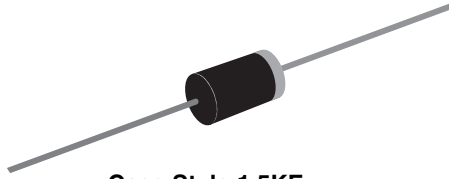


Low Capacitance TRANSZORB[®] Transient Voltage Suppressors



Case Style 1.5KE

PRIMARY CHARACTERISTICS	
V_{WM}	6.5 V to 28 V
P_{PPM}	1500 W
P_D	6.5 W
$T_J \text{ max.}$	175 °C

FEATURES

- Glass passivated chip junction
- 1500 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication.

MECHANICAL DATA

Case: Molded epoxy body over passivated junction
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes TVS cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾ (fig. 1)	P_{PPM}	1500	W
Peak power pulse surge current with a 10/1000 μ s waveform ⁽¹⁾ (fig. 2)	I_{PPM}	See next table	A
Power dissipation on infinite heatsink at $T_L = 75$ °C (fig. 2)	P_D	6.5	W
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175	°C

Note

⁽¹⁾ Non-repetitive current pulse, per fig. 3 and derated above $T_A = 25$ °C per fig.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)											
PART NUMBER	BREAKDOWN VOLTAGE V_{BR} (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA)	MAXIMUM PEAK PULSE CURRENT (FIG.3) I_{PP} (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PP} V_C (V)	MAXIMUM JUNCTION CAPACITANCE AT 0 (V) (pF)	MAXIMUM INVERSE BLOCKING VOLTAGE V_{WIB} (V)	MAXIMUM INVERSE BLOCKING LEAKAGE CURRENT AT V_{WIB} I_D (mA)	MINIMUM PEAK INVERSE BLOCKING VOLTAGE V_{PIB} (V)
	MIN.	MAX.									
LCE6.5A	7.22	7.98	10.0	6.5	1000	100	11.2	100	75	1.0	100
LCE7.0A	7.78	8.6	10.0	7.0	500	100	12.0	100	75	1.0	100
LCE7.5A	8.33	9.21	10.0	7.5	250	100	12.9	100	75	1.0	100
LCE8.0A	8.89	9.83	1.0	8.0	100	100	13.6	100	75	1.0	100
LCE8.5A	9.44	10.4	1.0	8.5	50.0	100	14.4	100	75	1.0	100
LCE9.0A	10.0	11.1	1.0	9.0	10.0	97	15.4	100	75	1.0	100
LCE10A	11.1	12.3	1.0	10.0	5.0	88	17.0	100	75	1.0	100
LCE11A	12.2	13.5	1.0	11.0	5.0	82	18.2	100	75	1.0	100
LCE12A	13.3	14.7	1.0	12.0	5.0	75	19.9	100	75	1.0	100
LCE13A	14.4	15.9	1.0	13.0	5.0	70	21.5	100	75	1.0	100
LCE14A	15.6	17.2	1.0	14.0	5.0	65	23.2	100	75	1.0	100
LCE15A	16.7	18.5	1.0	15.0	5.0	61	24.4	100	75	1.0	100
LCE16A	17.8	19.7	1.0	16.0	5.0	57	26.0	100	75	1.0	100
LCE17A	18.9	20.9	1.0	17.0	5.0	54	27.6	100	75	1.0	100
LCE18A	20.0	22.1	1.0	18.0	5.0	51	29.2	100	75	1.0	100
LCE20A	22.2	24.5	1.0	20.0	5.0	46	32.4	100	75	1.0	100
LCE22A	24.4	26.9	1.0	22.0	5.0	42	35.5	100	75	1.0	100
LCE24A	26.7	29.5	1.0	24.0	5.0	39	38.9	100	75	1.0	100
LCE26A	28.9	31.9	1.0	26.0	5.0	36	42.1	100	75	1.0	100
LCE28A	31.1	34.4	1.0	28.0	5.0	33	45.5	100	75	1.0	100

Note

- All the above devices are UL listed for Telecom application protection 497B, file number E136766

ORDERING INFORMATION (Example)				
PREFERRED PIN	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
LCE6.5A-E3/54	0.968	54	1400	13" diameter paper tape and reel

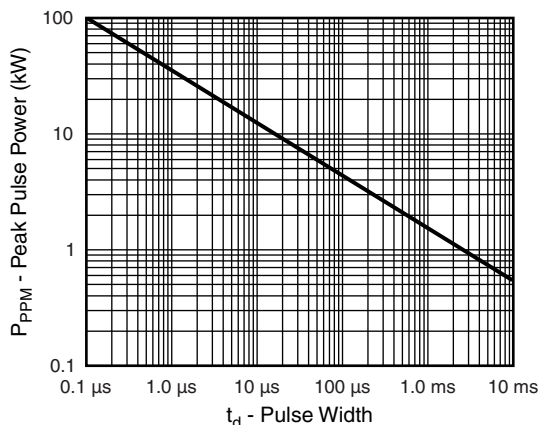
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Peak Pulse Power Rating Curve

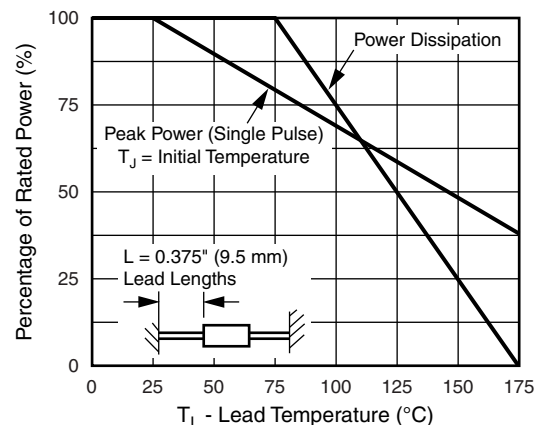


Fig. 2 - Power Derating Curve

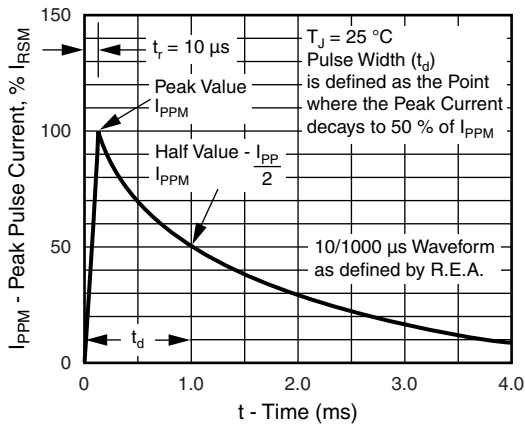
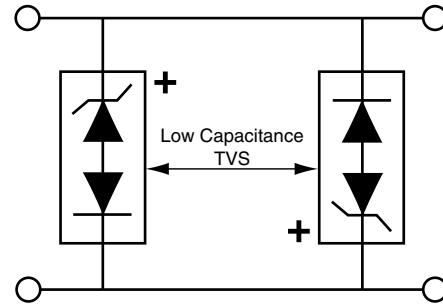


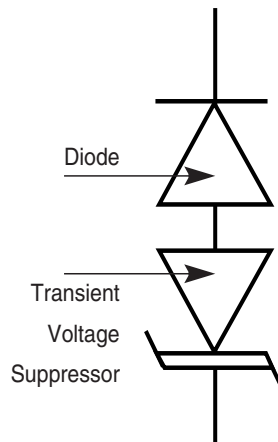
Fig. 3 - Pulse Waveform



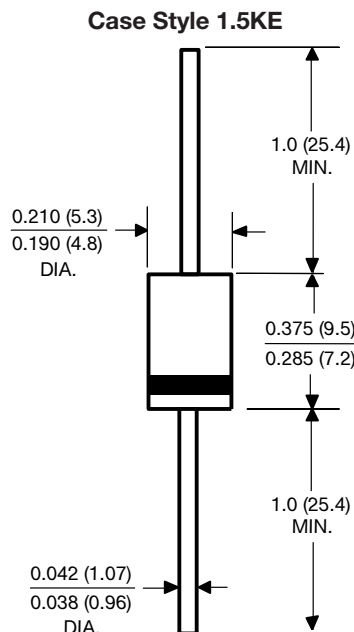
Application Note: Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection.

Fig. 4 - AC Line Protection Application

SCHEMATIC



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.