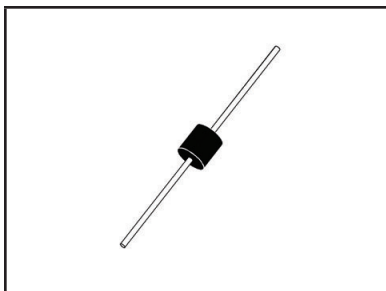


**1500 WATT TVS COMPONENT****AXIAL LEAD PACKAGE****DESCRIPTION**

The 1.5KE Series, are discrete 15,00 Watt, silicon transient voltage suppressors (TVS) designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The 1.5KE series is available in multiple voltages and is compatible with IEC 61000-4-5 (Surge) requirements.

**FEATURES**

- UL Registered
- Compatible with IEC 61000-4-5 (Surge)
- 1,500 Watts Peak Pulse Power per Line ( $t_p = 10/1000\mu s$ )
- Unidirectional and Bidirectional Configurations
- Low Leakage
- Excellent Clamping Capability
- Glass Passivated Chip
- Very Fast Response Time
- Easy Mounting to Printed Circuit Board
- Available in Multiple Voltage
- RoHS Complaint (Exemption #7)

**APPLICATIONS**

- DC & AC Applications
- Remote Transmission Lines
- Industrial Wiring

**MECHANICAL CHARACTERISTICS**

- Molded Case
- Approximate Weight: 0.84 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

## TYPICAL DEVICE CHARACTERISTICS

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_A$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Peak Pulse Power (tp =10/1000µs) - See Figure 1 and Note 2	$P_{PP}$	1,500	Watts
Power Dissipation on Infinite Heatsink at $T_L = 75°C$	$P_D$	6.5	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	$I_{FSM}$	200	Amps
Maximum Instantaneous Forward Voltage at 100A - Unidirectional Only (Note 3)	$V_F$	3.5/5.0	V

## NOTE

1. Non-repetitive current pulse per Figure 2 and derated above  $T_A = 25°C$  per Figure 2.
2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3.  $V_F < 3.5V$  for devices of  $V_{BR} < 200V$  and  $V_F < 5.0V$  for devices of  $V_{BR} > 201V$ .

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ $I_P$ $V_C$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT  @ $V_{RWM}$ $I_R$ µA
		MIN	MAX				
1.5KE6.8A	5.8	6.46	7.14	10	10.5	143.0	1000
1.5KE7.5A	6.4	7.13	7.88	10	11.3	133.0	500
1.5KE8.2A	7.0	7.79	8.61	10	12.1	124.0	200
1.5KE9.1A	7.8	8.65	9.56	1	13.4	112.0	50
1.5KE10A	8.6	9.50	10.50	1	14.5	103.0	10
1.5KE11A	9.4	10.45	11.55	1	15.6	96.2	5
1.5KE12A	10.2	11.40	12.60	1	16.7	89.8	5
1.5KE13A	11.1	12.35	13.65	1	18.2	82.4	1
1.5KE15A	12.8	14.25	15.75	1	21.2	70.8	1
1.5KE16A	13.6	15.20	16.80	1	22.5	66.7	1
1.5KE18A	15.3	17.10	18.90	1	25.2	59.5	1
1.5KE20A	17.1	19.00	21.00	1	27.7	54.2	1
1.5KE22A	18.8	20.90	23.10	1	30.6	49.0	1
1.5KE24A	20.5	22.80	25.20	1	33.2	45.2	1
1.5KE27A	23.1	25.65	28.35	1	37.5	40.0	1
1.5KE30A	25.6	28.50	31.50	1	41.4	36.2	1
1.5KE33A	28.2	31.35	34.65	1	45.7	32.8	1
1.5KE36A	30.8	34.20	37.80	1	49.9	30.1	1
1.5KE39A	33.3	37.05	40.95	1	53.9	27.8	1
1.5KE43A	36.8	40.85	45.15	1	59.3	25.3	1
1.5KE47A	40.2	44.65	49.35	1	64.8	23.2	1
1.5KE51A	43.6	48.45	53.55	1	70.1	21.4	1

## TYPICAL DEVICE CHARACTERISTICS

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

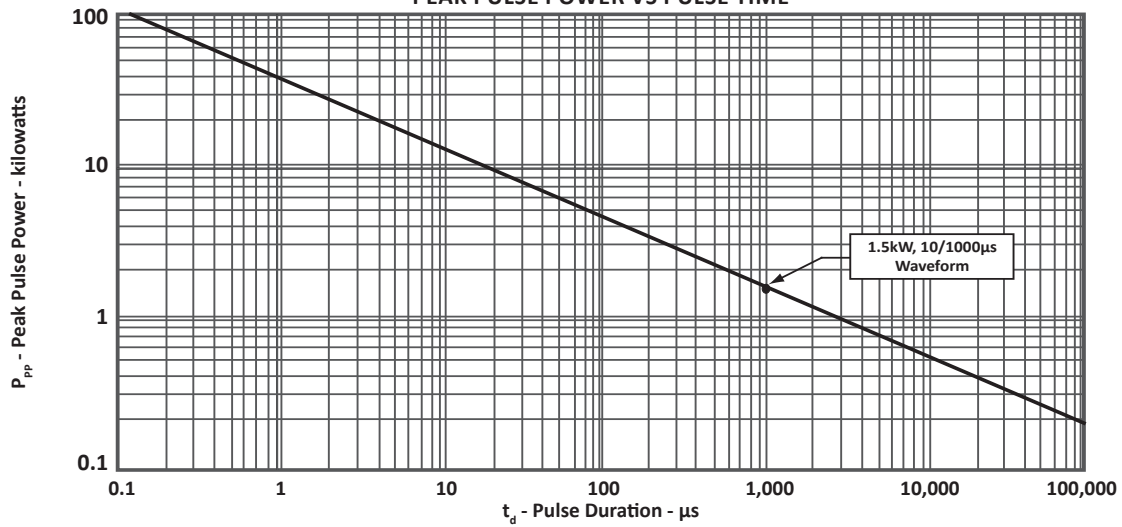
PART NUMBER (Note 1)	REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ $I_P$ $V_C$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT  @ $V_{RWM}$ $I_R$ $\mu A$
		MIN	MAX				
		1.5KE56A	47.8				
1.5KE62A	53.0	58.90	65.10	1	85.0	17.7	1
1.5KE68A	58.1	64.60	71.40	1	92.0	16.3	1
1.5KE75A	64.1	71.25	78.75	1	103.0	14.6	1
1.5KE82A	70.1	77.90	86.10	1	113.0	13.3	1
1.5KE91A	77.8	86.45	95.55	1	125.0	12.0	1
1.5KE100A	85.5	95.00	105.00	1	137.0	11.0	1
1.5KE110A	94.0	104.50	115.50	1	152.0	9.9	1
1.5KE120A	102.0	114.00	126.00	1	165.0	9.1	1
1.5KE130A	111.0	123.50	136.50	1	179.0	8.4	1
1.5KE150A	128.0	142.50	157.50	1	207.0	7.3	1
1.5KE160A	136.0	152.00	168.00	1	219.0	6.9	1
1.5KE170A	145.0	161.50	178.50	1	234.0	6.4	1
1.5KE180A	154.0	171.00	189.00	1	246.0	6.1	1
1.5KE200A	171.0	190.00	210.00	1	274.0	5.5	1
1.5KE220A	185.0	209.00	231.00	1	328.0	4.6	1
1.5KE250A	214.0	237.50	262.50	1	344.0	4.4	1
1.5KE300A	256.0	285.00	315.00	1	414.0	3.6	1
1.5KE350A	299.3	332.50	367.50	1	482.0	3.1	1
1.5KE380A	324.9	361.00	399.00	1	524.4	2.9	1
1.5KE400A	342.0	380.00	420.00	1	548.0	2.7	1
1.5KE440A	376.2	418.00	462.00	1	602.0	2.5	1
1.5KE500A	427.5	475.00	525.00	1	690.0	2.2	1
1.5KE520A	444.6	494.00	546.00	1	717.6	2.1	1
1.5KE550A	470.3	522.50	577.50	1	759.0	2.0	1
1.5KE600A	513.0	570.00	630.00	1	828.0	1.8	1

## NOTE

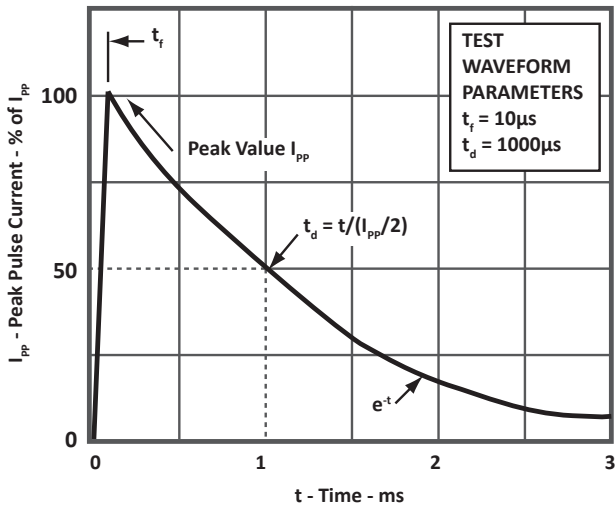
1. Add suffix 'C' or 'CA' after part number to specify a bidirectional device.

**TYPICAL DEVICE CHARACTERISTICS**

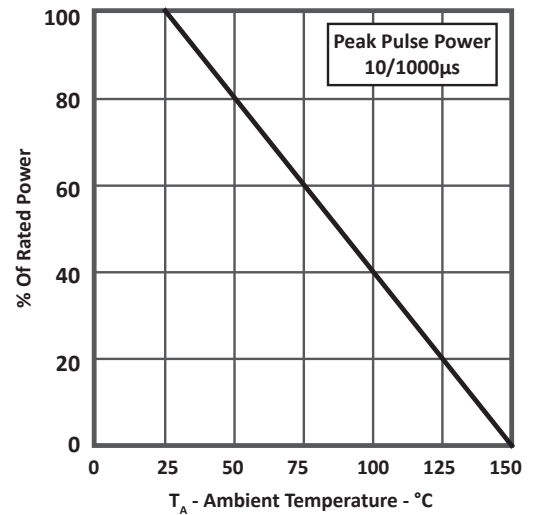
**FIGURE 1  
PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2  
PULSE WAVEFORM**

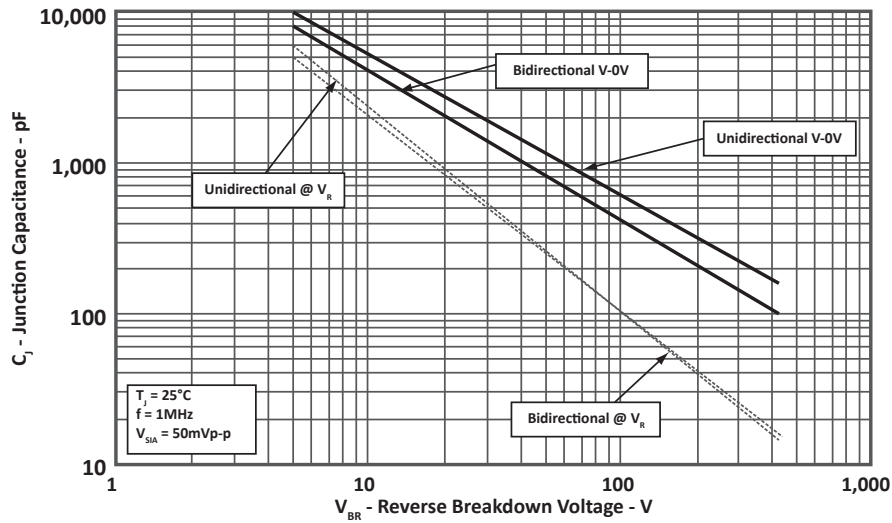


**FIGURE 3  
POWER DERATING CURVE**

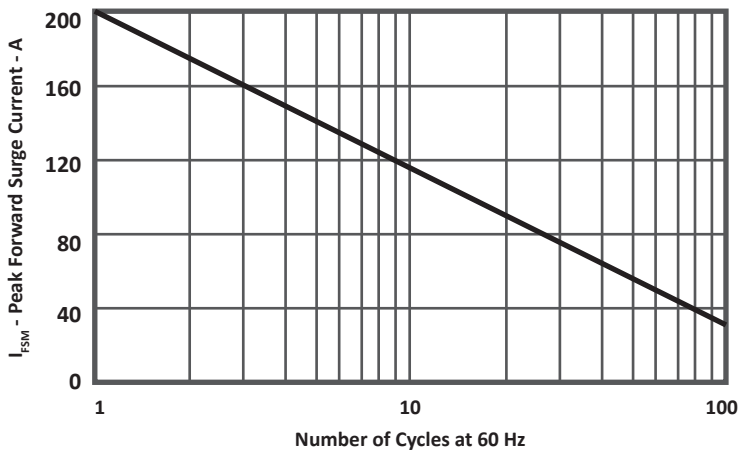


TYPICAL DEVICE CHARACTERISTICS

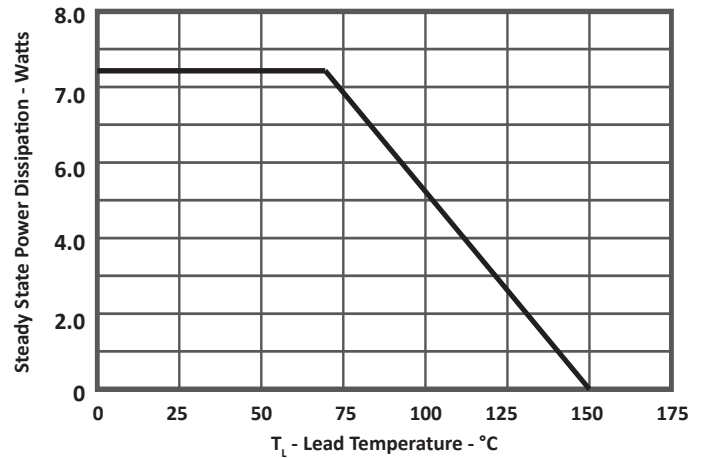
**FIGURE 4**  
TYPICAL JUNCTION CAPACITANCE



**FIGURE 5**  
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



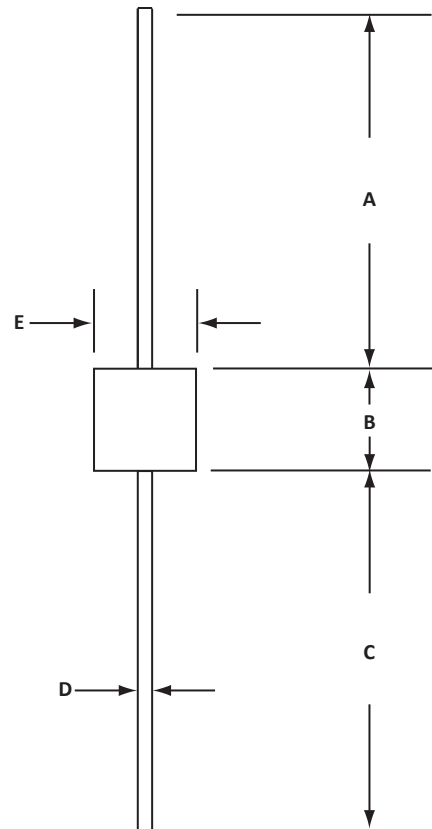
**FIGURE 6**  
STEADY STATE POWER DERATING CURVE



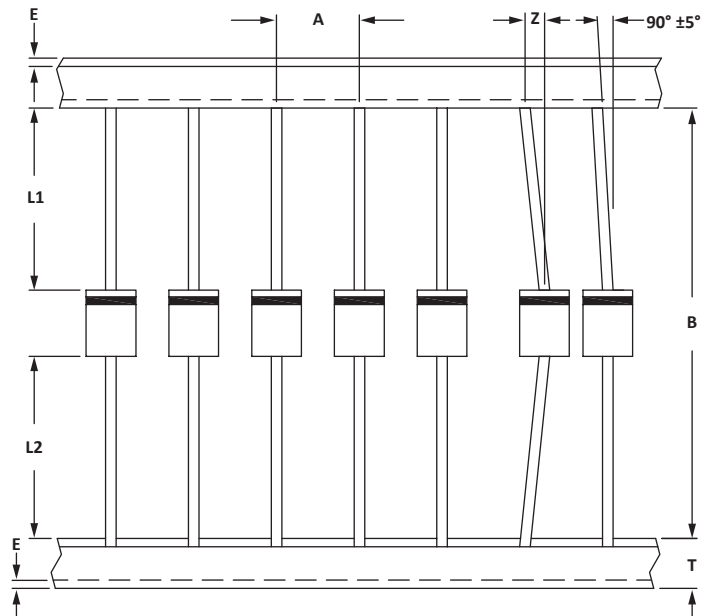
**AXIAL LEAD PACKAGE INFORMATION**

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.5	-	1.00	-
B	7.24	9.53	0.285	0.375
C	24.5	-	1.00	-
D	0.97 DIA.	1.07 DIA.	0.038 DIA.	0.042 DIA.
E	4.79	5.30	0.189	0.209

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



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	A	B	$E_{MAX}$	L1	L2	T	$Z_{MAX}$
330mm (13")	$10.0 \pm 0.5$	$52.0 \pm 0.5$	1.00	$21.8 \pm 0.5$	$21.8 \pm 0.5$	$6.0 \pm 0.4$	1.20

## NOTES

- Dimensions are in millimeters.
- Axial lead product is taped and reeled in accordance with RS-296-E.
- Marking on Part - part number, logo and polarity band (Unidirectional Only).

## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
1.5KExxxA	N/A	-T13	1,200	13"	n/a
1.5KExxxCA	N/A	-T13	1,200	13"	n/a

## COMPANY INFORMATION

---

### COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is an ISO 9001 certified company.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

COPYRIGHT © ProTek Devices 2014 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.