

NUP4102XV6

6-Pin Bi-Directional Quad TVS Array

This 6-Pin bi-directional transient suppressor array is designed for applications requiring transient overvoltage protection capability. It is intended for use in transient voltage and ESD sensitive equipment such as computers, printers, cell phones, medical equipment, and other applications. Its integrated design provides bi-directional protection for four separate lines using a single SOT-563 package. This device is ideal for situations where board space is a premium.

Features

- Bi-directional Protection for Four Lines in a Single SOT-563 Package
- Peak Power Dissipation – 75 W (8x20 μ sec Waveform)
- Low Leakage Current (100 nA @ 12 V)
- Low Capacitance (< 15 pF)
- Provides ESD Protection for JEDEC Standards JESD22
 - Machine Model = Class C
 - Human Body Model = Class 3B
- Provides ESD Protection for IEC 61000-4-2, 15 kV (Air), 8 kV (Contact)

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

Applications

- GSM Handsets and Accessories
- Other Telephone Sets
- Computers / Printers / Set-Top Boxes

MAXIMUM RATINGS ($T_J=25^\circ\text{C}$, unless otherwise specified)

Rating	Symbol	Value	Unit
Peak Power Dissipation 8x20 μ sec Double Exponential Waveform, (Note 1)	P_{PK}	75	W
Operating Junction Temperature Range	T_J	-40 to 125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Lead Solder Temperature – Maximum (10 sec)	T_L	260	$^\circ\text{C}$
Human Body Model (HBM) Machine Model (MM) IEC 61000-4-2 Air (ESD) IEC 61000-4-2 Contact (ESD)	ESD	16 0.4 30 30	kV

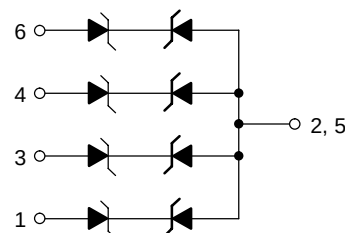
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Non-repetitive current pulse per Figure 3.



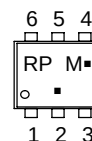
ON Semiconductor®

<http://onsemi.com>



SOT-563
CASE 463A
PLASTIC

MARKING DIAGRAM



RP = Device Marking
M = One Digit Date Code
■ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NUP4102XV6T1G	SOT-563 (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.

NUP4102XV6

ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	(Note 2)	V _{RWM}			12	V
Breakdown Voltage	I _T = 1 mA, (Note 3)	V _{BR}	13.6		17.8	V
Reverse Leakage Current	V _{RWM} = 12 V	I _R		10	100	nA
Clamping Voltage	I _{PP} = 3 A, (8x20 μsec Waveform)	V _C			25	V
Maximum Peak Pulse Current	8x20 μsec waveform	I _{PP}			3.0	A
Capacitance	V _R = 0 V, f=1 MHz (Line to GND)	C _j		13	15	pF

- TVS devices are normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal or greater than the DC or continuous peak operating voltage level.
- V_{BR} is measured at pulse test current I_T; Pulse Width 1 ms.

TYPICAL PERFORMANCE CURVES

(T_J = 25°C unless otherwise specified)

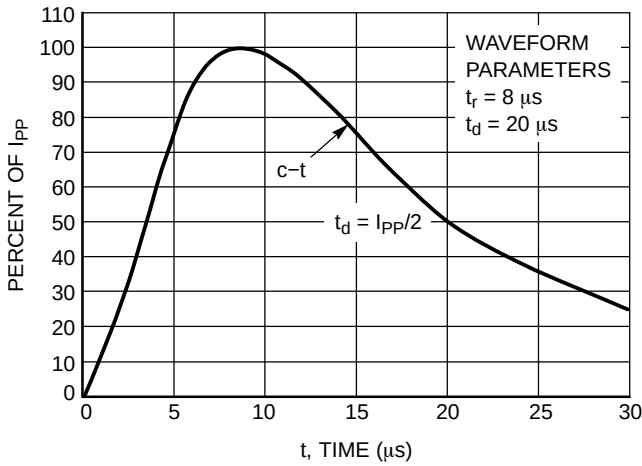


Figure 1. Pulse Waveform

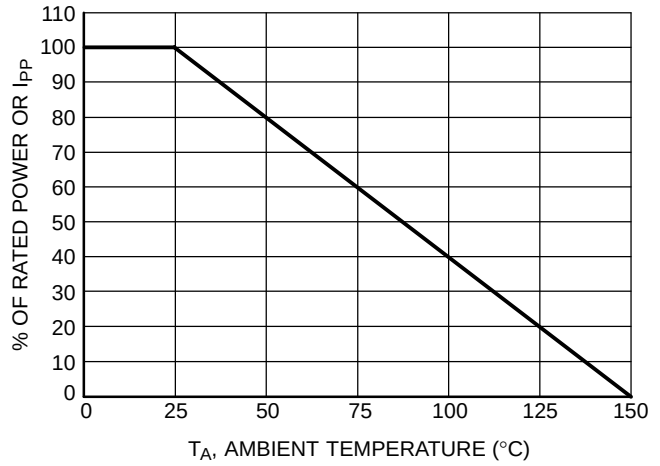


Figure 2. Power Derating Curve

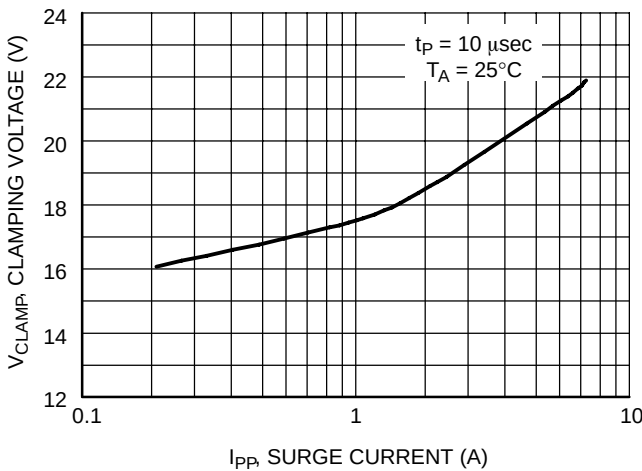


Figure 3. Clamping Voltage vs. Peak Pulse Current (10 μsec Square Wave Pulse)

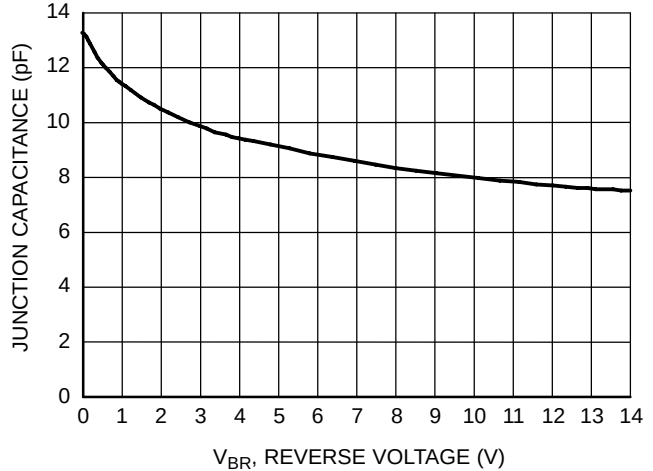
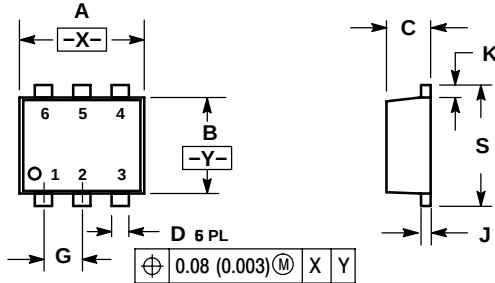


Figure 4. Junction Capacitance vs. Reverse Voltage

NUP4102XV6

PACKAGE DIMENSIONS

SOT-563, 6-LEAD
CASE 463A-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.

DIM	MILLIMETERS		INCHES	
	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

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA
Phone: 480-829-7710 or 800-344-3860 Toll Free USA/Canada
Fax: 480-829-7709 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051
Phone: 81-3-5773-3850

ON Semiconductor Website: <http://onsemi.com>

Order Literature: <http://www.onsemi.com/litorder>

For additional information, please contact your
local Sales Representative.

NUP4102XV6/D