

Vishay General Semiconductor

AUTOMOTIVE

Available

RoHS

TRANSZORB® Transient Voltage Suppressors



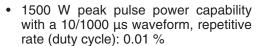
PRIMARY CHARACTERISTICS				
V _{WM}	5.0 V to 18 V			
P _{PPM}	1500 W			
P _D	6.5 W			
I _{FSM}	200 A			
T _J max.	175 °C			

DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional types, use C suffix (e.g. ICTE18C). Electrical characteristics apply in both directions.

FEATURES

- Glass passivated chip junction
- Available in uni-directional and bi-directional





- Very fast response time
- · Low incremental surge resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Find out more about Vishay's Automotive Grade Product requirements at: www.vishav.com/applications

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 Base P/NHE3 - RoHS compliant, automotive grade

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	LIMIT	UNIT				
Peak pulse power dissipation with a 10/1000 μs waveform ⁽¹⁾ (fig. 1)	P _{PPM}	1500	W				
Peak pulse current with a 10/1000 μs waveform ⁽¹⁾ (fig. 3)	I _{PPM}	See next table	Α				
Power dissipation on infinite heatsink at T _L = 75 °C (fig. 8)	P _D	6.5	W				
Peak forward surge current 8.3 ms single half sine-wave uni-directional only (2)	I _{FSM}	200	А				
Maximum instantaneous forward voltage at 100 A for uni-directional only	V _F	3.5	V				
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 175	°C				

Notes

 $^{^{(1)}}$ Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 $^{\circ}$ C per fig. 2

^{(2) 8.3} ms single half sine-wave, duty cycle = 4 pulses per minute maximum

ICTE5 thru ICTE18C, 1N6373 thru 1N6386

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ELECTRICAL	ELECTRICAL CHARACTERISTICS (JEDEC REGISTERED DATA) (T _A = 25 °C unless otherwise noted)					wise noted)	
JEDEC TYPE NUMBER	GENERAL SEMICONDUCTOR PART NUMBER	STAND-OFF VOLTAGE V _{WM} (V)	MINIMUM BREAKDOWN VOLTAGE AT 1.0 mA V _{BR} (V)	MAXIMUM REVERSE LEAKAGE AT V _{WM} I _D (μA)		MAXIMUM CLAMPING VOLTAGE AT I _{PP} = 10 A V _C (V)	MAXIMUM PEAK PULSE CURRENT I _{PP} (A)
UNI-DIRECTION	AL TYPES						
1N6373 ⁽²⁾	ICTE5 (2)	5.0	6.0	300	7.1	7.5	160
1N6374	ICTE8	8.0	9.4	25.0	11.3	11.5	100
1N6375	ICTE10	10.0	11.7	2.0	13.7	14.1	90
1N6376	ICTE12	12.0	14.1	2.0	16.1	16.5	70
1N6377	ICTE15	15.0	17.6	2.0	20.1	20.6	60
1N6378	ICTE18	18.0	21.2	2.0	24.2	25.2	50
BI-DIRECTIONA	BI-DIRECTIONAL TYPES						
1N6382	ICTE8C	8.0	9.4	50.0	11.4	11.6	100
1N6383	ICTE10C	10.0	11.7	2.0	14.1	14.5	90
1N6384	ICTE12C	12.0	14.1	2.0	16.7	17.1	70
1N6385	ICTE15C	15.0	17.6	2.0	20.8	21.4	60
1N6386	ICTE18C	18.0	21.2	2.0	24.8	25.5	50

Notes

⁽³⁾ Clamping factor: 1.33 at full rated power; 1.20 at 50 % rated power; clamping factor: the ratio of the actual V_C (clamping voltage) to the V_{BR} (breakdown voltage) as measured on a specific device

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ICTE5-E3/54	0.968	54	1400	13" diameter paper tape and reel		
ICTE5HE3/54 (1)	0.968	54	1400	13" diameter paper tape and reel		

Note

^{(1) &}quot;C" suffix indicates bi-directional

⁽²⁾ ICTE5 and 1N6373 are not available as bi-directional

⁽¹⁾ Automotive grade

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RATINGS AND CHARACTERISTICS CURVES

 $(T_A = 25 \, ^{\circ}C \text{ unless otherwise noted})$

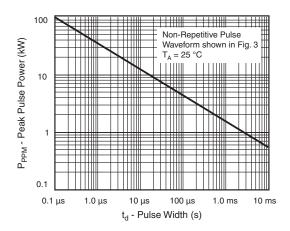


Figure 1. Peak Pulse Power Rating Curve

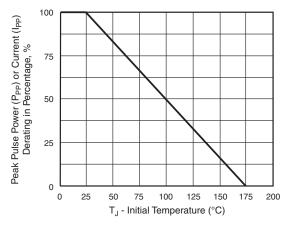


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

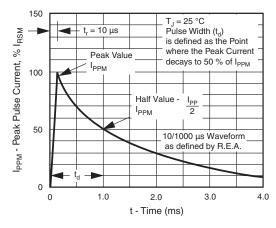


Figure 3. Pulse Waveform

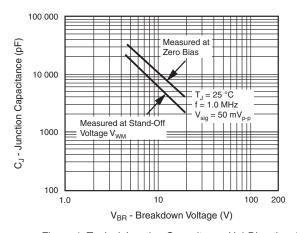


Figure 4. Typical Junction Capacitance Uni-Directional

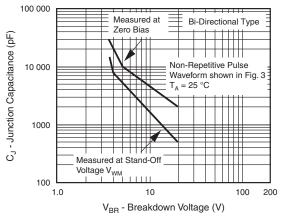


Figure 5. Typical Junction Capacitance

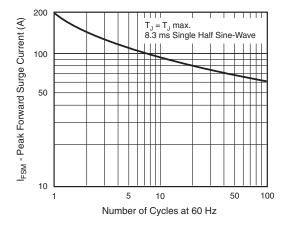


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

ICTE5 thru ICTE18C, 1N6373 thru 1N6386

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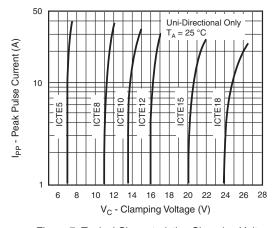


Figure 7. Typical Characteristics Clamping Voltage

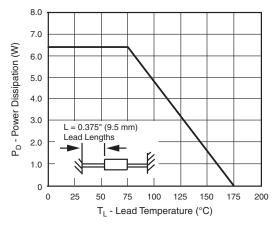
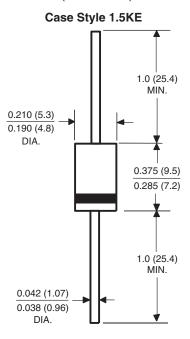


Figure 8. Power Derating Curve

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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