Quad Array for ESD Protection

DF6A6.8FUT

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.

Features

- SC−88 Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 1 μA @ 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
- Small Package Size for High Density Applications
- SZ Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These are Pb−Free Devices

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

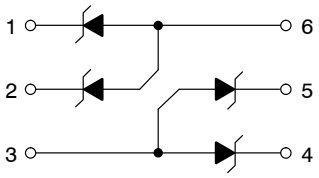
Rating	Symbol	Value	Unit
Peak Power Dissipation @ 8 x 20 μs (Note 1)	P_{pk}	75	Watts
Steady State Power Dissipation (Note 2)	P_D	385	mW
Thermal Resistance − Junction−to−Ambient Derate Above 25°C	$R_{\theta JA}$	328 3.0	°C/W mW/°C
Maximum Junction Temperature	T_{Jmax}	150	°C
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°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	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, 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.

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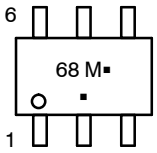
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SC−88
CASE 419B−02

MARKING DIAGRAM



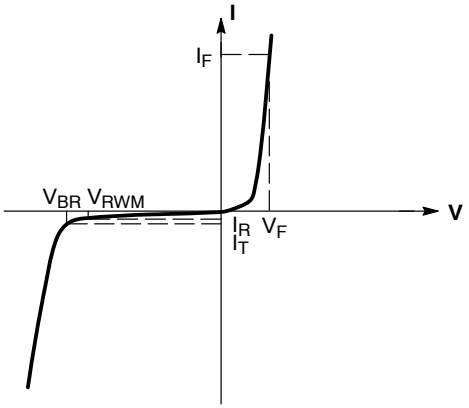
68 = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location.)

ORDERING INFORMATION

Device	Package	Shipping†
DF6A6.8FUT1G	SC−88 (Pb−Free)	3000/Tape & Reel
SZDF6A6.8FUT1G	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.

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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	(μA)	(pF)	(V)	(Ω)	(Ω)
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

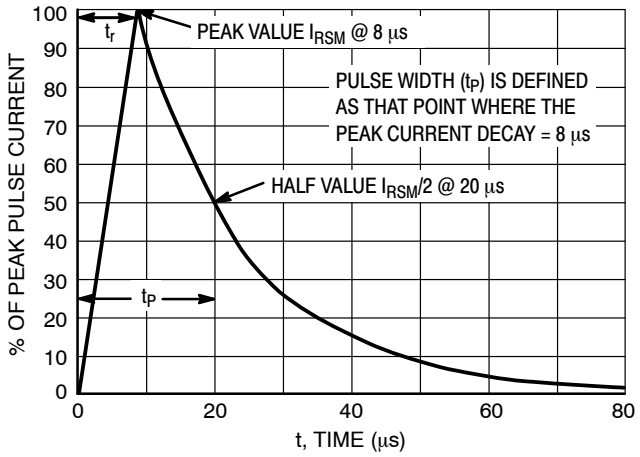


Figure 1. 8 × 20 μs Pulse Waveform

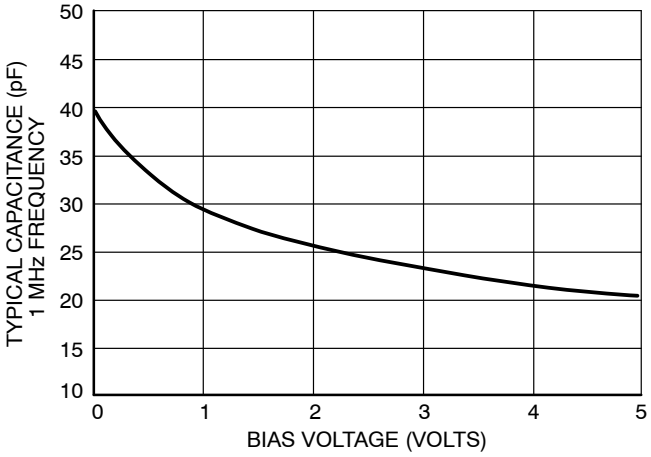


Figure 2. Capacitance

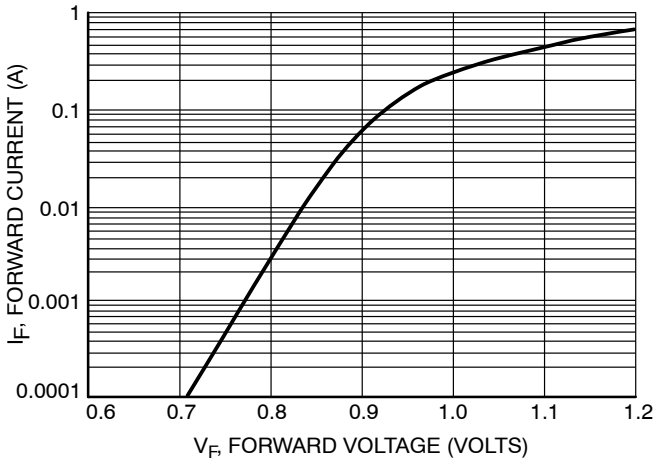


Figure 3. Forward Voltage

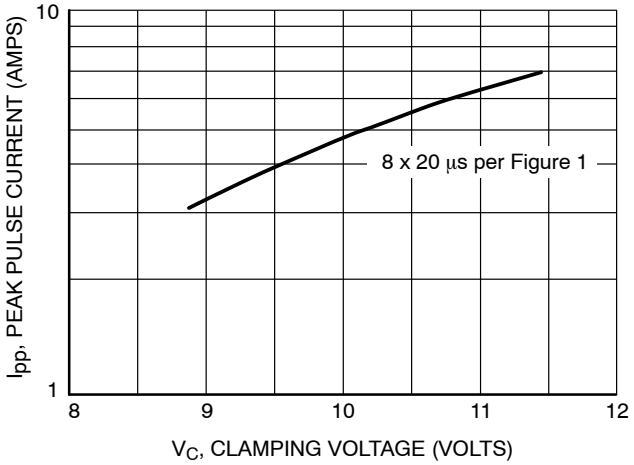
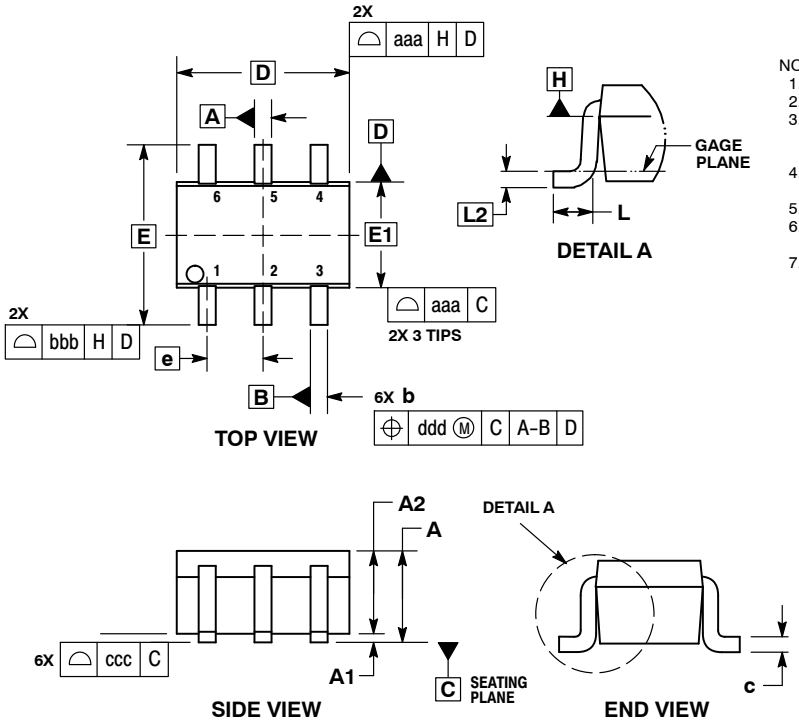


Figure 4. Clamping Voltage versus Peak Pulse Current

DF6A6.8FUT

PACKAGE DIMENSIONS

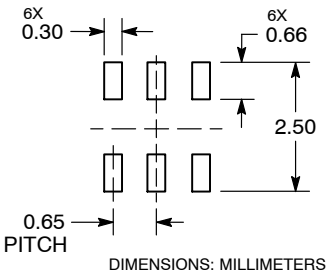
SC−88/SC70−6/SOT−363
CASE 419B−02
ISSUE Y



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.20 PER END.
4. DIMENSIONS D AND E1 AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AND DATUM H.
5. DATUMS A AND B ARE DETERMINED AT DATUM H.
6. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.08 AND 0.15 FROM THE TIP.
7. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 TOTAL IN EXCESS OF DIMENSION b AT MAXIMUM MATERIAL CONDITION. THE DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	−−−	−−−	1.10	−−−	−−−	0.043
A1	0.00	−−−	0.10	0.000	−−−	0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.010
C	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.070	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			0.006 BSC		
aaa	0.15			0.006		
bbb	0.30			0.012		
ccc	0.10			0.004		
ddd	0.10			0.004		

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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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