NUP4108W5

Low Capacitance Quad Array for ESD Protection

This integrated transient voltage suppressor device (TVS) is designed for applications requiring transient overvoltage protection. It is intended for use in sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its integrated design provides very effective and reliable protection for four separate lines using only one package. This device is ideal for situations where board space is at a premium.

Features

- ESD Protection: IEC61000−4−2: Level 4
  MILSTD 883C − Method 3015−6: Class 3
- Four Separate Unidirectional Configurations for Protection
- Low Leakage Current < 1 μA
- Power Dissipation: 380 mW
- Small SC−88A SMT Package
- Low Capacitance
- This is a Pb−Free Device

Benefits

- Provides Protection for ESD Industry Standards: IEC 61000, HBM
- Minimize Power Consumption of the System
- Minimize PCB Board Space

Typical Applications

- Instrumentation Equipment
- Serial and Parallel Ports
- Microprocessor Based Equipment
- Notebooks, Desktops, Servers
- Cellular and Portable Equipment

ON Semiconductor®

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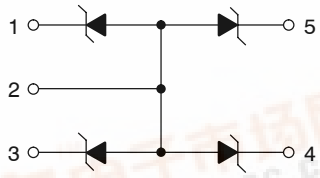
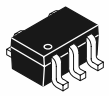
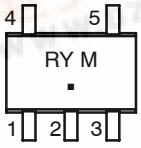




SC−88A/SOT−323
CASE 419A

MARKING DIAGRAM



RY = Specific Device Code
M = Date Code
▪ = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping†
NUP4108W5T2G	SC−88A (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.

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

Rating	Symbol	Value	Unit
Peak Power Dissipation 8 × 20 μsec Double Exponential Waveform (Note 1)	P_{PK}	20	W
Steady State Power – 1 Diode (Note 2)	P_D	380	mW
Thermal Resistance – Junction–to–Ambient Above 25°C, Derate	$R_{\theta JA}$	 327 3.05	 °C/W mW/°C
Operating Junction Temperature Range	T_J	–40 to +125	°C
Storage Temperature Range	T_{stg}	–55 to +150	°C
Lead Solder Temperature – Maximum 10 Seconds Duration	T_L	260	°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. Non–repetitive current pulse per Figure 1.
2. Only 1 diode under power. For all 4 diodes under power, P_D will be 25%. Mounted on FR4 board with min pad.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

NUP4108W5

Characteristic	Symbol	Min	Typ	Max	Unit
Breakdown Voltage (I_T = 1 mA) (Note 3)	V_{BR}	6.4	6.8	7.1	V
Leakage Current (V_{RWM} = 5.0 V)	I_R	–	–	1.0	μA
Clamping Voltage 1 (I_{PP} = 1.6 A, 8 × 20 μsec Waveform)	V_C	–	–	13	V
Maximum Peak Pulse Current (8 × 20 μsec Waveform)	I_{PP}	–	–	1.6	A
Junction Capacitance – (V_R = 0 V, f = 1 MHz) – (V_R = 3.0 V, f = 1 MHz)	C_J	– –	12 6.7	15 9.5	pF

3. V_{BR} is measured at pulse test current I_T.

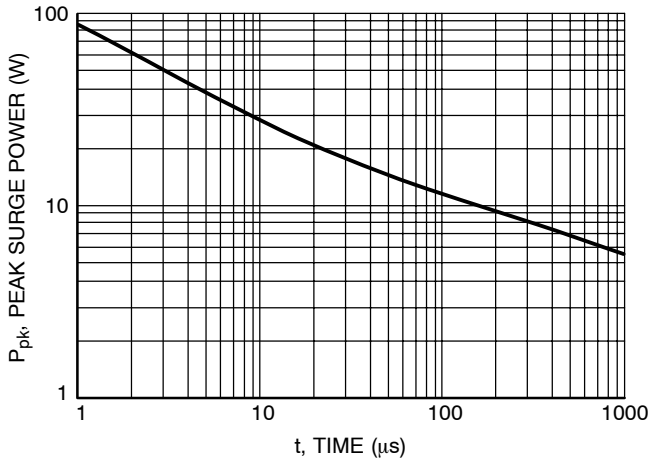


Figure 1. Pulse Width

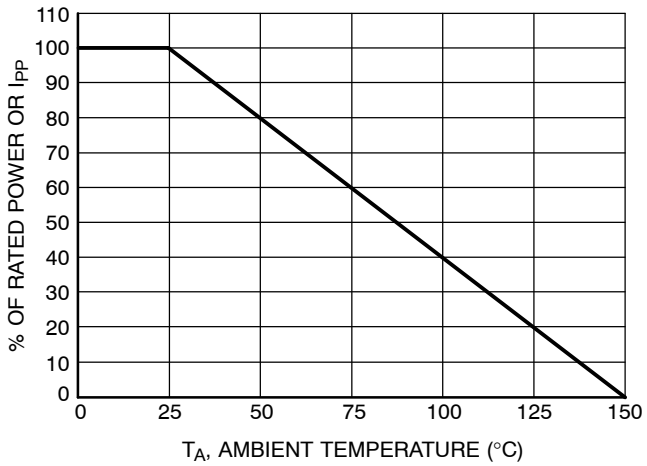


Figure 2. Power Derating Curve

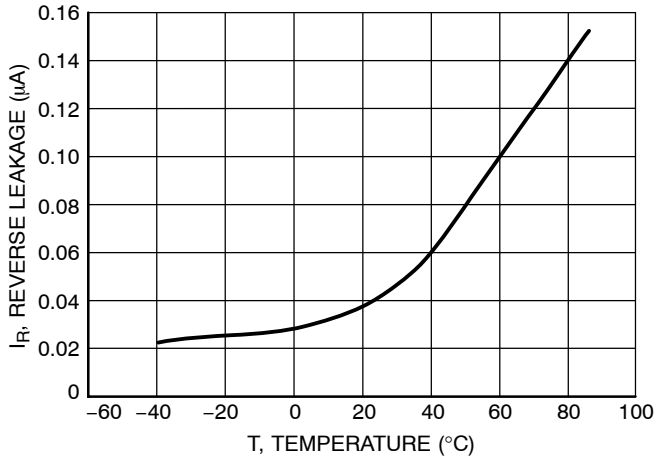


Figure 3. Reverse Leakage versus Temperature

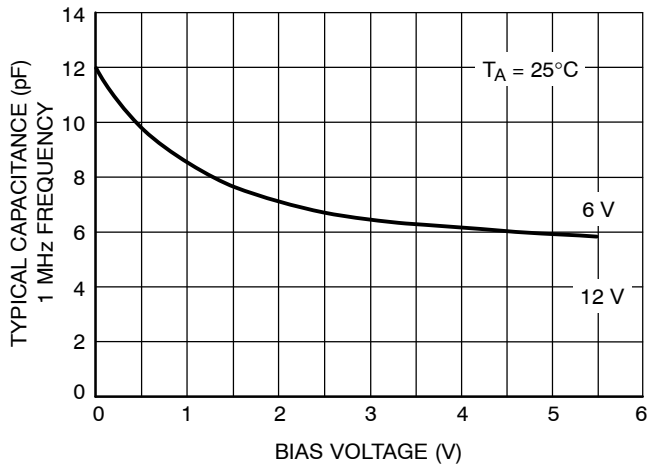


Figure 4. Capacitance

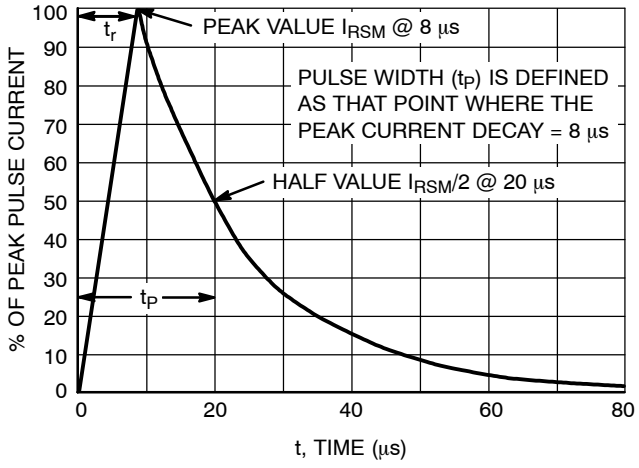


Figure 5. 8 × 20 μs Pulse Waveform

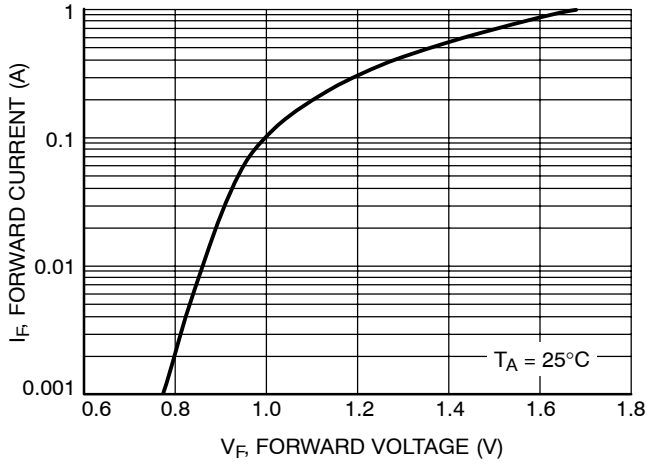
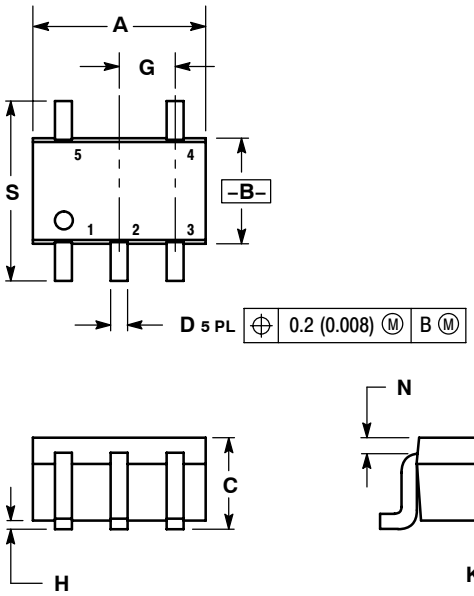


Figure 6. Forward Voltage

NUP4108W5

PACKAGE DIMENSIONS

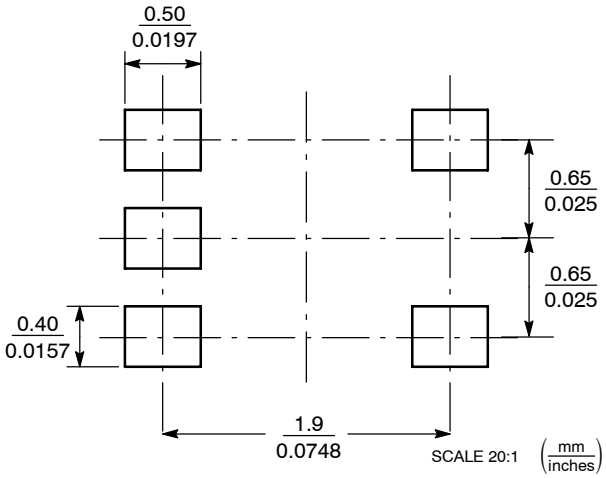
SC−88A, SOT−353, SC−70
CASE 419A−02
ISSUE J



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419A−01 OBSOLETE. NEW STANDARD 419A−02.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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