

## Features

- Quad TVS in Common Anode Configuration
- Nominal Zener Voltage: 6.8V
- Ultra-Small Surface Mount Package
- Ideal For Transient Suppression
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green Device" (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## ESD Capability

- IEC 61000-4-2 Contact Method:  $\pm 8\text{kV}$
- IEC 61000-4-2 Air Discharge Method:  $\pm 25\text{kV}$

## Mechanical Data

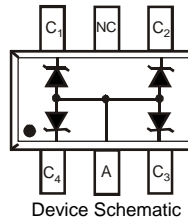
- Case: SOT-563
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Finish: Matte Tin, Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Orientation: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.003 grams (approximate)



Top View



Bottom View



Device Schematic

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic  | Symbol   | Value | Unit |
|---|----------|-------|------|
| Peak Power Dissipation, 10x1000 $\mu\text{S}$ Waveform (Note 5) | $P_{pk}$ | 10    | W    |
| Peak Power Dissipation, 8x20 $\mu\text{S}$ Waveform (Note 5)    |          | 80    |      |
| Forward Voltage @ $I_F = 10\text{mA}$ (Note 3)                  | $V_F$    | 0.9   | V    |
| Forward Voltage @ $I_F = 100\text{mA}$ (Note 3)                 | $V_F$    | 1.0   | V    |

## Thermal Characteristics

| Characteristic                                   | Symbol          | Value       | Unit               |
|--|-----------------|-------------|--------------------|
| Power Dissipation (Note 4)                       | $P_D$           | 150         | mW                 |
| Thermal Resistance, Junction-to-Ambient (Note 4) | $R_{\theta JA}$ | 833         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range          | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Type Number | Marking Code | Reverse Standoff Voltage and Leakage |                 | Breakdown Voltage (Note 3)  |         |         | Maximum Reverse Current (Note 3) |     | Typical Junction Capacitance             |
|-------------|--------------|--------------------------------------|-----------------|-----------------------------|---------|---------|----------------------------------|-----|--|
|             |              | $V_{RWM}$                            | $I_R @ V_{RWM}$ | $V_{BR} @ I_T = 1\text{mA}$ |         |         | $I_R @ V_R$                      |     | $C_T @ V_R = 0\text{V}, f = 1\text{MHz}$ |
|             |              |                                      |                 | Min (V)                     | Nom (V) | Max (V) | $\mu\text{A}$                    | V   |  |
| QZX563C6V8C | CB           | 5                                    | 1.5             | 6.47                        | 6.8     | 7.14    | 1.0                              | 3.0 | 63                                       |

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  3. Short duration pulse test used to minimize self-heating effect.
  4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. Suggested Pad Layout Document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  5. Non-repetitive current pulse per Figure 2 & 3 and derate above  $T_A = 25^\circ\text{C}$  per Figure 1.

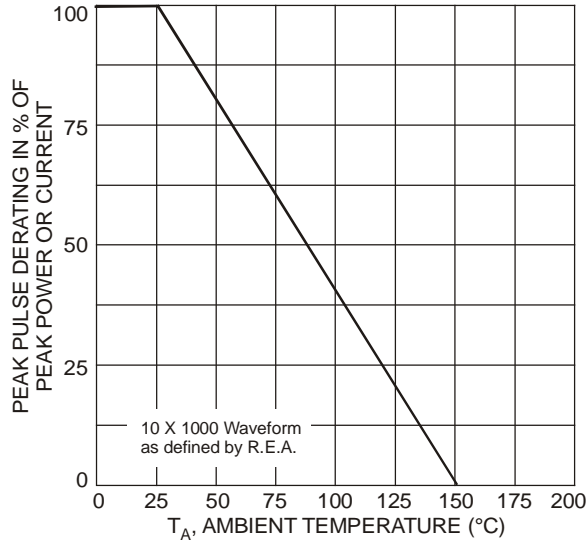


Fig. 1 Pulse Derating Curve

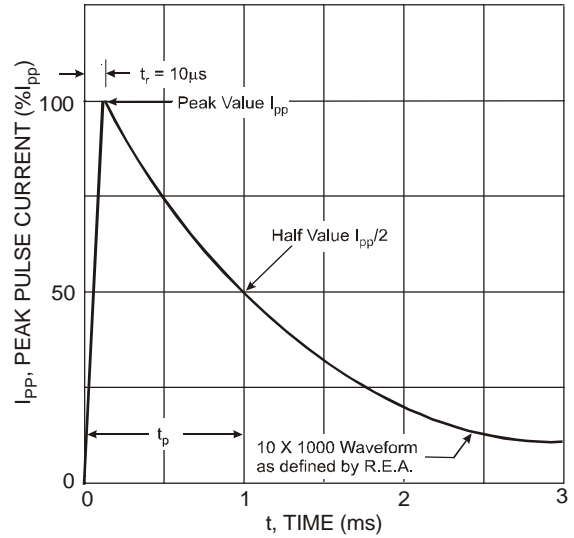


Fig. 2 Pulse Waveform

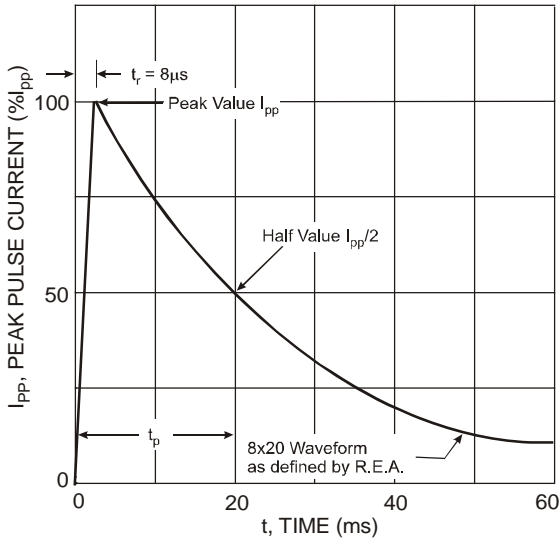


Fig. 3 Pulse Waveform

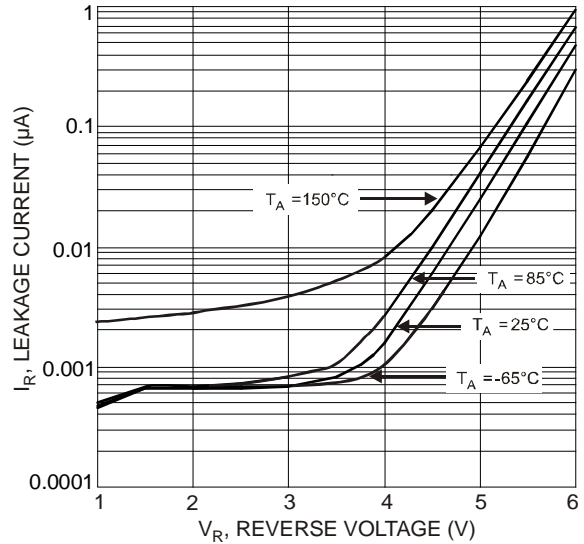


Fig. 4 Typical Leakage Current vs. Reverse Voltage

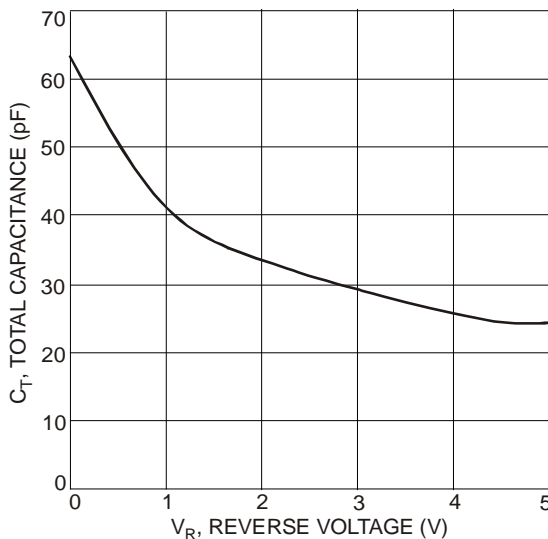


Fig. 5 Typical Total Capacitance vs. Reverse Voltage

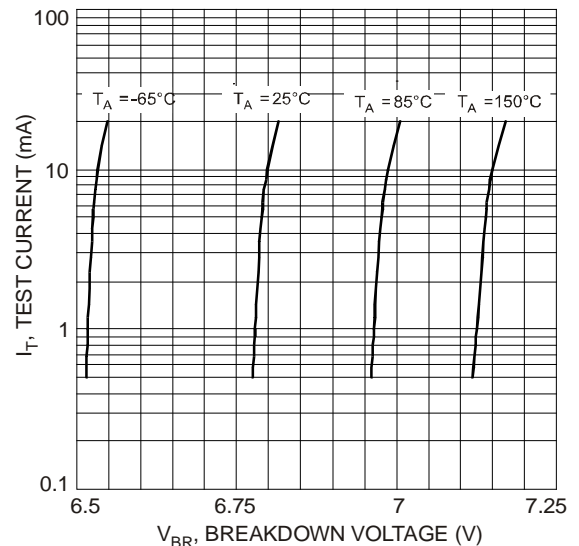
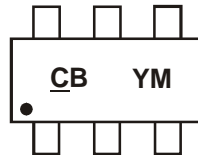


Fig. 6 Breakdown Voltage vs. Test Current

**Ordering Information** (Note 6)

| Part Number   | Case    | Packaging        |
|---------------|---------|------------------|
| QZX563C6V8C-7 | SOT-563 | 3000/Tape & Reel |

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**


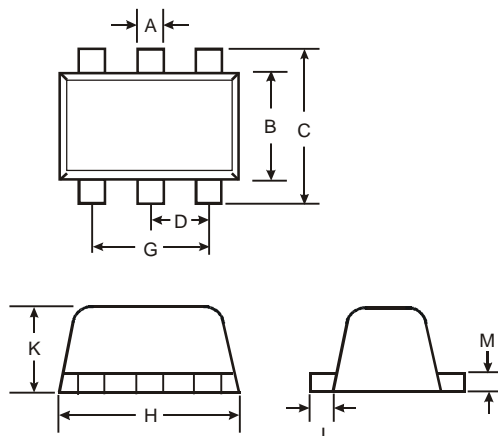
CB = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (Ex: S = 2005)  
 M = Month (ex: 9 = September)

Date Code Key

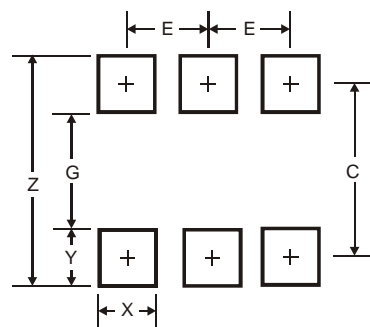
| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | S    | T    | U    | V    | W    | X    | Y    | Z    | A    | B    | C    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Package Outline Dimensions**


| SOT-563              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.20 |
| B                    | 1.10 | 1.25 | 1.20 |
| C                    | 1.55 | 1.70 | 1.60 |
| D                    | -    | -    | 0.50 |
| G                    | 0.90 | 1.10 | 1.00 |
| H                    | 1.50 | 1.70 | 1.60 |
| K                    | 0.55 | 0.60 | 0.60 |
| L                    | 0.10 | 0.30 | 0.20 |
| M                    | 0.10 | 0.18 | 0.11 |
| All Dimensions in mm |      |      |      |

**Suggested Pad Layout**


| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.2           |
| G          | 1.2           |
| X          | 0.375         |
| Y          | 0.5           |
| C          | 1.7           |
| E          | 0.5           |

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