

# DF6A6.8FUT

## 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  $\mu$ 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
- These are Pb-Free Devices

### 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 $\mu$ 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<br>3.0    | $^\circ\text{C/W}$<br>$\text{mW}/^\circ\text{C}$ |
| 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<br>MIL STD 883C – Method 3015-6<br>IEC61000-4-2, Air Discharge<br>IEC61000-4-2, Contact Discharge | $V_{PP}$        | 16<br>16<br>8 | kV                                               |
| Lead Solder Temperature (10 seconds duration)                                                                   | $T_L$           | 260           | $^\circ\text{C}$                                 |

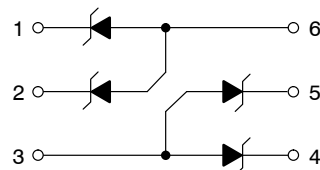
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



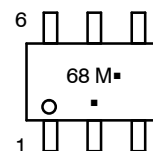
ON Semiconductor®

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SC-88  
CASE 419B-02

### MARKING DIAGRAM



68 = Specific Device Code

M = Date Code

■ = Pb-Free Package

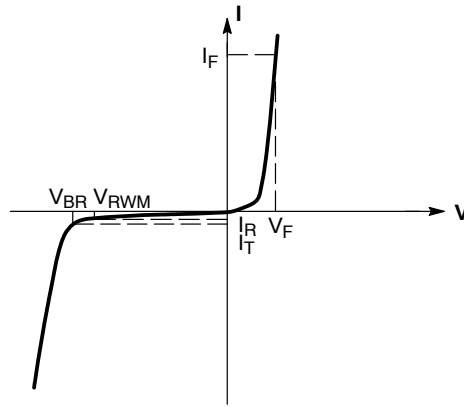
(Note: Microdot may be in either location.)

### ORDERING INFORMATION

| Device       | Package         | Shipping†        |
|--------------|-----------------|------------------|
| DF6A6.8FUT1G | SC-88 (Pb-Free) | 3000/Tape & Reel |
| DF6A6.8FUT2G | 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.

# DF6A6.8FUT



V-I Curve

## ELECTRICAL CHARACTERISTICS

| Device       | Device Marking | Breakdown Voltage $V_{BR}$ @ 5 mA (Volts) |     |     | Leakage Current $I_{RM}$ @ $V_{RWM} = 5$ V<br>( $\mu$ A) | Typical Capacitance @ 0 V Bias<br>(pF) | Max $V_F$ @ $I_F = 10$ mA<br>(V) | Max $Z_Z$ @ 5 mA<br>( $\Omega$ ) | Max $Z_{ZK}$ @ 0.5 mA<br>( $\Omega$ ) |
|--------------|----------------|-------------------------------------------|-----|-----|----------------------------------------------------------|----------------------------------------|----------------------------------|----------------------------------|---------------------------------------|
|              |                | Min                                       | Nom | Max |                                                          |                                        |                                  |                                  |                                       |
| DF6A6.8FUT1G | 68             | 6.4                                       | 6.8 | 7.2 | 1.0                                                      | 40                                     | 1.25                             | 30                               | 300                                   |
| DF6A6.8FUT2G | 68             | 6.4                                       | 6.8 | 7.2 | 1.0                                                      | 40                                     | 1.25                             | 30                               | 300                                   |

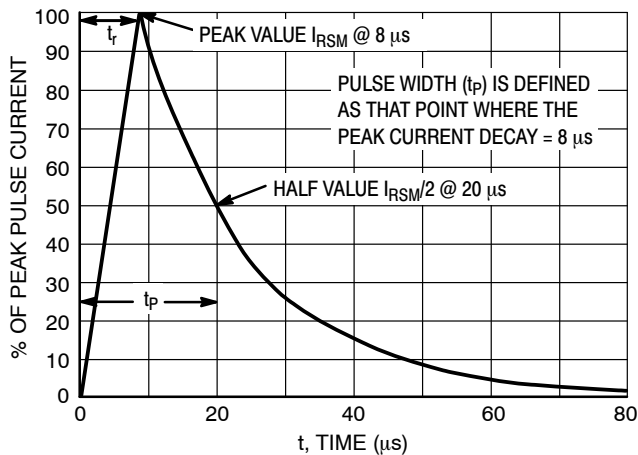


Figure 1.  $8 \times 20 \mu s$  Pulse Waveform

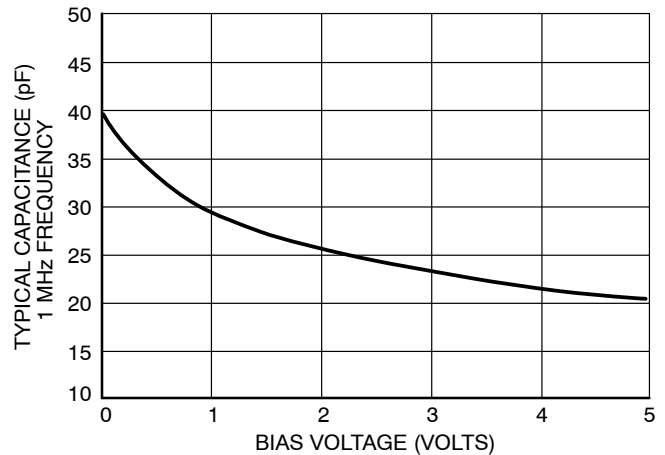


Figure 2. Capacitance

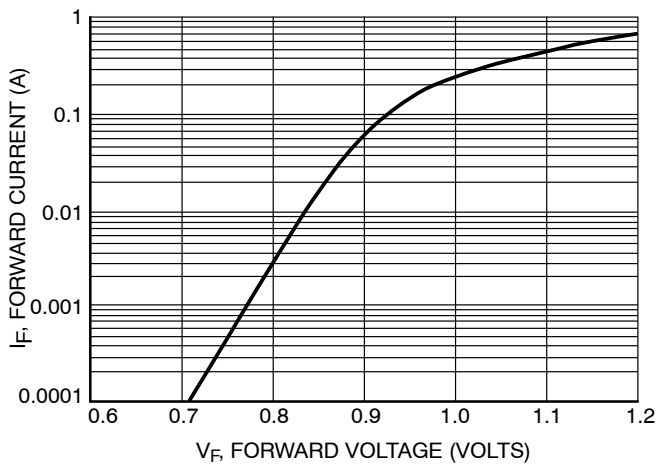


Figure 3. Forward Voltage

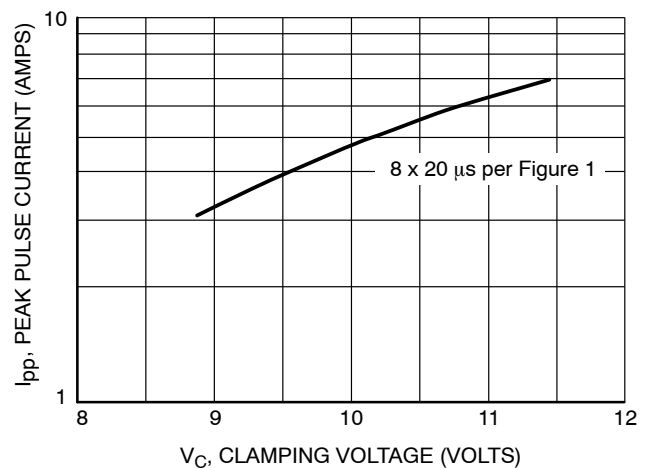
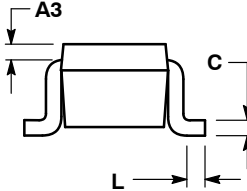
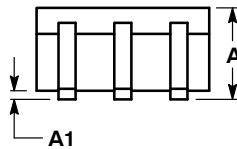
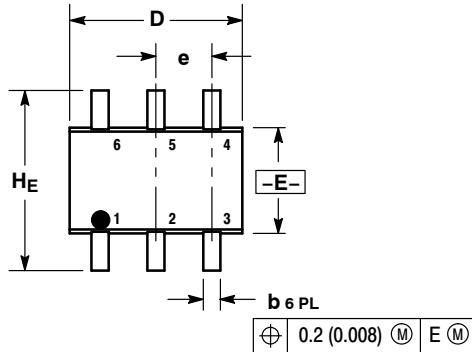


Figure 4. Clamping Voltage versus Peak Pulse Current

# DF6A6.8FUT

## PACKAGE DIMENSIONS

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

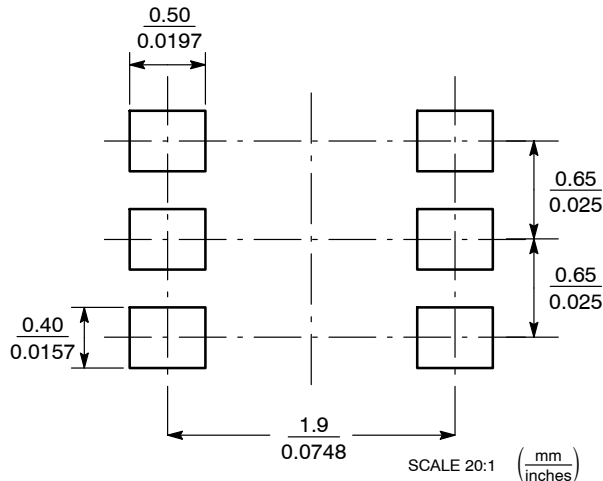


### NOTES:

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\*



\*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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