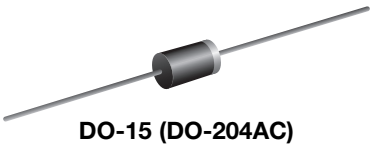
# THE DATASHEET OF

# SAC18-E3/73

# Low Capacitance TRANSZORB® Transient Voltage Suppressors



DO-15 (DO-204AC)

## FEATURES

- Glass passivated chip junction
- 500 W peak pulse power capability with a 10/1000 µs 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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

| PRIMARY CHARACTERISTICS | |
|---|---|
| $V_{WM}$ | 5.0 V to 50 V |
| $V_{BR}$ | 7.6 V to 55.5 V |
| $P_{PPM}$ | 500 W |
| $P_D$ | 3.0 W |
| $T_J$ max. | 175 °C |
| Polarity | Unidirectional |
| Package | DO-15 (DO-204AC) |

## 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:** DO-15 (DO-204AC)

Molded epoxy over passivated body

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant and 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 cathode end

| MAXIMUM RATINGS ($T_A$ = 25 °C unless otherwise noted) | | | |
|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **VALUE** | **UNIT** |
| Peak pulse power dissipation with a 10/1000 µs waveform (1) | $P_{PPM}$ | 500 | W |
| Peak pulse current with a 10/1000 µs waveform (fig. 3) (1) | $I_{PPM}$ | See next table | A |
| Power dissipation on infinite heatsink at $T_L$ = 75 °C (fig. 2) | $P_D$ | 3.0 | W |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +175 | °C |

**Note**

(1) Non-repetitive current pulse, per fig. 3 and derated above $T_A$ = 25 °C per fig. 2



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PART NUMBER | BREAKDOWN VOLTAGE AT $I_T$ = 1.0 mA $V_{BR}$ (V) MIN. | STAND-OFF VOLTAGE (1) $V_{WM}$ (V) | MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ (µA) | MAXIMUM CLAMPING VOLTAGE AT $I_{PP}$ = 5.0 A $V_C$ (V) | MAXIMUM PEAK PULSE CURRENT PER FIG. 3 $I_{PP}$ (A) | MAXIMUM JUNCTION CAPACITANCE AT 0 V (pF) | WORKING INVERSE BLOCKING VOLTAGE $V_{WIB}$ (V) | INVERSE BLOCKING LEAKAGE CURRENT $V_{WIB}$ $I_{IB}$ (mA) | PEAK INVERSE BLOCKING VOLTAGE $V_{PIB}$ (V) |
| SAC5.0 | 7.60 | 5 | 300 | 10.0 | 44 | 50 | 75 | 1.0 | 100 |
| SAC6.0 | 7.90 | 6 | 300 | 11.2 | 41 | 50 | 75 | 1.0 | 100 |
| SAC7.0 | 8.33 | 7 | 300 | 12.6 | 38 | 50 | 75 | 1.0 | 100 |
| SAC8.0 | 8.89 | 8 | 100 | 13.4 | 36 | 50 | 75 | 1.0 | 100 |
| SAC8.5 | 9.44 | 8.5 | 50 | 14.0 | 34 | 50 | 75 | 1.0 | 100 |
| SAC10 | 11.10 | 10 | 5.0 | 16.3 | 29 | 50 | 75 | 1.0 | 100 |
| SAC12 | 13.30 | 12 | 5.0 | 19.0 | 25 | 50 | 75 | 1.0 | 100 |
| SAC15 | 16.70 | 15 | 5.0 | 23.6 | 20 | 50 | 75 | 1.0 | 100 |
| SAC18 | 20.00 | 18 | 5.0 | 28.8 | 15 | 50 | 75 | 1.0 | 100 |
| SAC22 | 24.40 | 22 | 5.0 | 35.4 | 14 | 50 | 75 | 1.0 | 100 |
| SAC26 | 28.90 | 26 | 5.0 | 42.3 | 11.1 | 50 | 75 | 1.0 | 100 |
| SAC30 | 33.30 | 30 | 5.0 | 48.6 | 10.0 | 50 | 75 | 1.0 | 100 |
| SAC36 | 40.00 | 36 | 5.0 | 60.0 | 8.6 | 50 | 75 | 1.0 | 100 |
| SAC45 | 50.00 | 45 | 5.0 | 77.0 | 6.8 | 50 | 150 | 1.0 | 200 |
| SAC50 | 55.50 | 50 | 5.0 | 88.0 | 5.8 | 50 | 150 | 1.0 | 200 |

**Note**

(1) Non-repetitive current pulse, per fig. 3 and derated above $T_A$ = 25 °C per fig. 2

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| PREFERRED PIN | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SAC5.0-E3/54 | 0.432 | 54 | 4000 | 13" diameter paper tape and reel |



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

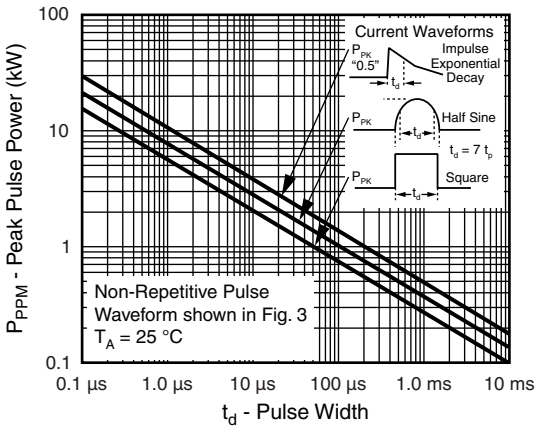



Fig. 1 - Peak Pulse Power Rating Curve

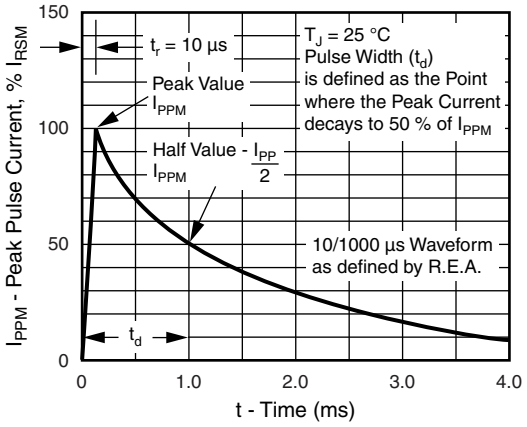



Fig. 3 - Pulse Waveform

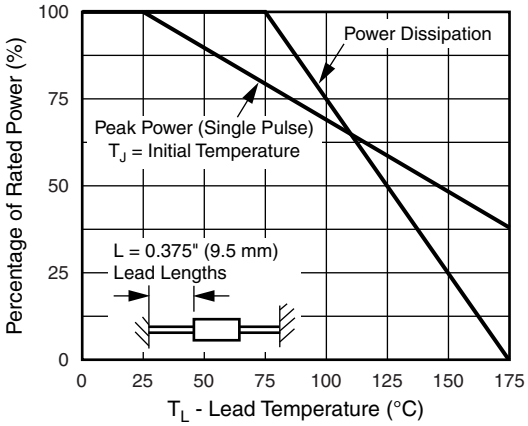
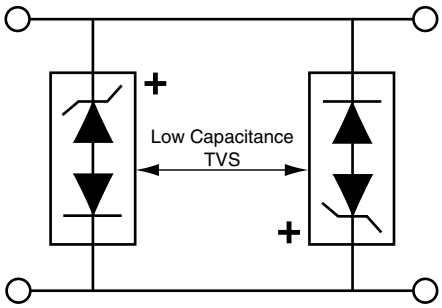


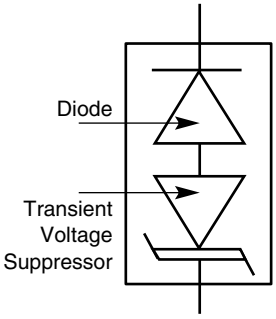

Fig. 2 - Power Derating Curve




**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



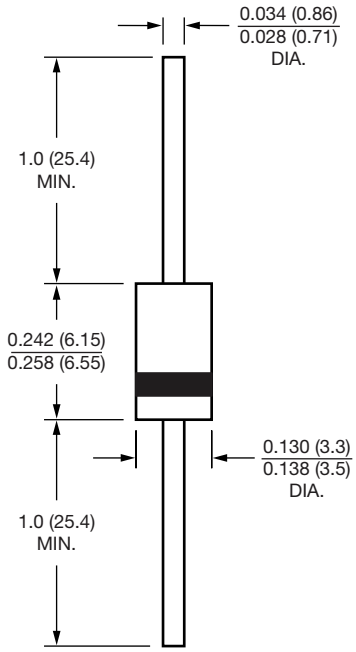



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-15 (DO-204AC)**




**Note**

- Dimensions of mold length and diameter do not include mold flash and gate burr, mold flash shall not exceed 0.015 inch per side. These dimensions are measured at the outermost extreme of the plastic body



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

# 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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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. 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.

*© 2024 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED*

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View SAC18-E3/73 on WIN SOURCE
- Vishay Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management