

**ELECTRICAL SPECIFICATIONS**

| PARAMETER | SYMBOL | TEST CONDITIONS | | TYP. | MAX. | UNITS |
|---------------------------------------|--------------------------------|---|-------------------------|--------|------|-------|
| Maximum forward voltage drop | V _{FM} ⁽¹⁾ | 30 A | T _J = 25 °C | 0.78 | 0.82 | V |
| | | 60 A | | 0.94 | 1.0 | |
| | | 30 A | T _J = 125 °C | 0.64 | 0.69 | |
| | | 60 A | | 0.78 | 0.83 | |
| Maximum instantaneous reverse current | I _{RM} | T _J = 25 °C | Rated DC voltage | 0.02 | 0.3 | mA |
| | | T _J = 125 °C | | 11 | 20 | |
| Maximum junction capacitance | C _T | V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C | | 1100 | | pF |
| Typical series inductance | L _S | Measured from top of terminal to mounting plane | | 8.0 | | nH |
| Maximum voltage rate of change | dV/dt | Rated V _R | | 10 000 | | V/μs |

Note(1) Pulse width < 300 μ s, duty cycle < 2 %**THERMAL - MECHANICAL SPECIFICATIONS**

| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
|--|-----------------------------------|--------------------------------------|-------------|------------------------|
| Maximum junction and storage temperature range | T _J , T _{Stg} | | - 65 to 175 | °C |
| Maximum thermal resistance, junction to case per leg | R _{thJC} | DC operation | 1.2 | °C/W |
| Typical thermal resistance, case to heatsink | R _{thCS} | Mounting surface, smooth and greased | 0.50 | |
| Approximate weight | | | 2 | g |
| | | | 0.07 | oz. |
| Mounting torque | minimum | Non-lubricated threads | 6 (5) | kgf · cm (lbf · in) |
| | maximum | | 12 (10) | |
| Marking device | | Case style TO-220AB | 63CTQ100 | |

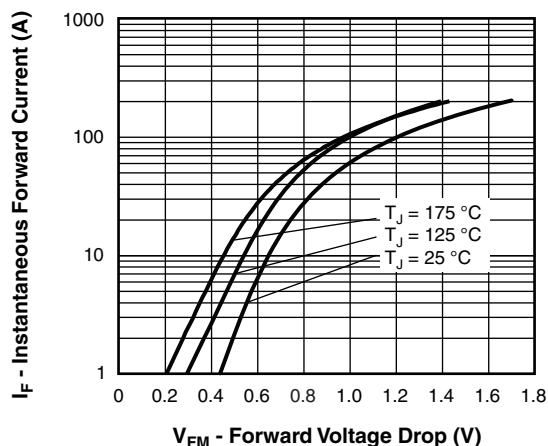


Fig. 1 - Maximum Forward Voltage Drop Characteristics

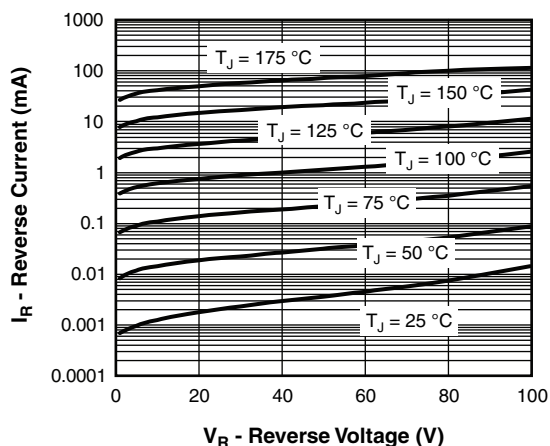


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

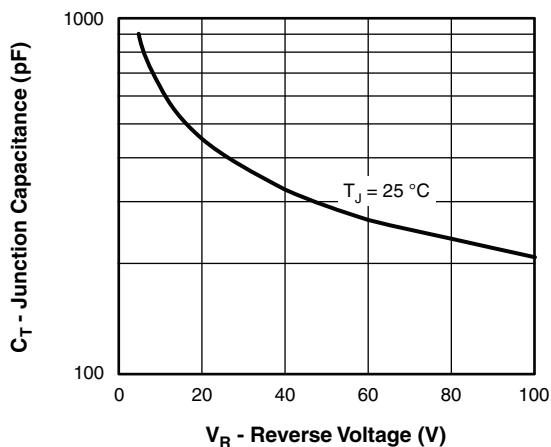
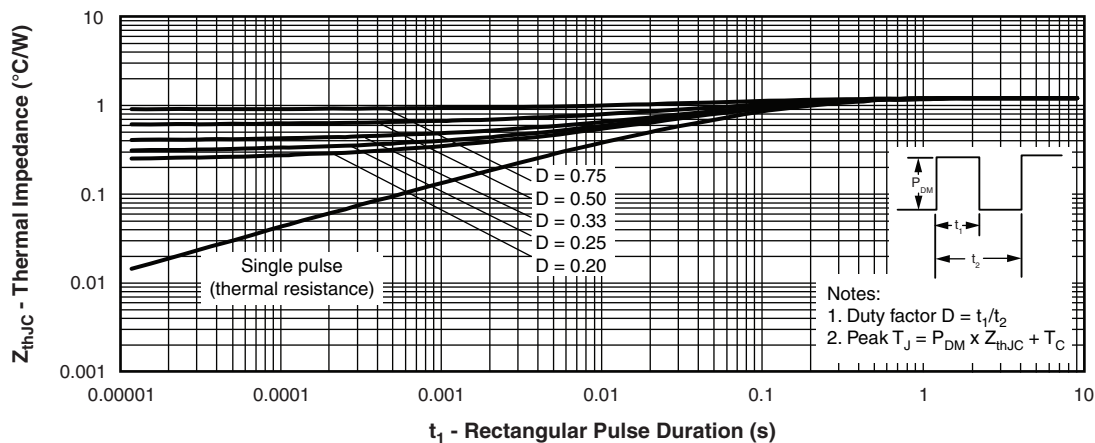


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

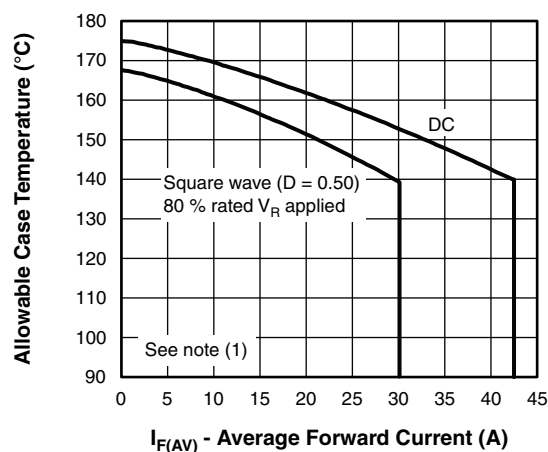


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

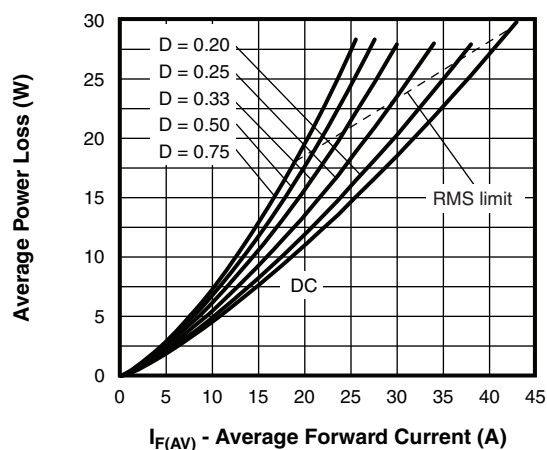


Fig. 6 - Forward Power Loss Characteristics

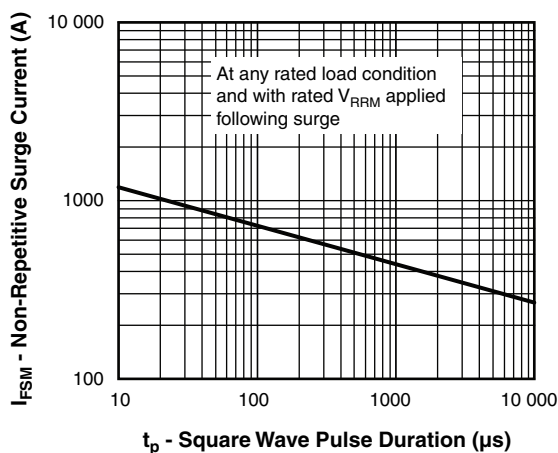


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

- (1) Formula used: $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$
 P_d = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6);
 P_{dREV} = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at $V_{R1} = 80\%$ rated V_R

**ORDERING INFORMATION TABLE**

| | | | | | | | |
|-------------|------------|-----------|----------|----------|----------|------------|------------|
| Device code | VS- | 63 | C | T | Q | 100 | PbF |
| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

- | | | |
|----------|---|---|
| 1 | - | Vishay Semiconductors product |
| 2 | - | Current rating (60 A) |
| 3 | - | Circuit configuration C = Common cathode |
| 4 | - | Package T = TO-220 |
| 5 | - | Schottky "Q" series |
| 6 | - | Voltage rating (100 = 100 V) |
| 7 | - | Environmental digit |
- PbF = Lead (Pb)-free and RoHS compliant
 - -N3 = Halogen-free, RoHS compliant, and totally lead (Pb)-free

| ORDERING INFORMATION (Example) | | | |
|---------------------------------------|------------------|------------------------|-------------------------|
| PREFERRED P/N | QUANTITY PER T/R | MINIMUM ORDER QUANTITY | PACKAGING DESCRIPTION |
| VS-63CTQ100PbF | 50 | 1000 | Antistatic plastic tube |
| VS-63CTQ100-N3 | 50 | 1000 | Antistatic plastic tube |

| LINKS TO RELATED DOCUMENTS | | |
|-----------------------------------|--------------|--|
| Dimensions | | www.vishay.com/doc?95222 |
| Part marking information | TO-220AB PbF | www.vishay.com/doc?95225 |
| | TO-220AB -N3 | www.vishay.com/doc?95028 |

TO-220AB

DIMENSIONS in millimeters and inches



| SYMBOL | MILLIMETERS | | INCHES | | NOTES |
|--------|-------------|-------|--------|-------|-------|
| | MIN. | MAX. | MIN. | MAX. | |
| A | 4.25 | 4.65 | 0.167 | 0.183 | |
| A1 | 1.14 | 1.40 | 0.045 | 0.055 | |
| A2 | 2.56 | 2.92 | 0.101 | 0.115 | |
| b | 0.69 | 1.01 | 0.027 | 0.040 | |
| b1 | 0.38 | 0.97 | 0.015 | 0.038 | 4 |
| b2 | 1.20 | 1.73 | 0.047 | 0.068 | |
| b3 | 1.14 | 1.73 | 0.045 | 0.068 | 4 |
| c | 0.36 | 0.61 | 0.014 | 0.024 | |
| c1 | 0.36 | 0.56 | 0.014 | 0.022 | 4 |
| D | 14.85 | 15.25 | 0.585 | 0.600 | 3 |
| D1 | 8.38 | 9.02 | 0.330 | 0.355 | |
| D2 | 11.68 | 12.88 | 0.460 | 0.507 | 6 |

| SYMBOL | MILLIMETERS | | INCHES | | NOTES |
|--------|-------------|-------|------------|-------|-------|
| | MIN. | MAX. | MIN. | MAX. | |
| E | 10.11 | 10.51 | 0.398 | 0.414 | 3, 6 |
| E1 | 6.86 | 8.89 | 0.270 | 0.350 | 6 |
| E2 | - | 0.76 | - | 0.030 | 7 |
| e | 2.41 | 2.67 | 0.095 | 0.105 | |
| e1 | 4.88 | 5.28 | 0.192 | 0.208 | |
| H1 | 6.09 | 6.48 | 0.240 | 0.255 | 6, 7 |
| L | 13.52 | 14.02 | 0.532 | 0.552 | |
| L1 | 3.32 | 3.82 | 0.131 | 0.150 | 2 |
| Ø P | 3.54 | 3.73 | 0.139 | 0.147 | |
| Q | 2.60 | 3.00 | 0.102 | 0.118 | |
| θ | 90° to 93° | | 90° to 93° | | |

Notes

- (1) Dimensioning and tolerancing as per ASME Y14.5M-1994
- (2) Lead dimension and finish uncontrolled in L1
- (3) Dimension D, D1 and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- (4) Dimension b1, b3 and c1 apply to base metal only
- (5) Controlling dimensions: inches
- (6) Thermal pad contour optional within dimensions E, H1, D2 and E1
- (7) Dimensions E2 x H1 define a zone where stamping and singulation irregularities are allowed
- (8) Outline conforms to JEDEC TO-220, except A2 (maximum) and D2 (minimum) where dimensions are derived from the actual package outline



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