

DF6A6.8FUT1

Quad Array for ESD Protection

This quad voltage suppressor is designed for applications requiring transient overvoltage protection capability. It is intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its quad junction common anode design protects four separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Specification Features

- SC-88 Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 1 μ A @ 5 Volt
- Breakdown Voltage: 6.4 – 7.2 Volt @ 5 mA
- Low Capacitance (40 pF typical)
- ESD Protection Meeting 61000-4-2 Level 4 and 16 kV Human Body Model
- Pb-Free Package is Available

Mechanical Characteristics

- Void Free, Transfer-Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications

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

| Rating | Symbol | Value | Unit |
|---|-----------------|---------------|--|
| Peak Power Dissipation @ 8 x 20 μ s (Note 1) | P_{pk} | 75 | Watts |
| Steady State Power Dissipation (Note 2) | P_D | 385 | mW |
| Thermal Resistance – Junction-to-Ambient Derate Above 25°C | $R_{\theta JA}$ | 328 3.0 | $^\circ\text{C/W}$ $\text{mW}/^\circ\text{C}$ |
| Maximum Junction Temperature | T_{Jmax} | 150 | $^\circ\text{C}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| ESD Discharge MIL STD 883C – Method 3015-6 IEC61000-4-2, Air Discharge IEC61000-4-2, Contact Discharge | V_{PP} | 16 16 8 | kV |
| Lead Solder Temperature (10 seconds duration) | T_L | 260 | $^\circ\text{C}$ |

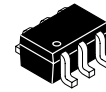
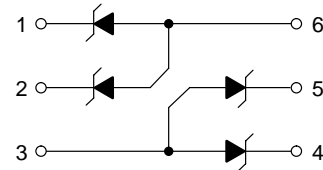
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Per Waveform Figure 1
2. Mounted on FR-5 Board = 1.0 X 0.75 X 0.062 in.



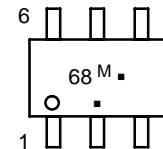
ON Semiconductor®

<http://onsemi.com>



SC-88
CASE 419B-02

MARKING DIAGRAM



68 = Specific Device Code

M = Date Code

▪ = Pb-Free Package

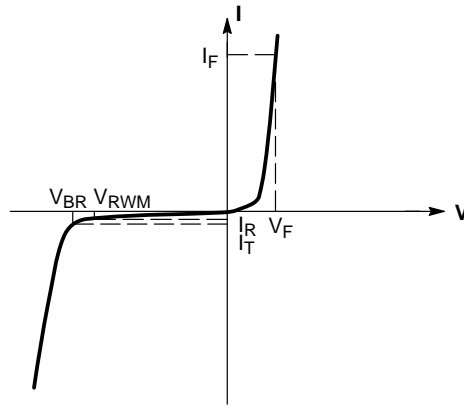
(Note: Microdot may be in either location.)

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|-----------------|------------------|
| DF6A6.8FUT1 | SC-88 | 3000/Tape & Reel |
| DF6A6.8FUT1G | SC-88 (Pb-Free) | 3000/Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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V-I Curve

ELECTRICAL CHARACTERISTICS

| Device | Device Marking | Breakdown Voltage V_{BR} @ 5 mA (Volts) | | | Leakage Current I_{RM} @ $V_{RWM} = 5$ V | Typical Capacitance @ 0 V Bias | Max V_F @ $I_F = 10$ mA | Max Z_Z @ 5 mA | Max Z_{ZK} @ 0.5 mA |
|-------------|----------------|---|-----|-----|--|--------------------------------|---------------------------|------------------|-----------------------|
| | | Min | Nom | Max | (μ A) | (pF) | (V) | (Ω) | (Ω) |
| DF6A6.8FUT1 | 68 | 6.4 | 6.8 | 7.2 | 1.0 | 40 | 1.25 | 30 | 300 |

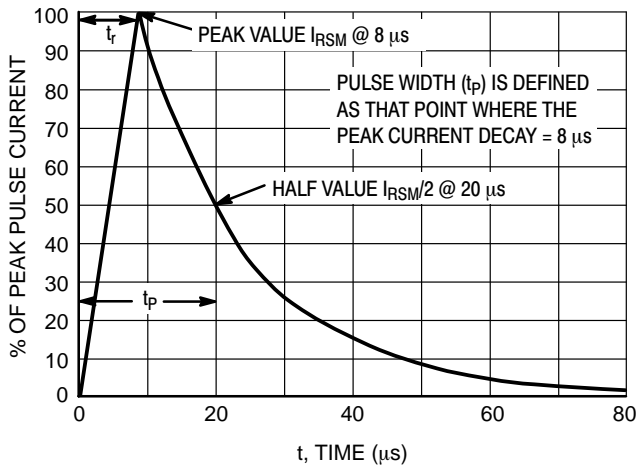


Figure 1. $8 \times 20 \mu s$ Pulse Waveform

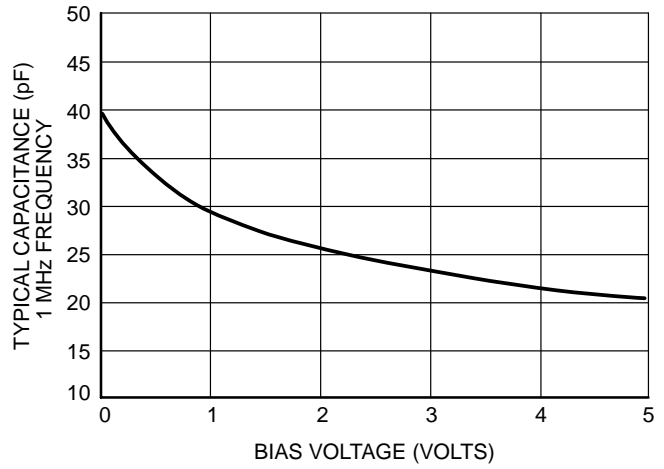


Figure 2. Capacitance

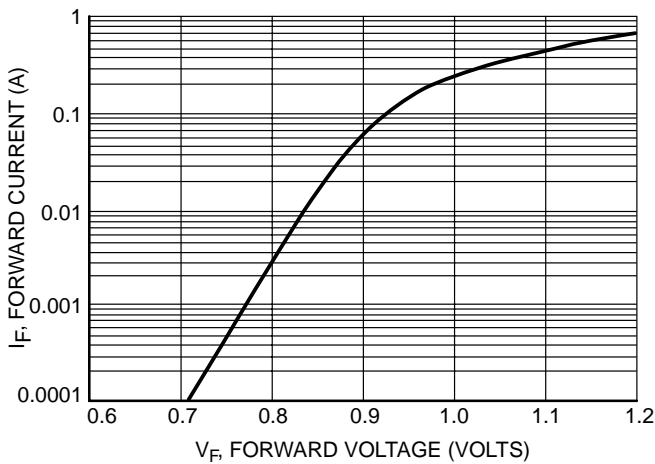


Figure 3. Forward Voltage

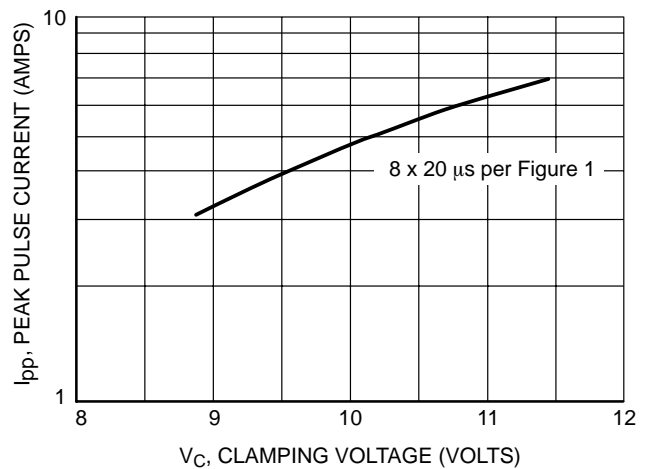
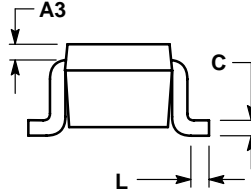
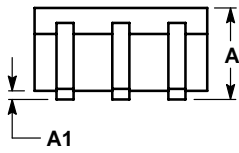
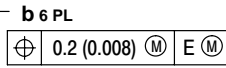
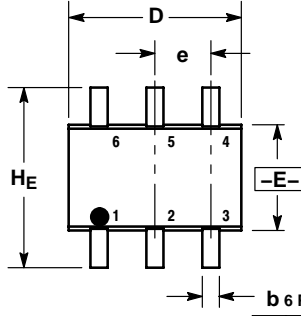


Figure 4. Clamping Voltage versus Peak Pulse Current

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PACKAGE DIMENSIONS

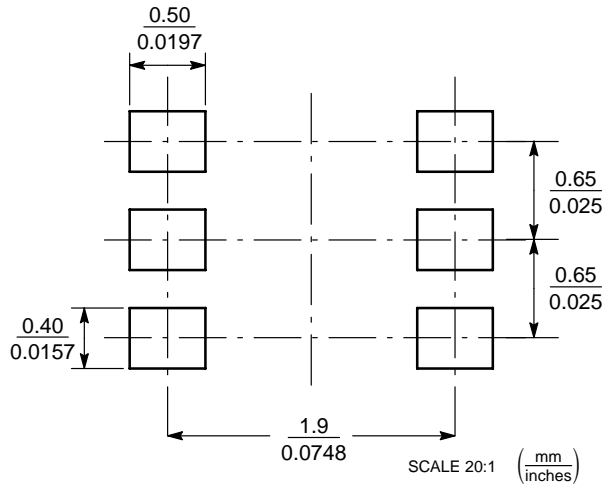
SC-88/SC70-6/SOT-363
CASE 419B-02
ISSUE V



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|-----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.80 | 0.95 | 1.10 | 0.031 | 0.037 | 0.043 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A3 | 0.20 REF | | | 0.008 REF | | |
| b | 0.10 | 0.21 | 0.30 | 0.004 | 0.008 | 0.012 |
| C | 0.10 | 0.14 | 0.25 | 0.004 | 0.005 | 0.010 |
| D | 1.80 | 2.00 | 2.20 | 0.070 | 0.078 | 0.086 |
| E | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| e | 0.65 BSC | | | 0.026 BSC | | |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| HE | 2.00 | 2.10 | 2.20 | 0.078 | 0.082 | 0.086 |

SOLDERING FOOTPRINT*



SC-88/SC70-6/SOT-363

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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