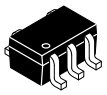
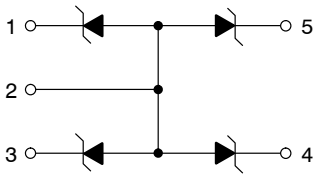
Low Capacitance Quad Array for ESD Protection

NUP4108W5



SC−88A/SOT−323
CASE 419A

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

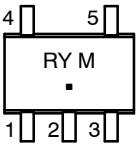
Benefits

- 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

MARKING DIAGRAM



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

ORDERING INFORMATION

Device	Package	Shipping†
NUP4108W5T2G	SC−88A (Pb−Free)	3,000 / Tape & Reel

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

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

Symbol	Rating	Value	Unit
P_{PK}	Peak Power Dissipation 8 × 20 μsec Double Exponential Waveform (Note 1)	20	W
P_D	Steady State Power – 1 Diode (Note 2)	380	mW
$R_{\theta JA}$	Thermal Resistance – Junction–to–Ambient Above 25°C, Derate	 327 3.05	 °C/W mW/°C
T_J	Operating Junction Temperature Range	–40 to +125	°C
T_{stg}	Storage Temperature Range	–55 to +150	°C
T_L	Lead Solder Temperature – Maximum 10 Seconds Duration	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. 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

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

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

TYPICAL CHARACTERISTICS

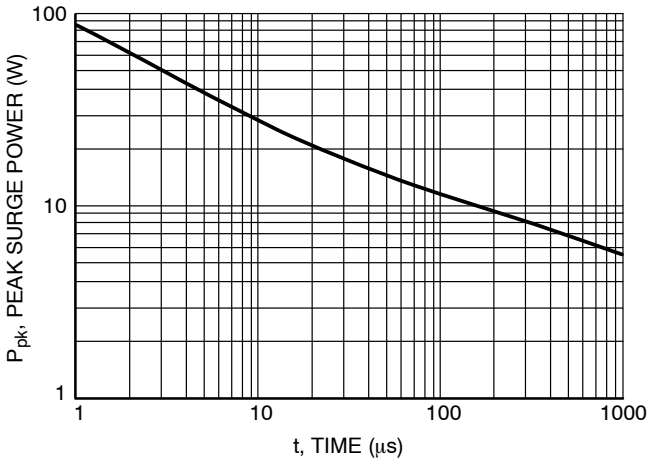


Figure 1. Pulse Width

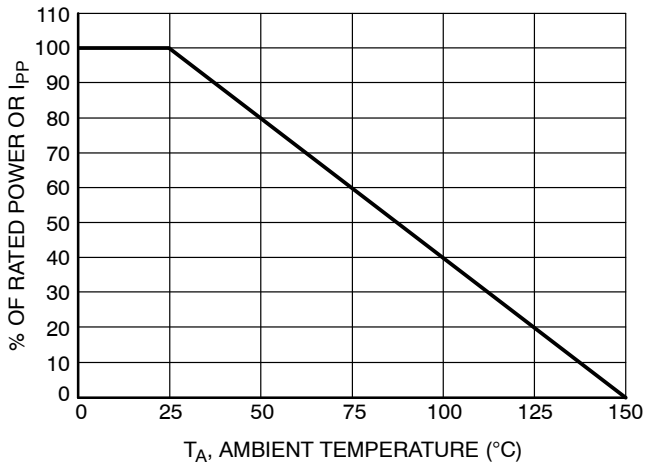


Figure 2. Power Derating Curve

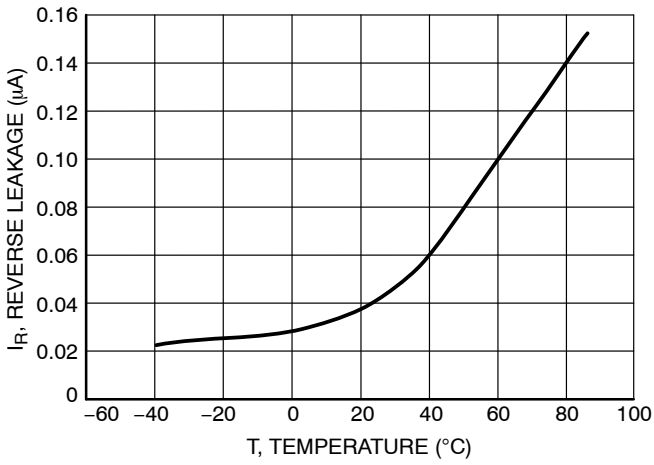


Figure 3. Reverse Leakage versus Temperature

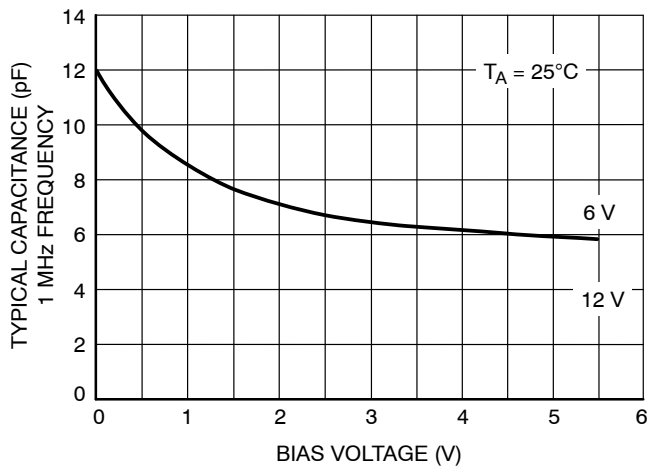


Figure 4. Capacitance

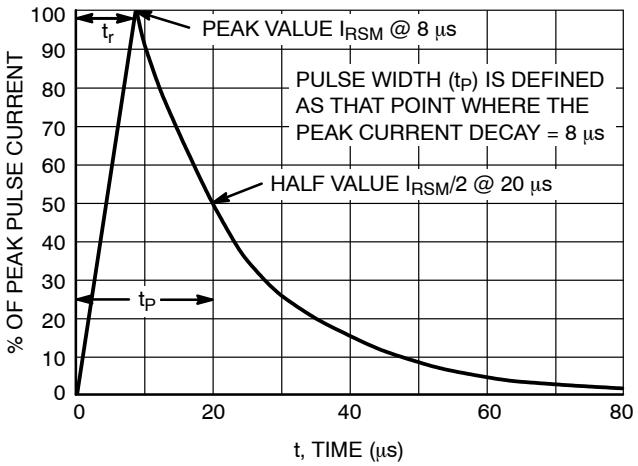


Figure 5. 8 × 20 μs Pulse Waveform

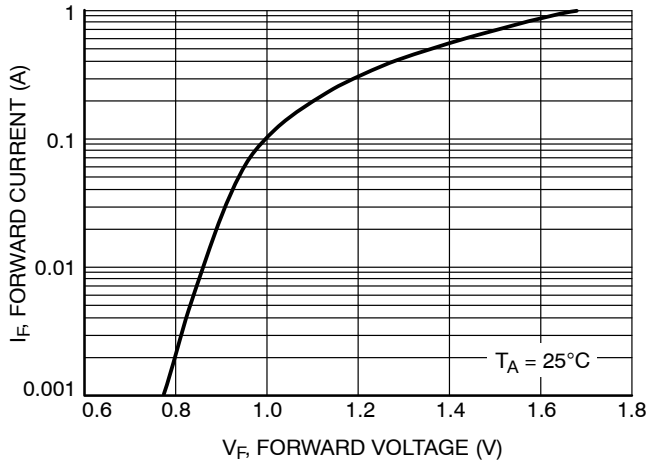
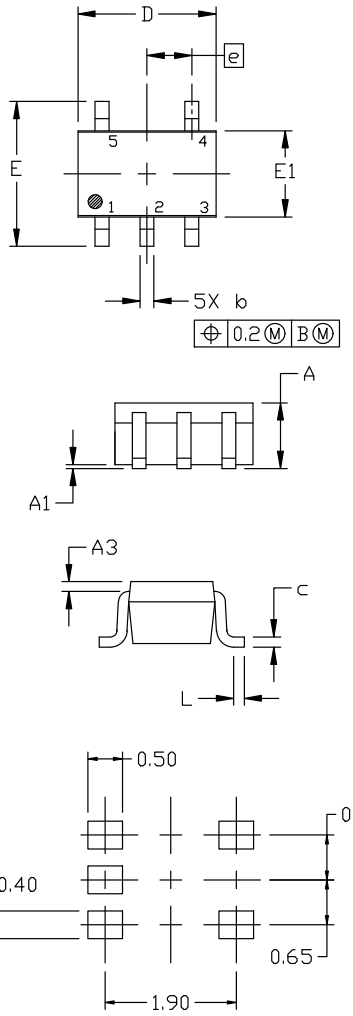


Figure 6. Forward Voltage

SC−88A (SC−70−5/SOT−353)
CASE 419A−02
ISSUE M

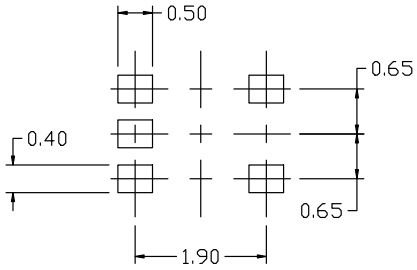
DATE 11 APR 2023

SCALE 2:1



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. 419A−01 OBSOLETE. NEW STANDARD 419A−02
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.1016MM PER SIDE.

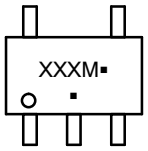
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.95	1.10
A1	---	---	0.10
A3	0.20 REF		
b	0.10	0.20	0.30
c	0.10	---	0.25
D	1.80	2.00	2.20
E	2.00	2.10	2.20
E1	1.15	1.25	1.35
e	0.65 BSC		
L	0.10	0.15	0.30



RECOMMENDED
MOUNTING 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.

GENERIC MARKING DIAGRAM*



*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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

(Note: Microdot may be in either location)

STYLE 1:
PIN 1. BASE
2. EMITTER
3. BASE
4. COLLECTOR
5. COLLECTOR

STYLE 2:
PIN 1. ANODE
2. EMITTER
3. BASE
4. COLLECTOR
5. CATHODE

STYLE 3:
PIN 1. ANODE 1
2. N/C
3. ANODE 2
4. CATHODE 2
5. CATHODE 1

STYLE 4:
PIN 1. SOURCE 1
2. DRAIN 1/2
3. SOURCE 1
4. GATE 1
5. GATE 2

STYLE 5:
PIN 1. CATHODE
2. COMMON ANODE
3. CATHODE 2
4. CATHODE 3
5. CATHODE 4

STYLE 6:
PIN 1. EMITTER 2
2. BASE 2
3. EMITTER 1
4. COLLECTOR
5. COLLECTOR 2/BASE 1

STYLE 7:
PIN 1. BASE
2. EMITTER
3. BASE
4. COLLECTOR
5. COLLECTOR

STYLE 8:
PIN 1. CATHODE
2. COLLECTOR
3. N/C
4. BASE
5. EMITTER

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. ANODE
5. ANODE

Note: Please refer to datasheet for style callout. If style type is not called out in the datasheet refer to the device datasheet pinout or pin assignment.

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DESCRIPTION:	**SC−88A (SC−70−5/SOT−353)**	**PAGE 1 OF 1**

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