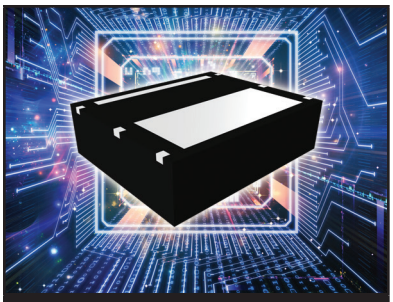
HYBRID TVS COMPONENT



DFN-2 PACKAGE

DESCRIPTION

The PHYTVSxxxV4 series is a patent pending hybrid state-of-the-art semiconductor technology intended for AC power transient protection. This series is designed to protect critical industrial and consumer applications, where a reliable overvoltage soluion with lower clamping voltage is required. The PHYTVSxxxV4 series technology is an ideal replacement for surface mount Metal Oxide Varistors (MOV), offering a more robust product in a small form factor that does not present a wear-out mechanism that is common with MOVs, thus extending signficantly its operation lifetime.

FEATURES

- Compatible with IEC 61000-4-5 (Surge): Class 2, 500Apk, 8/20µs, 1kV with Req = 2 Ohms
- Bidirectional Operation 50/60/400Hz AC Lines
- Very Low Clamping Voltage
- Available for SMT Reflow Soldering
- Low Profile and Space Saving Package
- Operating Temperature -55 to +125°C
- RoHS Compliant

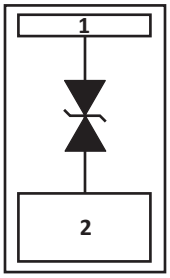
APPLICATIONS

- Power Adapters
- Home Appliances
- Industrial Equipment - Automation Controls
- Instrumentation
- SMART Meters

MECHANICAL CHARACTERISTICS

- Molded DFN-2-KW Package
- Approximate Weight: 0.9 grams
- Lead-Free Tin-Matte Plating
- Solder Reflow Temperature: 260-270°C, 10 seconds
- 12mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATION



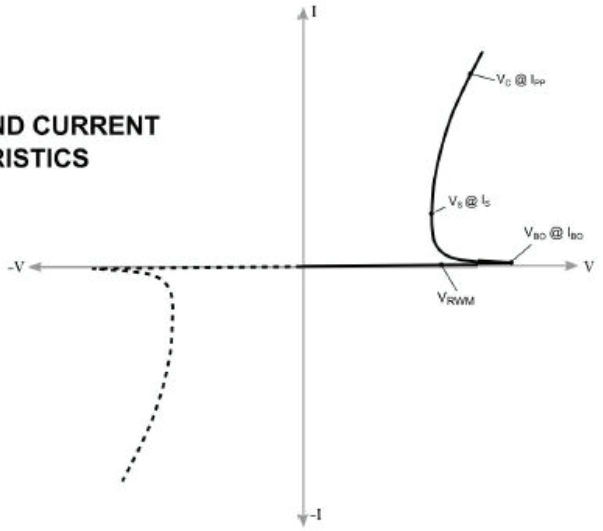
TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Current (8/20µs)	I_{PP}	500	A
Storage Temperature	T_{STG}	-55 to 125	°C
Operating Temperature	T_L	-55 to 125	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER	MARKING CODE	TYPICAL OPERATING VOLTAGE V_{RMS} VOLTS	MINIMUM REVERSE WORKING VOLTAGE V_{RWM} VOLTS	MAXIMUM REVERSE BREAKOVER VOLTAGE V_{BO} VOLTS	REVERSE BREAKOVER CURRENT I_{BO} mA	SWITCHING VOLTAGE V_S V	SWITCHING CURRENT I_S mA
PHYTVS125V4	125V4	125	200	220	1.0	110	100.0
PHYTVS250V4	250V4	250	375	420	1.0	200	100.0
PHYTVS277V4	277V4	277	410	440	1.0	220	100.0

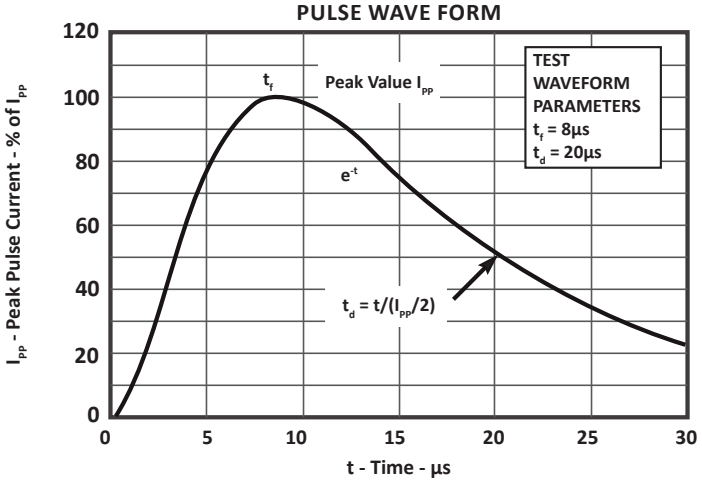
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified				
PART NUMBER	MAXIMUM REVERSE LEAKAGE CURRENT @V_{RWM} I_R µA	MAXIMUM CLAMPING VOLTAGE V_C VOLTS	MAXIMUM PEAK PULSE CURRENT (8/20µs) I_{PP} A	MAXIMUM OFF-STATE CAPACITANCE @ 1MHz, 0V C_O pF
PHYTVS125V4	10.0	130	500	100
PHYTVS250V4	10.0	230	500	100
PHYTVS277V4	10.0	250	500	100

VOLTAGE AND CURRENT CHARACTERISTICS



TYPICAL DEVICE CHARACTERISTICS

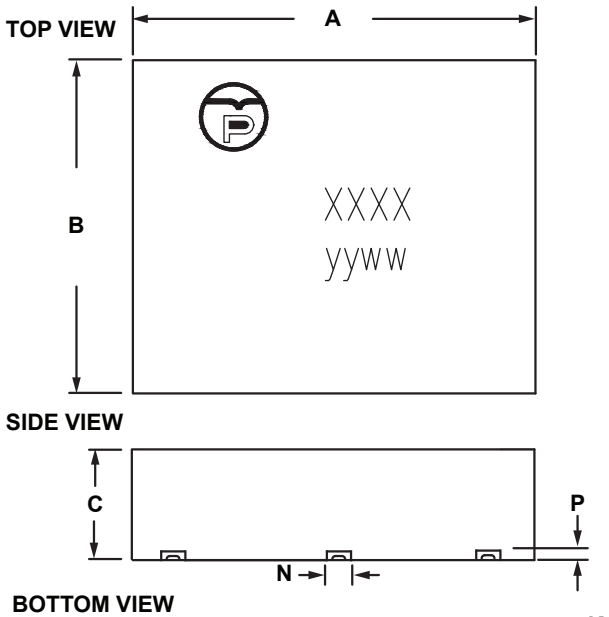
FIGURE 1
PULSE WAVE FORM

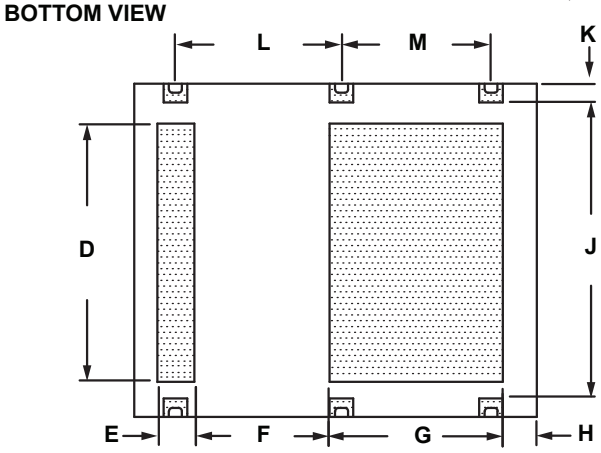


PACKAGE INFORMATION

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.95	11.15	0.431	0.439
B	9.04	9.24	0.356	0.364
C	2.95	3.15	0.116	0.124
D	7.06	7.16	0.278	0.282
E	0.97	1.07	0.038	0.042
F	3.61	3.81	0.142	0.150
G	4.62	4.72	0.185	0.189
H	0.83	1.03	0.033	0.041
J	8.03	8.23	0.316	0.324
K	0.46	0.56	0.018	0.022
L	4.46	4.66	0.174	0.184
M	4.01	4.21	0.158	0.166
N	0.60	0.70	0.024	0.028
P	0.20	0.30	0.008	0.012

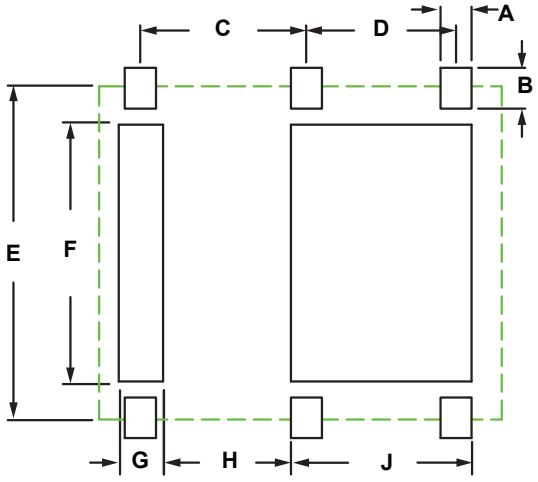
NOTES
1. Dimensions are exclusive of mold flash and metal burrs.



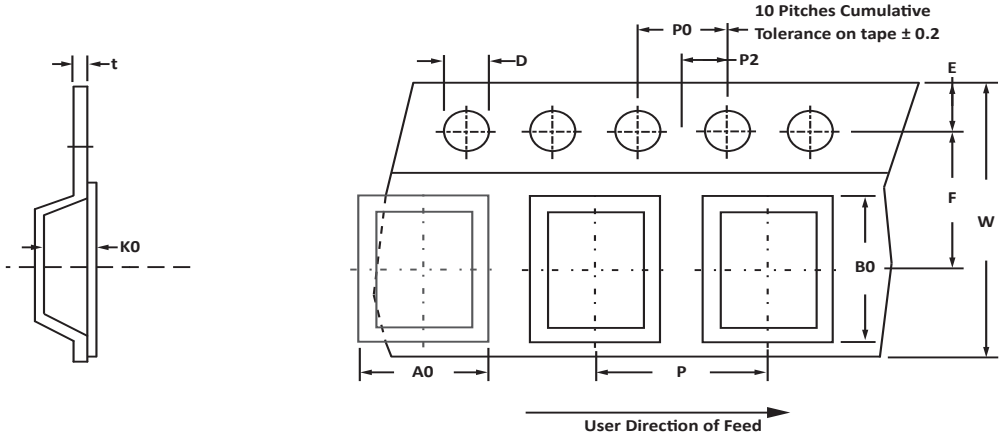


PCB PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	0.95	0.032	0.038
B	1.07	1.22	0.042	0.048
C	4.54		0.179	
D	4.11		0.162	
E	9.04		0.356	
F	7.26	7.36	0.286	0.290
G	1.17	1.32	0.046	0.052
H	3.46	3.61	0.136	0.143
J	4.91	5.06	0.195	0.199

NOTES
1. Suggested solder print uses some dimensions as PCB pad layout.



TAPE AND REEL



SPECIFICATIONS												
REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
330mm (13")	16mm	9.25 ± 0.10	11.15 ± 0.10	3.15 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50±0.05	16.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.10	0.25

NOTES
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Marking on Part - marking code (see page 2), date code and logo.

ORDERING INFORMATION					
BASE PART NUMBER (XXX=VOLTAGE)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PHYTVSxxxV4	n/a	-T13	1000	13"	n/a
This device is only available in a Lead-Free configuration.					

COMPANY INFORMATION

RTCA DO-160G COMPLIANT PRODUCT

COMPANY PROFILE

In business more than 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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