

| ELECTRICAL SPECIFICATIONS                     |                |                                                                                             |                                     |        |       |
|-----------------------------------------------|----------------|---------------------------------------------------------------------------------------------|-------------------------------------|--------|-------|
| PARAMETER                                     | SYMBOL         | TEST CONDITIONS                                                                             |                                     | VALUES | UNITS |
| Maximum forward voltage drop<br>See fig. 1    | $V_{FM}^{(1)}$ | 1 A                                                                                         | $T_J = 25\text{ }^{\circ}\text{C}$  | 0.53   | V     |
|                                               |                | 2 A                                                                                         |                                     | 0.70   |       |
|                                               |                | 1 A                                                                                         | $T_J = 125\text{ }^{\circ}\text{C}$ | 0.49   |       |
|                                               |                | 2 A                                                                                         |                                     | 0.64   |       |
| Maximum reverse leakage current<br>See fig. 2 | $I_{RM}^{(1)}$ | $T_J = 25\text{ }^{\circ}\text{C}$                                                          | $V_R = \text{Rated } V_R$           | 0.1    | mA    |
|                                               |                | $T_J = 125\text{ }^{\circ}\text{C}$                                                         |                                     | 4      |       |
| Typical junction capacitance                  | $C_T$          | $V_R = 5\text{ V}_{DC}$ , (test signal range 100 kHz to 1 MHz) $25\text{ }^{\circ}\text{C}$ |                                     | 80     | pF    |
| Typical series inductance                     | $L_S$          | Measured lead to lead 5 mm from package body                                                |                                     | 2.0    | nH    |
| Maximum voltage rate of charge                | dV/dt          | Rated $V_R$                                                                                 |                                     | 10 000 | V/μs  |

**Note**(1) Pulse width < 300  $\mu$ s, duty cycle < 2 %

| THERMAL - MECHANICAL SPECIFICATIONS             |                      |                                   |             |                      |
|-------------------------------------------------|----------------------|-----------------------------------|-------------|----------------------|
| PARAMETER                                       | SYMBOL               | TEST CONDITIONS                   | VALUES      | UNITS                |
| Maximum junction and storage temperature range  | $T_J^{(1)}, T_{Stg}$ |                                   | - 55 to 150 | $^{\circ}\text{C}$   |
| Maximum thermal resistance, junction to lead    | $R_{thJL}^{(2)}$     | DC operation                      | 36          | $^{\circ}\text{C/W}$ |
| Maximum thermal resistance, junction to ambient | $R_{thJA}$           |                                   | 80          |                      |
| Approximate weight                              |                      |                                   | 0.10        | g                    |
|                                                 |                      |                                   | 0.003       | oz.                  |
| Marking device                                  |                      | Case style SMB (similar DO-214AA) | V1F         |                      |

**Notes**(1)  $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$  thermal runaway condition for a diode on its own heatsink

(2) Mounted 1" square PCB

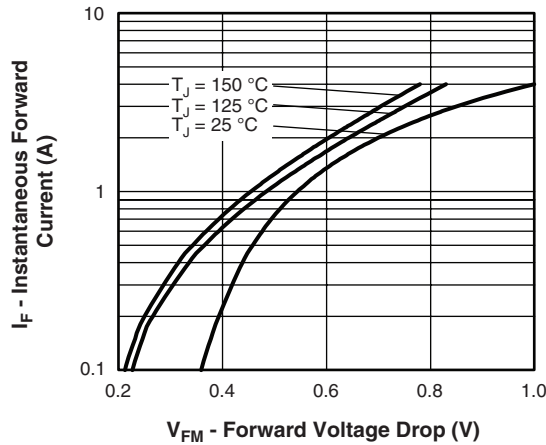


Fig. 1 - Maximum Forward Voltage Drop Characteristics

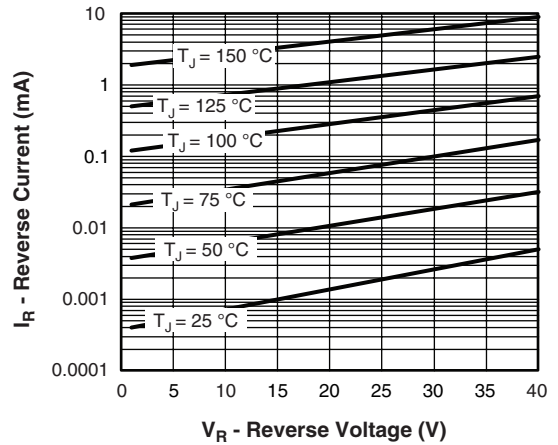


Fig. 2 - Typical Reverse Current vs. Reverse Voltage

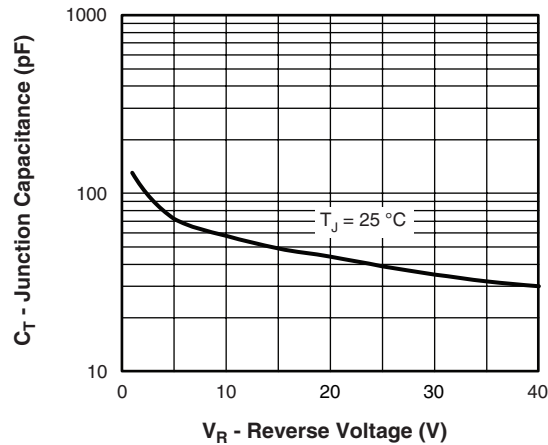
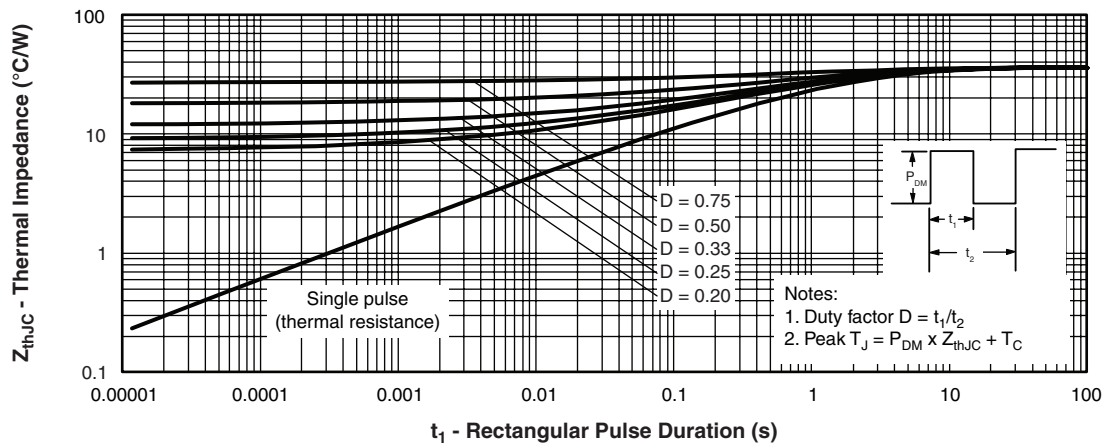


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

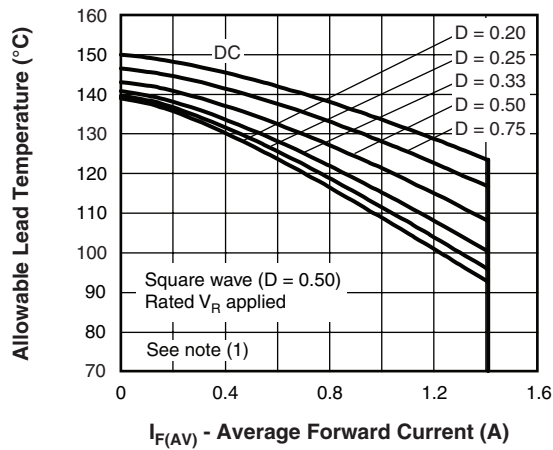


Fig. 5 - Maximum Average Forward Current vs. Allowable Lead Temperature

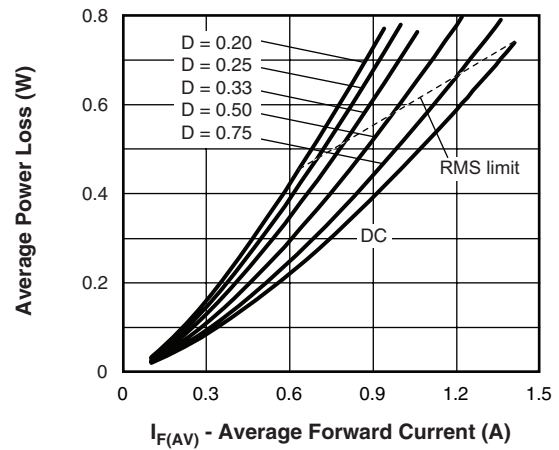


Fig. 6 - Maximum Average Forward Dissipation vs. Average Forward Current

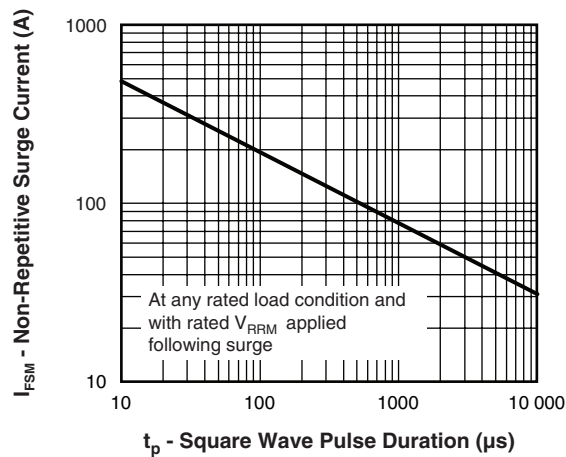


Fig. 7 - Maximum Peak Surge Forward Current vs. Pulse Duration

### Note

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

**ORDERING INFORMATION TABLE**

|             |           |          |          |            |           |            |
|-------------|-----------|----------|----------|------------|-----------|------------|
| Device code | <b>10</b> | <b>B</b> | <b>Q</b> | <b>040</b> | <b>TR</b> | <b>PbF</b> |
|             | ①         | ②        | ③        | ④          | ⑤         | ⑥          |

- |          |   |                                                                                                                       |
|----------|---|-----------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | - | Current rating                                                                                                        |
| <b>2</b> | - | B = Single lead diode                                                                                                 |
| <b>3</b> | - | Q = Schottky "Q" series                                                                                               |
| <b>4</b> | - | Voltage rating (040 = 40 V)                                                                                           |
| <b>5</b> | - | <ul style="list-style-type: none"><li>• None = Box (1000 pieces)</li><li>• TR = Tape and reel (3000 pieces)</li></ul> |
| <b>6</b> | - | <ul style="list-style-type: none"><li>• None = Standard production</li><li>• PbF = Lead (Pb)-free</li></ul>           |

| LINKS TO RELATED DOCUMENTS |                                                                               |
|----------------------------|-------------------------------------------------------------------------------|
| Dimensions                 | <a href="http://www.vishay.com/doc?95017">http://www.vishay.com/doc?95017</a> |
| Part marking information   | <a href="http://www.vishay.com/doc?95029">http://www.vishay.com/doc?95029</a> |
| Packaging information      | <a href="http://www.vishay.com/doc?95034">http://www.vishay.com/doc?95034</a> |



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