Transient Voltage Suppressor

Micro-Packaged Diode for ESD Protection

The ST0561D4 Series is designed to protect voltage sensitive components from damage or latch-up due to ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are xposed to ESD for board level. Because of its small sizeand bi-directional design, it is ideal for use in cellular phones, MP3 players, and portable applications that require audio line protection.

Specification Features

- Small Body Outline Dimensions:
  nom 0.039″ x 0.024″ (1.0x0.6 mm)
- Low Body Height: nom 0.0 19″ (0.5 mm)
- Low Capacitance 12 pF
- Low Clamping Voltage
- Reverse Working (Stand-off) Voltage: 5.0 V
- Low Leakage
- Response Time is Typically < 1 ns
- IEC61000-4-2 Level 4 ESD Protection
- This is a Pb-Free Device

Mechanical Characteristics:

- CASE: Void-free, transfer-molded, thermosetting plastic Epoxy Meets UL 94 V−0
- LEAD FINISH: NiPdAu
- MOUNTINTh POSITION: Any
- QUALIFIED MAX REFLOW TEMPERATURE: 260°C
- Device Meets MSL 1 Requirements
- RoHS/WEEE Compliant
- Marking: Marking code

Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

Maximum Ratings

Rating	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Contact		±30	kV
Peak Power Per 8 x 20μs Waveform	P_{PK}	100	W
Total Power Dissipation on FR-5① Board@ TA = 25°C	P_D	300	mW
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	°C
Lead Solder Temperature - Maximum (10 Second Duration)	T_L	260	°C

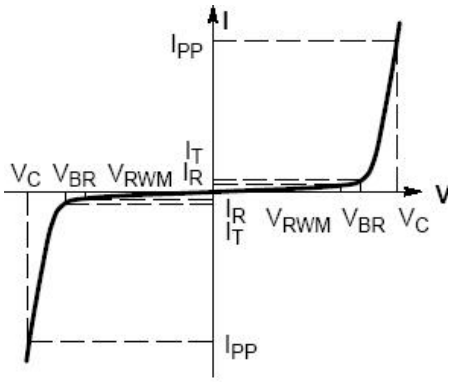
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Note1: FR-5 =1.0*0.75*0.062inch (25.4*19.05*1.58mm).

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}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
P_{PK}	Peak Power Dissipation
C	Max. Capacitance @ V_R = 0 and freq.=1 MHz



Bi-Directional TVS

Device	Mark	V_{RWM} (V)	I_R (μA) @ V_{RWM}		V_{BR} (V) @ I_T			I_T (mA)	Max. V_C (V) @ I_{PP}②=1A	C (pF)
			Typ.	Max.	Min.	Typ.	Max.			
ST0561D4	5C	5.0	0.05	1	6.5	6.8/7.6	8	1	9.8	1

Note2: Surge current wave form per figure 3.

TYPICAL CHARACTERISTICS

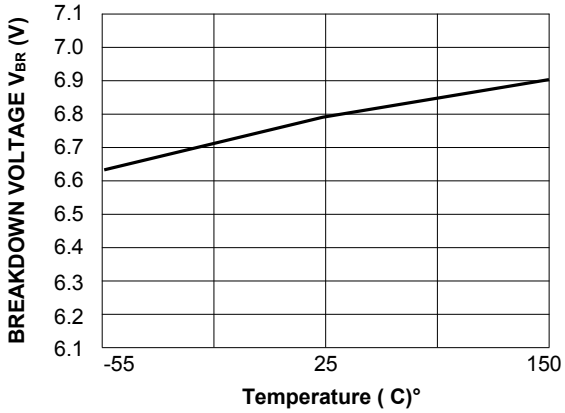


Figure 1: Typical Breakdown Voltage versus Temperature

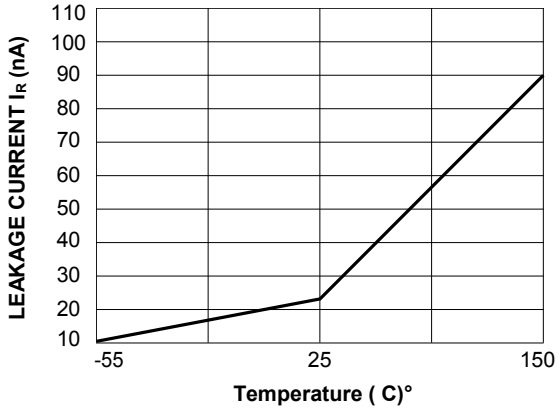


Figure 2: Typical Leakage Current versus Temperature

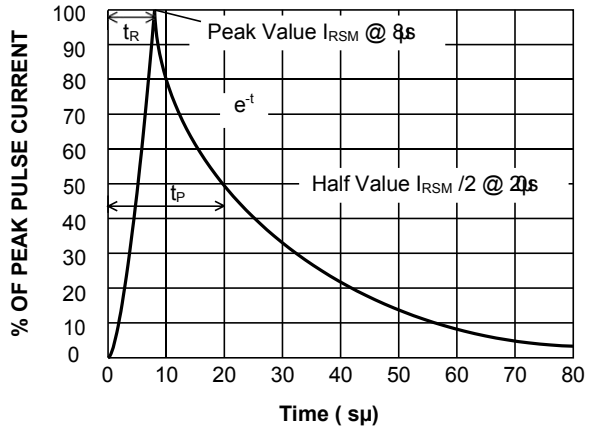
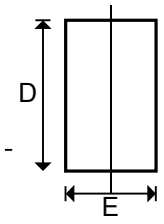


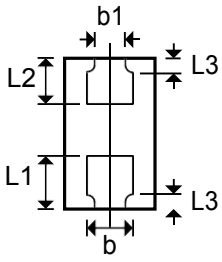
Figure 3: 8/20 μs Pulse Wave Form

PACKAGE OUTLINE DIMENSIONS

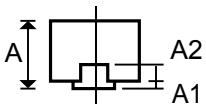
DFN1006-2L



TOP VIEW

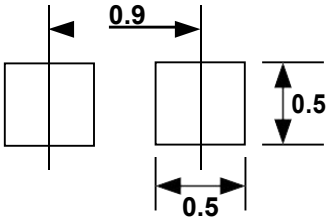


BOTTOM VIEW



SIDE VIEW

Dimension: Millimeter
(Stencil thickness: 0.1)



Soldering Footprint

Symbol	Dimensions in mm		
	MIN.	NOM.	MA X.
A	0.450	0.500	0.550
A1	0.000	-	0.050
A2		0.150REF.	
D	0.950	1.000	1.050
E	0.550	0.600	0.650
b	0.250	0.300	0.350
b1	0.150	0.200	0.250
L1	0.300	0.350	0.400
L2	0.250	0.300	0.350
L3		0.100REF.	