NZQA5V6XV5T1 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 Volt for NZQA5V6XV5T1
- Breakdown Voltage: 5.6 Volt − 6.8 Volt @ 1 mA
- ESD Protection Meeting IEC61000−4−2 − Level 4

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

ON Semiconductor®

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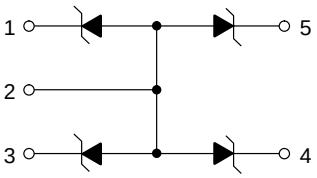
SOT−553
CASE 463B
PLASTIC

MARKING DIAGRAM

xx = Device Marking
D = One Digit Date Code



ORDERING INFORMATION

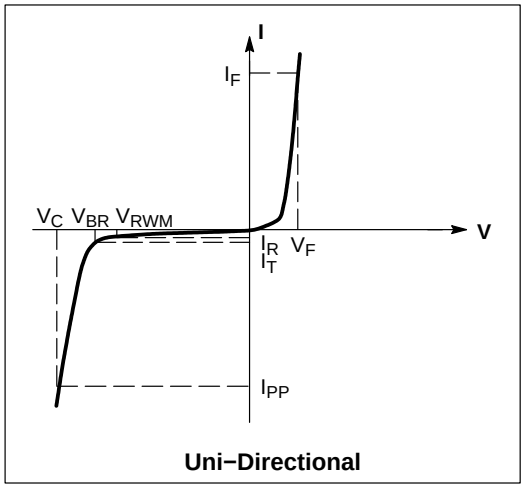
Device	Package	Shipping†
NZQA5V6XV5T1	SOT−553	4000/Tape & Reel
NZQA5V6XV5T3	SOT−553	16000/Tape & Reel
NZQA6V2XV5T1	SOT−553	4000/Tape & Reel
NZQA6V8XV5T1	SOT−553	4000/Tape & Reel

†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.

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 16 9	kV
Lead Solder Temperature (10 seconds duration)	T_L	260	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, 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)
NZQA5V6XV5T1	56	5.32	5.6	5.88	3.0	1.0	10.5	10	90	1.3
NZQA6V2XV5T1	62	5.89	6.2	6.51	4.0	0.5	11.5	9.0	80	1.3
NZQA6V8XV5T1	68	6.46	6.8	7.14	4.3	0.1	12.5	8.0	70	1.3

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

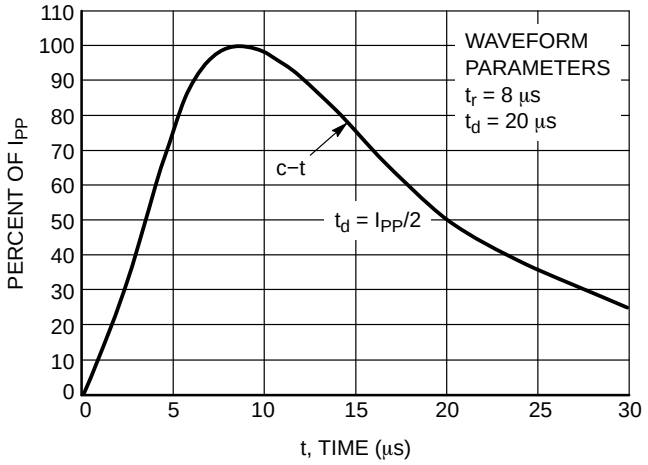


Figure 1. Pulse Waveform

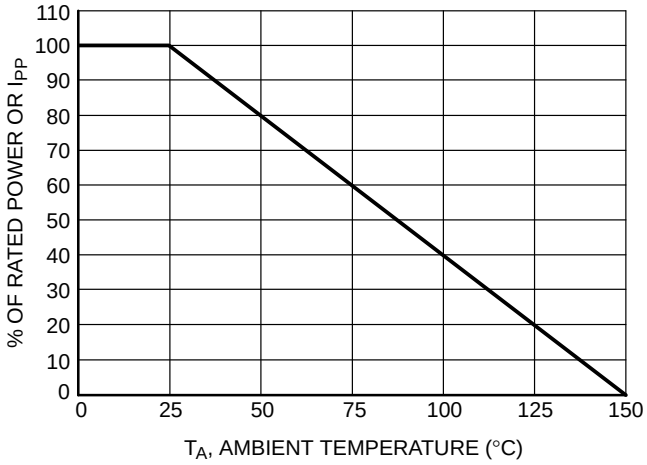


Figure 2. Power Derating Curve

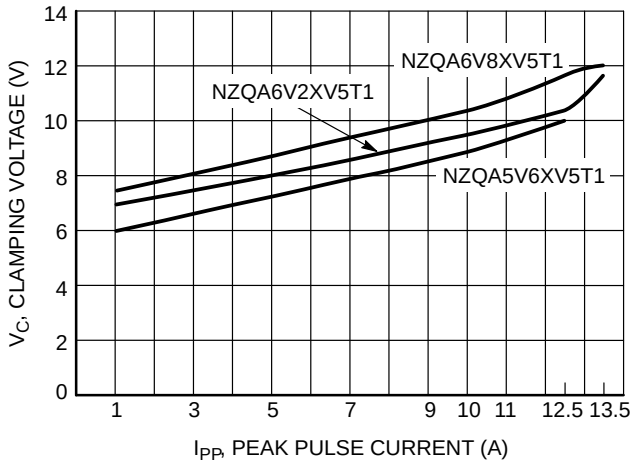


Figure 3. Clamping Voltage versus Peak Pulse Current

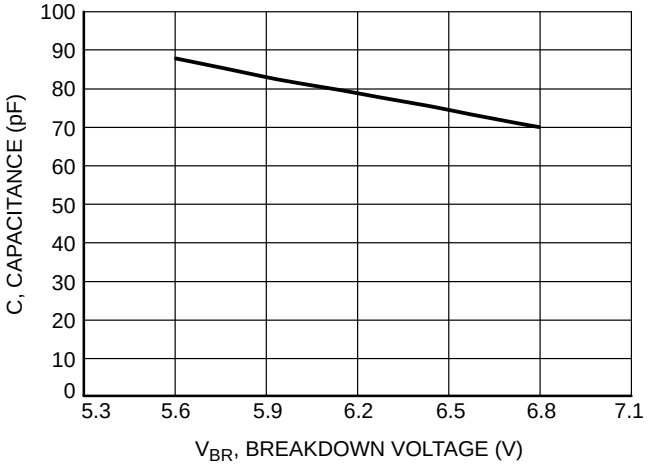
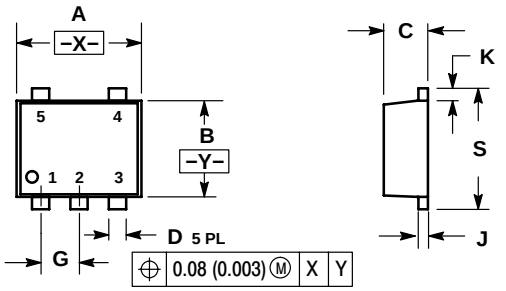


Figure 4. Typical Capacitance

PACKAGE DIMENSIONS

SOT−553, 5−LEAD
CASE 463B−01
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	1.10	1.30	0.043	0.051
C	0.50	0.60	0.020	0.024
D	0.17	0.27	0.007	0.011
G	0.50 BSC		0.020 BSC	
J	0.08	0.18	0.003	0.007
K	0.10	0.30	0.004	0.012
S	1.50	1.70	0.059	0.067

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

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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For additional information, please contact your local Sales Representative.

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