

**QUAD SURFACE MOUNT TVS ARRAY**
**Features**

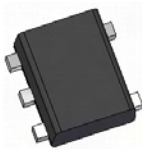
- Quad TVS in Common Anode Configuration
- Ultra-Small Surface Mount Package
- Ideal For Transient Suppression and ESD Protection
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green Device" (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**ESD Capability**

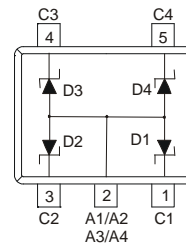
- IEC 61000-4-2 Contact Method  $\pm 8\text{kV}$
- IEC 61000-4-2 Air Discharge Method  $\pm 15\text{kV}$

**Mechanical Data**

- Case: SOT-953
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Finish: Matte Tin, Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.002 grams (approximate)



Top View



Device Schematic

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Peak Power Dissipation, 8x20 $\mu$ S Waveform (Note 5)	$P_{pk}$	18	W
Thermal Resistance, Junction-to-Ambient (Note 4)	$R_{\theta JA}$	417	$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^{\circ}\text{C}$

**Electrical Characteristics** @  $T_A = 25^{\circ}\text{C}$  unless otherwise specified

Type Number	Marking Code	Breakdown Voltage (Note 3)			Leakage Current (Note 3)		Capacitance @0V Bias(pF) (Note 6)		Capacitance @3V Bias(pF) (Note 6)	
		$V_{BR} @ I_T = 5\text{mA}$			$I_{RM} @ V_{RM}$		$C_T$		$C_T$	
		Min (V)	Nom (V)	Max (V)	Max( $\mu$ A)	(V)	Typ	Max	Typ	Max
DUP412VP5	V1	11.4	12	12.7	0.5	9.0	6.5	10	3.5	5

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  3. Short duration pulse test used to minimize self-heating effect.
  4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. Suggested Pad Layout Document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  5. Non-repetitive current pulse per Figure 3 and derate above  $T_A = 25^{\circ}\text{C}$  per Figure 1.
  6. Per element,  $f = 1\text{MHz}$ ,  $T_A = 25^{\circ}\text{C}$

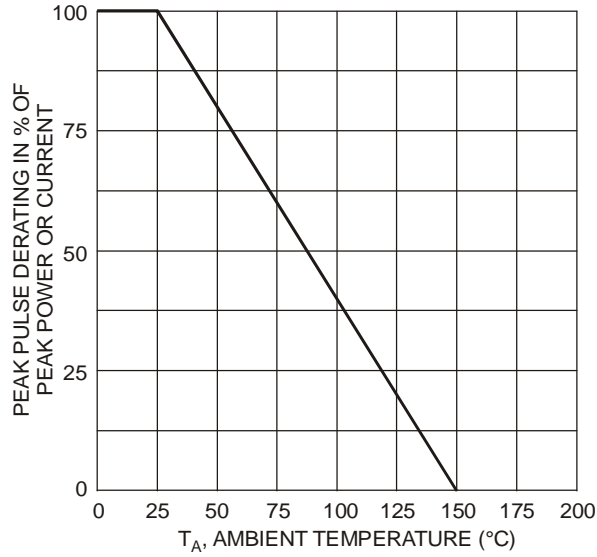


Fig. 1 Pulse Derating Curve

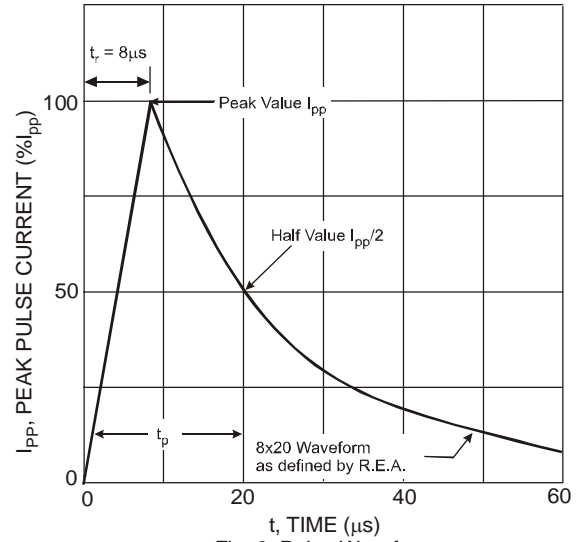


Fig. 2 Pulse Waveform

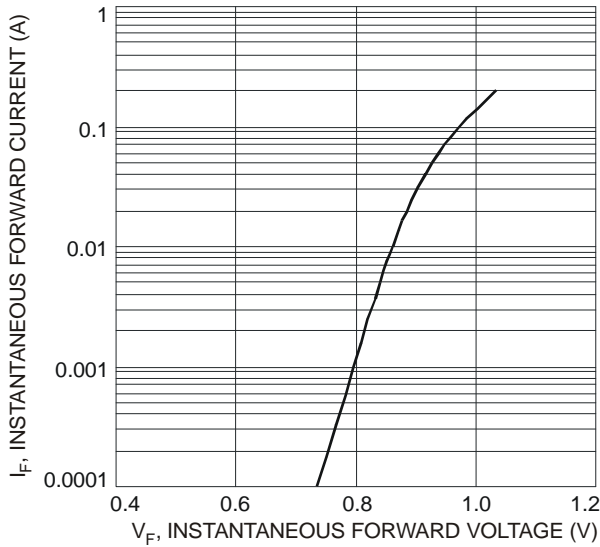


Fig. 3 Typical Forward Characteristics

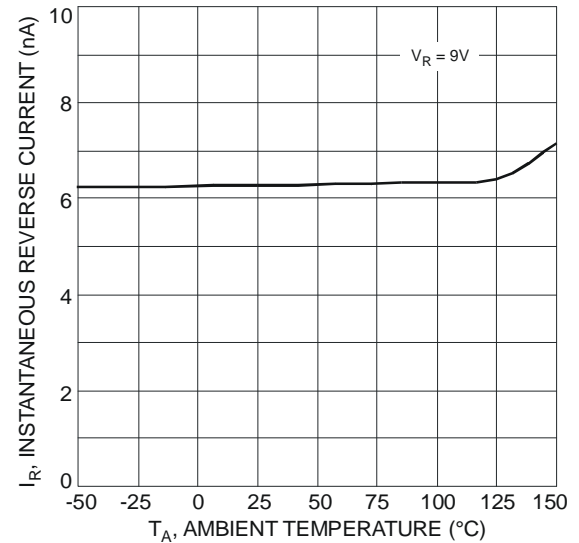


Fig. 4 Instantaneous Reverse Current vs. Ambient Temperature

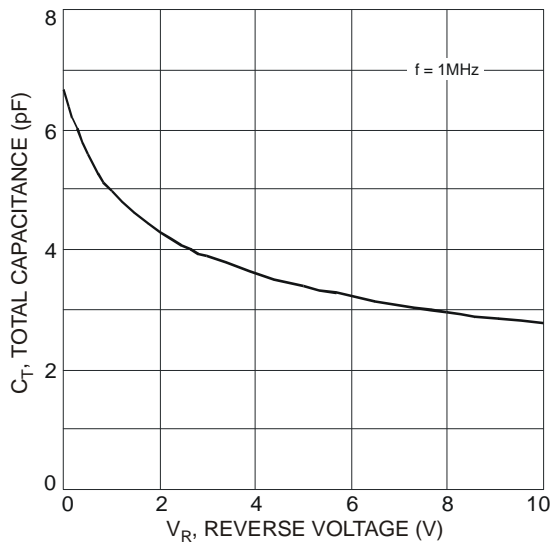


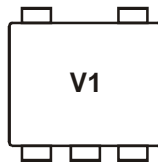
Fig. 5 Typical Total Capacitance vs. Reverse Voltage (Per Element)

## Ordering Information (Note 7)

Part Number	Case	Packaging
DUP412VP5-7	SOT-953	10,000/Tape & Reel

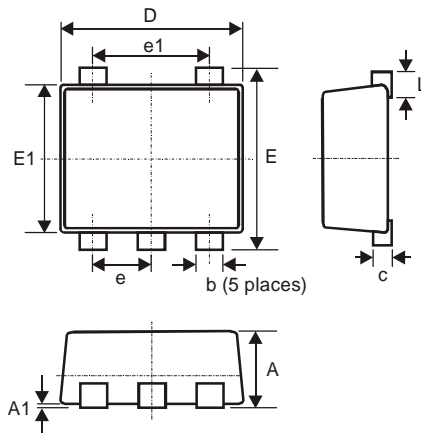
Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



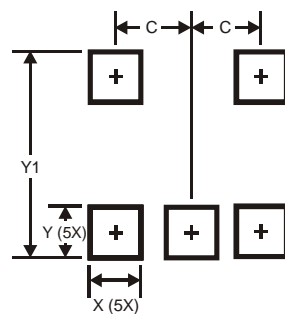
V1 = Product type marking code

## Package Outline Dimensions



SOT-953			
Dim	Min	Max	Typ
A	0.40	0.50	0.45
A1	0	0.05	—
b	0.10	0.20	0.15
c	0.12	0.18	0.15
D	0.95	1.05	1.00
E	0.95	1.05	1.00
E1	0.75	0.85	0.80
e	—	—	0.35
e1	—	—	0.70
L	0.05	0.15	0.10
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
C	0.350
X	0.200
Y	0.200
Y1	1.100

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