ESD Protection Diode Array, Quad, Low Capacitance

NUP45V6P5

This integrated surge protection is designed for applications requiring transient overvoltage protection. It is intended to be used in sensitive equipment such as wireless headsets, PDAs, digital cameras, computers, printers, communication systems, and other applications. The 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

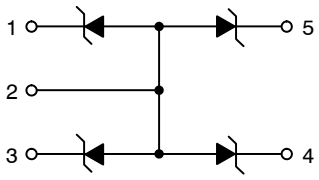
- ESD Protection: IEC61000−4−2: Level 4
- Four Separate Unidirectional Configurations for Protection
- Low Leakage Current < 1 μA @ 3 V
- Small SOT−953 SMT Package
- Low Capacitance
- These are Pb−Free Devices

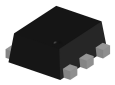
Benefits

- Provides Protection for ESD Industry Standards: IEC 61000, HBM
- Protects Four Lines Against Transient Voltage Conditions
- Minimize Power Consumption of the System
- Minimize PCB Board Space

Typical Applications

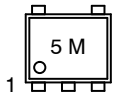
- Cellular and Portable Electronics
- Serial and Parallel Ports
- Microprocessor Based Equipment
- Notebooks, Desktops, Servers





SOT−953 1.00x0.80x0.37, 0.35P
CASE 527AE

MARKING DIAGRAM



5 = Specific Device Code
M = Date & Assembly Code

ORDERING INFORMATION

Device	Package	Shipping†
NUP45V6P5T5G	SOT−953 (Pb−Free)	8000 / 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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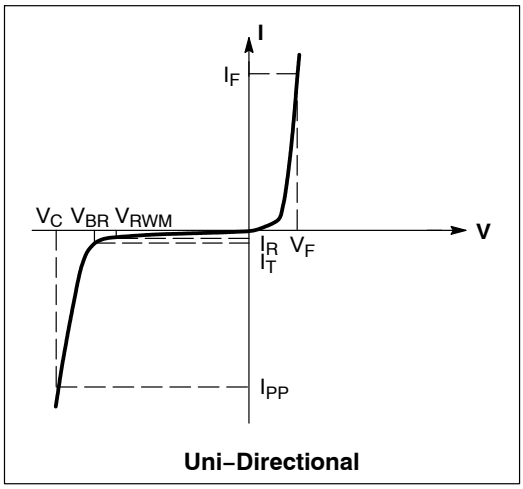
ELECTRICAL CHARACTERISTICS
(T_A = 25°C unless otherwise noted)

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
Thermal Resistance Junction−to−Ambient Above 25°C, Derate	$R_{\theta JA}$	560 4.5	°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
Lead Solder Temperature (10 seconds duration)	T_L	260	°C
Human Body Model (HBM) Machine Model (MM)	ESD	8000 400	V

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.
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(参考訳)
最大定格を超えるストレスは、デバイスにダメージを与える危険性があります。これらの定格値を超えた場合は、デバイスの機能性を損ない、ダメージが生じ、信頼性に影響を及ぼす危険性があります。

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Device	Device Marking	Breakdown Voltage V_{BR} @ 1 mA (Volts)			Leakage Current I_{RM} @ V_{RM}		Typ Capacitance @ 0 V Bias (pF) (Note 1)		Typ Capacitance @ 3 V Bias (pF) (Note 1)		V_C (V) @ I_{PP} = 1 A (Note 2)
		Min	Nom	Max	V_{RWM}	I_{RWM} (μA)	Typ	Max	Typ	Max	Max
NUP45V6P5	5	5.3	5.6	5.9	3.0	1.0	13	17	7.0	11.5	10.5

1. Capacitance of one diode at f = 1 MHz, T_A = 25°C.
2. Surge current waveform per Figure 3.

Share Feedback
Your Opinion Matters

TYPICAL ELECTRICAL CHARACTERISTICS

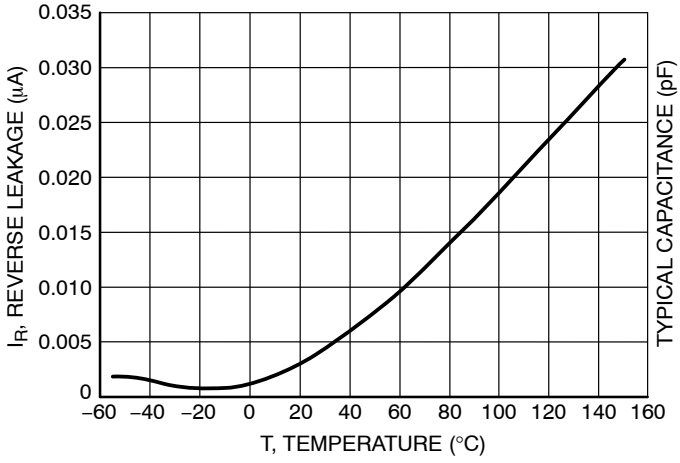

Figure 1. Reverse Leakage Current versus Temperature

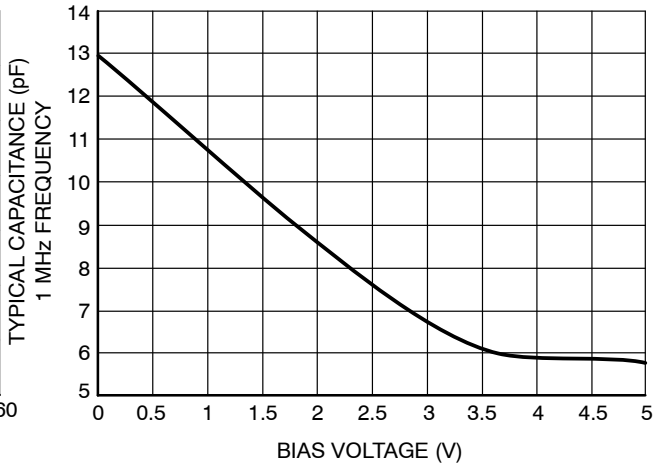

Figure 2. Capacitance

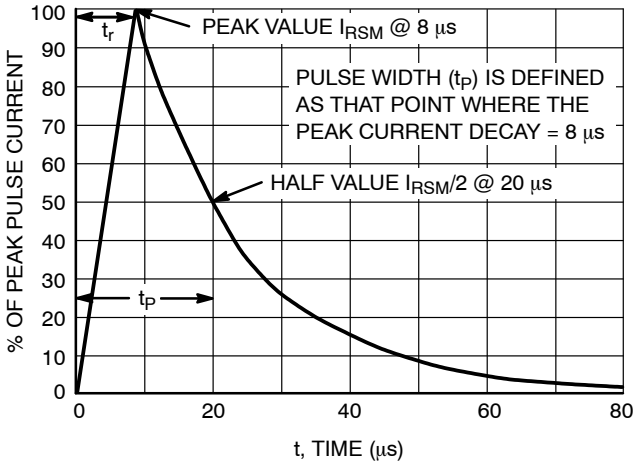

Figure 3. 8 × 20 μs Pulse Waveform

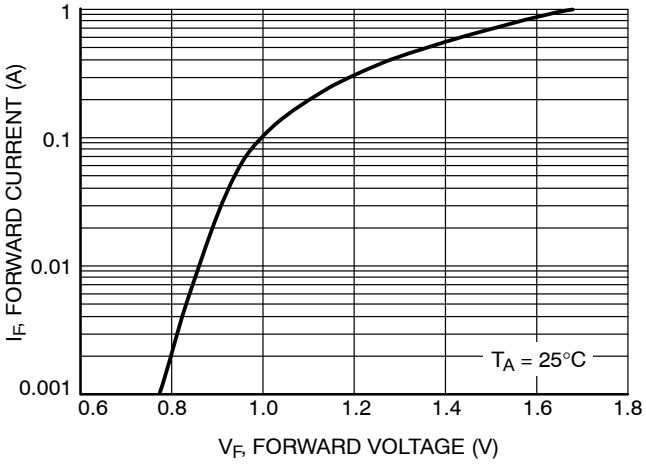

Figure 4. Forward Voltage

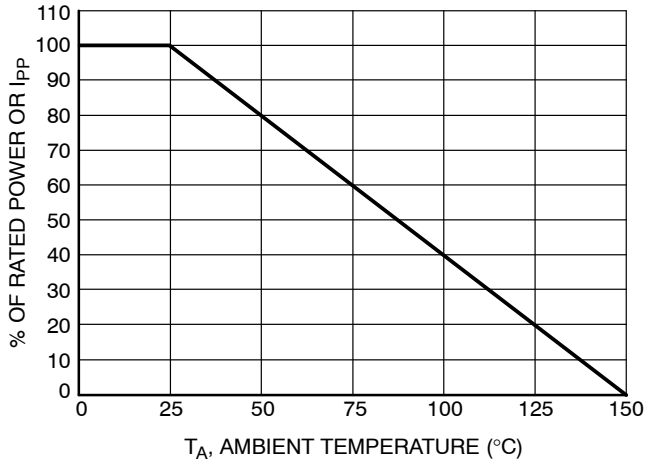

Figure 5. Power Derating Curve

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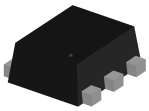

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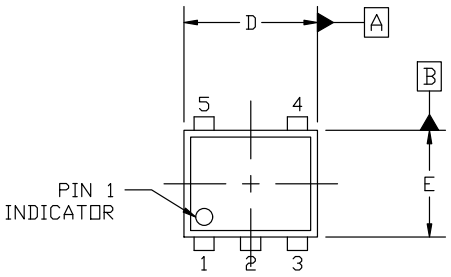
CASE 527AE
ISSUE F

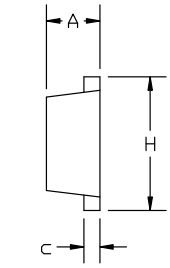
DATE 17 JAN 2024

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

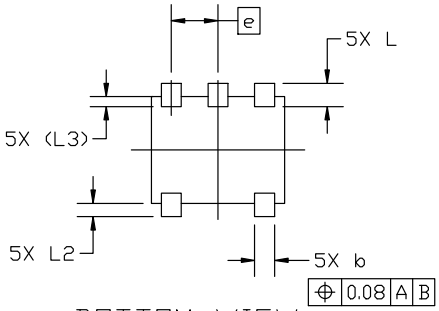
MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.10	0.15	0.20
C	0.07	0.12	0.17
D	0.95	1.00	1.05
E	0.75	0.80	0.85
e	0.35 BSC		
H	0.95	1.00	1.05
L	0.125	0.175	0.225
L2	0.05	0.10	0.15
L3	0.075 (REF)		



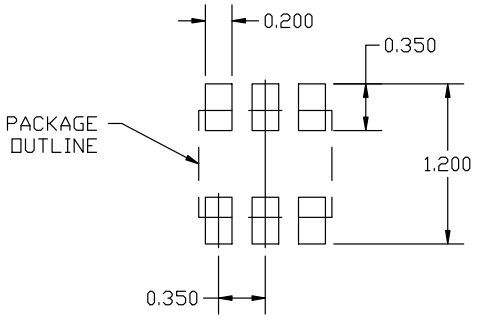
TOP VIEW



SIDE VIEW



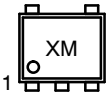
BOTTOM VIEW



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*



X = Specific Device Code
M = Month Code

*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.

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