

## PT0321NS – ESD Protection Diode

### Feature

- 48 Watts peak pulse power (8/20 $\mu$ s)
- Tiny DFN0603 package
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Protect one data/power line
- IEC61000-4-2 (ESD)  $\pm$ 20kV (Air),  $\pm$ 15kV (Contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 6A (8/20 $\mu$ s)



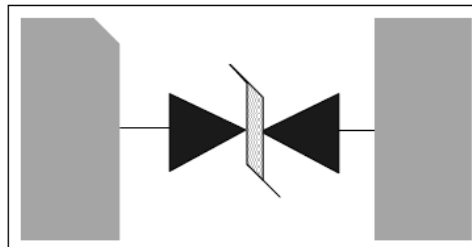
### Applications

- Cell Phone Handsets and Accessories
- Micro processor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops and Servers
- Portable Instrumentation

### Mechanical Data

- DFN0603 package
- Molding compound flammability rating: UL94 V-0
- Tape and Reel Packaging
- RoHS/WEEE Compliant

### Schematic and PIN Configuration



DFN0603

### Maximum Rating

Parameter	Symbol	Limit	Unit
IEC61000-4-2 ESD Voltage – Air Mode	$V_{ESD}^{(1)}$	$\pm$ 20	kV
IEC61000-4-2 ESD Voltage – Contact Mode		$\pm$ 15	
Peak Pulse Power	$P_{PP}^{(2)}$	48	W
Peak Pulse Current	$I_{PP}^{(2)}$	6	A
Maximum Lead Solder Temperature (10 seconds duration)	$T_L$	260	$^{\circ}$ C
Junction Temperature	$T_J$	-55~125	$^{\circ}$ C
Storage Temperature Range	$T_{stg}$	-55~125	$^{\circ}$ C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20 $\mu$ s exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of  $T_A = 25^{\circ}$ C unless otherwise noted.

## PT0321NS – ESD Protection Diode

### Electrical Characteristics

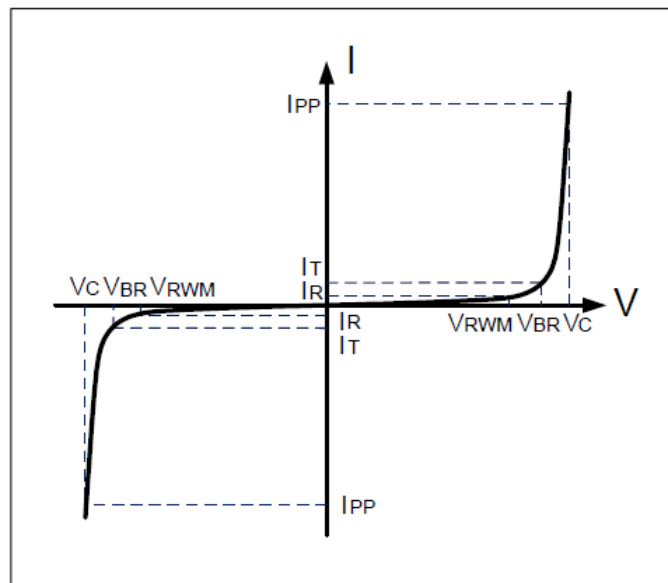
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				3.3	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	3.4	4.0		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3\text{V}$			0.2	$\mu\text{A}$
Peak Pulse Current	$I_{PP}$				6.0	A
Clamping Voltage <sup>1)</sup>	$V_{CL}$	$I_{PP} = 16\text{A}$ , $t_p = 100\text{ns}$		8.0		V
Clamping Voltage <sup>2)</sup>	$V_C$	$I_{PP} = 1\text{A}$		5.0		V
Clamping Voltage <sup>2)</sup>		$I_{PP} = 6\text{A}$		8.0		V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		12		pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of  $T_A = 25^\circ\text{C}$  unless otherwise noted.

### Electrical Parameters

Symbol	Parameter
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Peak Pulse Current
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{RWM}$	Reverse Stand-off Voltage



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### Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

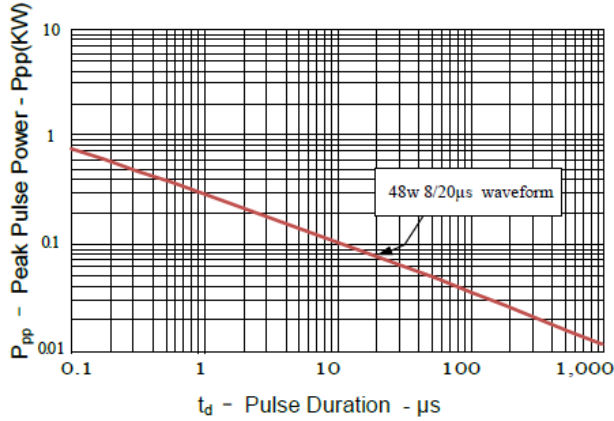


Figure 2: Power Derating Curve

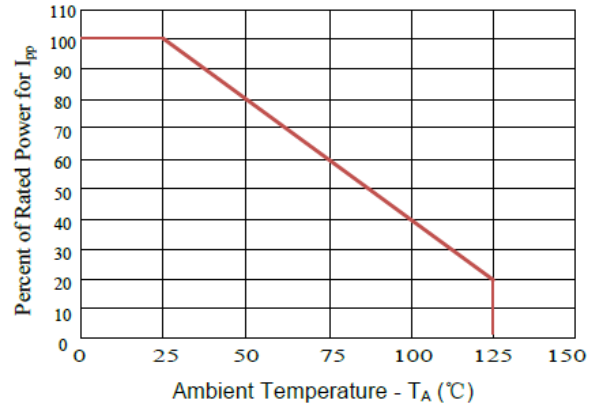


Figure 3: Pulse Waveform

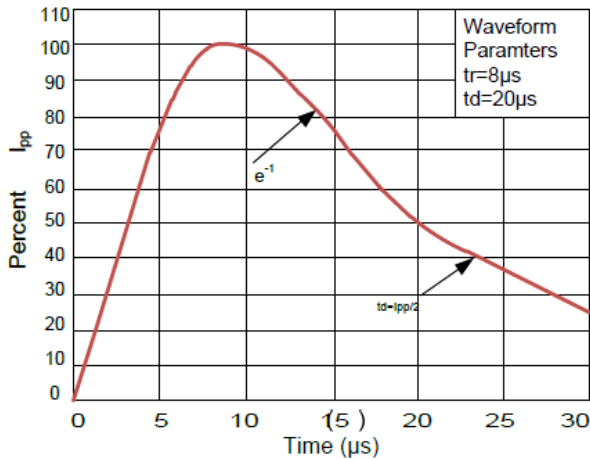
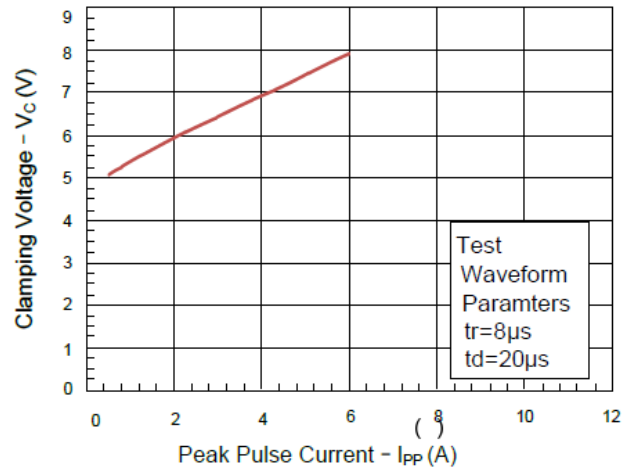
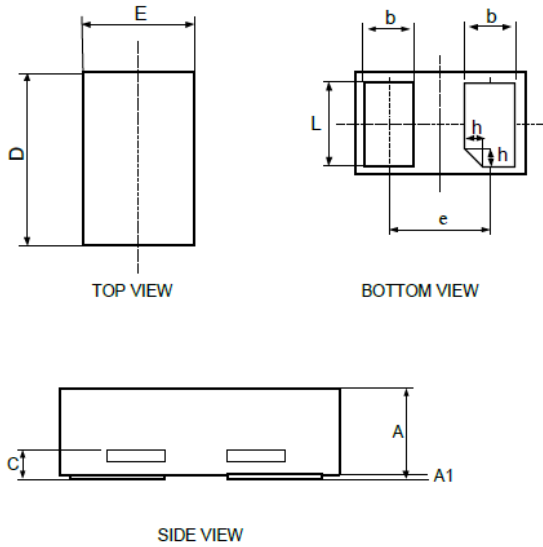


Figure 4: Clamping Voltage vs. Ipp



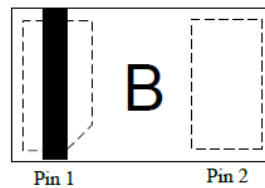
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### DFN0603 Package Outline Dimensions



Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.28	0.30	0.32
A1	0.00	0.02	0.05
C	0.05	0.10	0.15
D	0.55	0.60	0.65
E	0.25	0.30	0.35
e	0.34	0.35	0.37
b	0.14	0.19	0.24
L	0.20	0.25	0.30
h	0.00	0.05	0.10

### Marking



### Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PT0321NS	DFN0603	7 inch	15,000