastener is 4-40.
4. This pPackage is [highly resistant to chemical, solvent and salt environments and is fully compatible with high volume manufacturing processes including wave solder, cleaning solvents, high pressure sprays and aqueous wash processes.](#) ~~not hermetic. VPT offers a wide range of hermetic products. Please contact VPT for details if hermetic products are required.~~

PACKAGE PIN DESCRIPTION

Pin	Function	Description
1	VIN	Positive Input Voltage Connection
2	SHARE	Current Share connection for parallel operation. Leave open if not used. Input referenced.
3	SYNC	Frequency Synchronization Input. Apply a TTL squarewave, 5Vpp, 20 - 80% duty cycle, internally capacitively coupled. Leave open if not used. Input referenced.
4	INHIBIT	This is an open collector input. Logic Low = Disabled Output. Connect the inhibit pin to input common to disable the output. Unconnected, open collector or open drain = Enabled Output. Input referenced.
5	INCOM	Input Return Connection
6	OUTCOM	Output Return Connection
7	OUTCOM	Output Return Connection
8	CASE	Case Connection
9	VOUT	Positive Output Voltage Connection
10	VOUT	Positive Output Voltage Connection

100% ENVIRONMENTAL SCREENING

Screening	Condition
Internal Visual	IPC-A-610, Class 3
Stabilization Bake	MIL-STD-883, Method 1008, Condition B, 125°C, 24 hours
Temperature Cycling	MIL-STD-883, Method 1010, Condition B, -55°C to +125°C, 10 Cycles
Burn-In	96 hours at +100°C
Final Electrical	100% at 25°C
External Visual	Internal Procedure



ORDERING INFORMATION

VPTHVM-	270	W
1	2	3

(1) Product Series	(2) Nominal Input Voltage		(3) Package Option	
VPTHVM-	270	160 – 400 Volts	None W	Standard Metal Epoxy Encapsulated

CONTACT INFORMATION

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

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