NZQA5V6XV5T1G Series

Quad Array for ESD Protection

This quad monolithic silicon 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

- SOT−553 Package Allows Four Separate Unidirectional Configurations
- Low Leakage < 1 μA @ 3 V for NZQA5V6XV5T1G
- Breakdown Voltage: 5.6 V − 6.8 V @ 1 mA
- ESD Protection Meeting IEC61000−4−2 − Level 4
- 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

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
- 100% Lead Free, MSL1 @ 260°C Reflow Temperature

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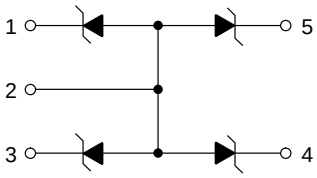


SOT−553
CASE 463B

MARKING DIAGRAM



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



ORDERING INFORMATION

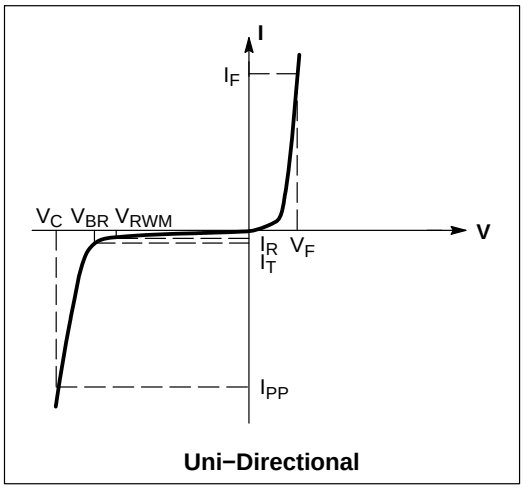
Device	Package	Shipping†
NZQA5V6XV5T1G	SOT−553 (Pb−Free)	4000 / Tape & Reel
NZQA5V6XV5T3G	SOT−553 (Pb−Free)	16000 / Tape & Reel
NZQA6V2XV5T1G	SOT−553 (Pb−Free)	4000 / Tape & Reel
NZQA6V8XV5T1G	SOT−553 (Pb−Free)	4000 / Tape & Reel
SZQA6V8XV5T1G	SOT−553 (Pb−Free)	4000 / Tape & Reel

†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.

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

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
ΘV_{BR}	Maximum Temperature Coefficient of V_{BR}
I_F	Forward Current
V_F	Forward Voltage @ I_F
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}



Uni−Directional

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

Characteristic		Symbol	Value	Unit
Peak Power Dissipation (8 X 20 μs @ T_A = 25°C) (Note 1)		P_{PK}	100	W
Steady State Power − 1 Diode (Note 2)		P_D	300	mW
Thermal Resistance Junction to Ambient Above 25°C, Derate		$R_{\theta JA}$	370 2.7	°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 IEC1000−4−2, Air Discharge IEC1000−4−2, Contact Discharge	V_{PP}	16 30 30	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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Device*	Device Marking	Breakdown Voltage V_{BR} @ 1 mA (Volts)			Leakage Current I_{RM} @ V_{RM}		V_C Max @ I_{PP}		Typ Capacitance @ 0 V Bias (Note 3)	Max V_F @ I_F = 200 mA
		Min	Nom	Max	V_{RWM}	I_{RWM} (μA)	V_C (V)	I_{PP} (A)	(pF)	(V)
NZQA5V6XV5T1G	56	5.32	5.6	5.88	3.0	1.0	10.5	10	90	1.3
NZQA6V2XV5T1G	62	5.89	6.2	6.51	4.0	0.5	11.5	9.0	80	1.3
NZQA6V8XV5T1G	68	6.46	6.8	7.14	4.3	0.1	12.5	8.0	70	1.3

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
*Includes SZ−prefix devices where applicable.
1. Non−repetitive current per Figure 1.
2. Only 1 diode under power. For all 4 diodes under power, P_D will be 25%. Mounted on FR−4 board with min pad.
3. Capacitance of one diode at f = 1 MHz, V_R = 0 V, T_A = 25°C

TYPICAL CHARACTERISTICS

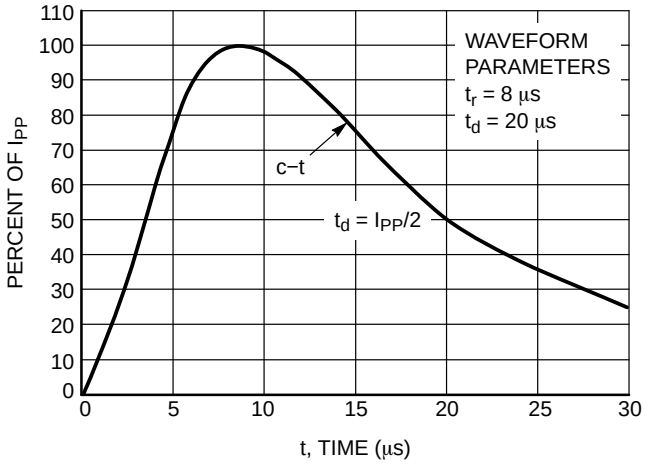


Figure 1. Pulse Waveform

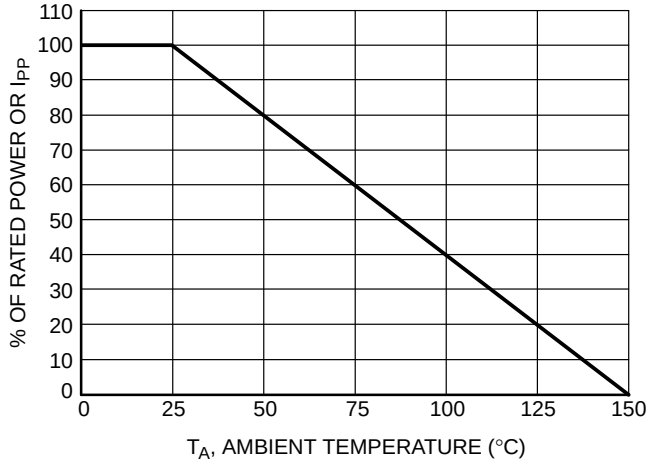


Figure 2. Power Derating Curve

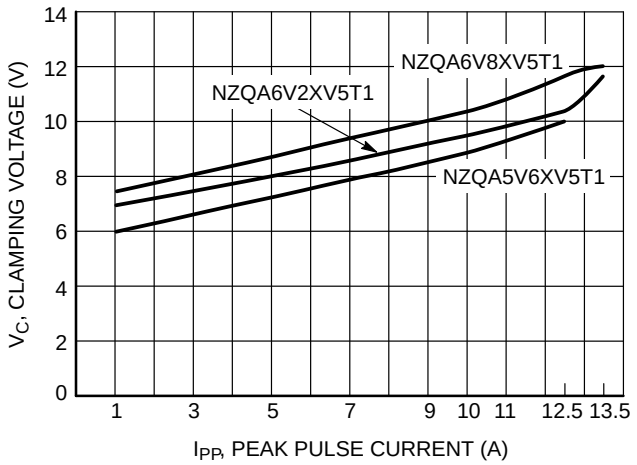


Figure 3. Clamping Voltage versus Peak Pulse Current

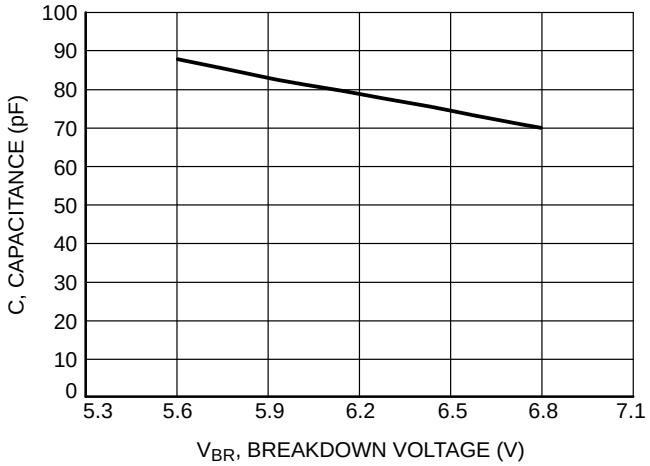
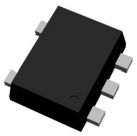
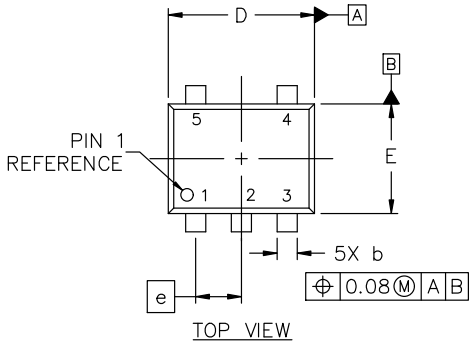


Figure 4. Typical Capacitance



SOT−553−5 1.60x1.20x0.55, 0.50P
CASE 463B
ISSUE D

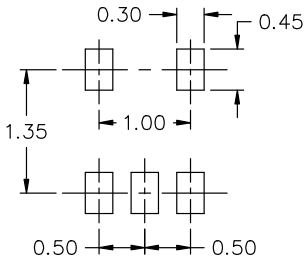
DATE 21 FEB 2024



NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.50	0.55	0.60
b	0.17	0.22	0.27
c	0.08	0.13	0.18
D	1.55	1.60	1.65
E	1.15	1.20	1.25
e	0.50 BSC		
H	1.55	1.60	1.65
L	0.10	0.20	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*



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

(Note: Microdot may be in either location)

*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.

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

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

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. ANODE
2. EMITTER
3. BASE
4. COLLECTOR
5. CATHODE

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

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DESCRIPTION:	**SOT−553−5 1.60x1.20x0.55, 0.50P**	**PAGE 1 OF 1**

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