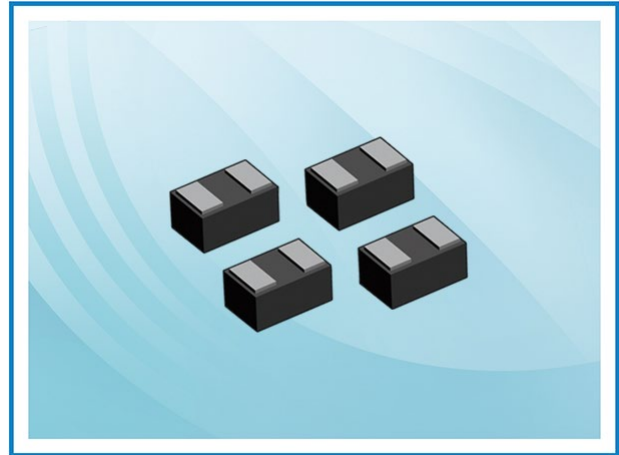


## PT0321NS – ESD Protection Diode

### Feature

- 80 Watts peak pulse power (8/20 $\mu$ s)
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Protect one data/power line
- IEC61000-4-2 (ESD)  $\pm$ 30 kV (Air),  $\pm$ 30 kV (Contact)
- IEC61000-4-4 (EFT) 40 A (5/50 ns)
- IEC61000-4-5 (Lightning): 10 A (8/20  $\mu$ s)



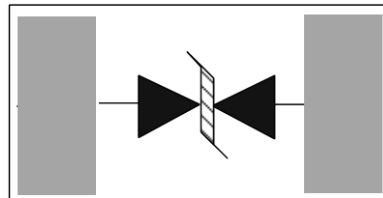
### Applications

- 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	$V_{ESD}^{(1)}$	$\pm$ 30	kV
IEC61000-4-2 ESD Voltage – Contact Mode		$\pm$ 30	
Peak Pulse Power	$P_{PP}^{(2)}$	80	W
Peak Pulse Current	$I_{PP}^{(2)}$	10	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

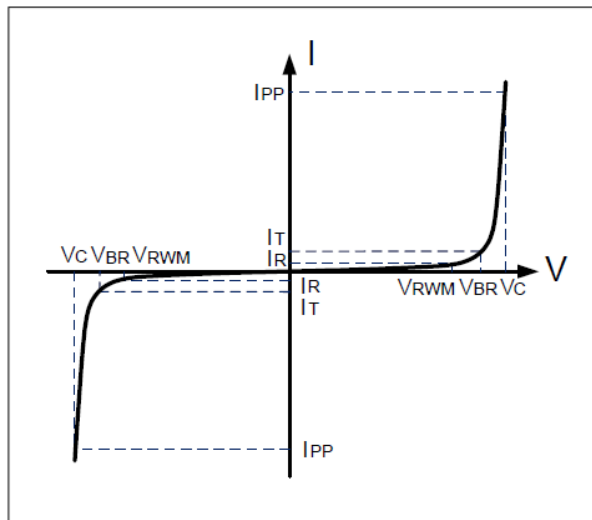
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				3.3	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1 \text{ mA}$	3.5			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3 \text{ V}$			0.5	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 10 \text{ A}$		8.0	11	V
Junction Capacitance	$C_J$	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$		18	24	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



## PT0321NS – ESD Protection Diode

### Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

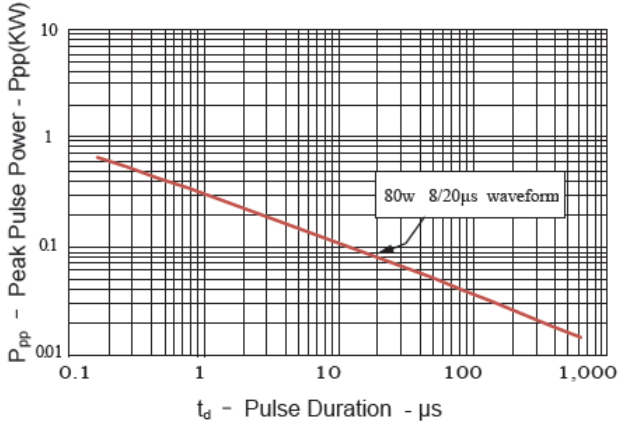


Figure 2: Power Derating Curve

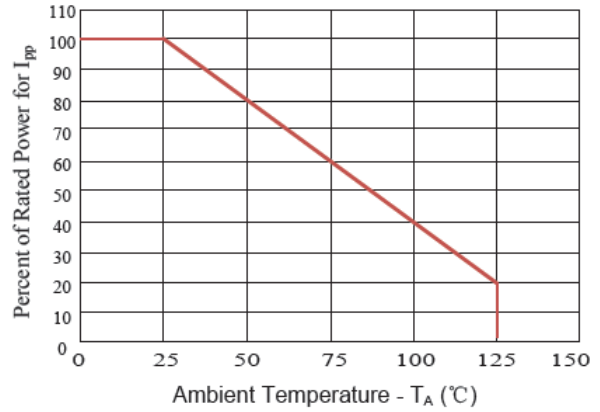


Figure 3: Pulse Waveform

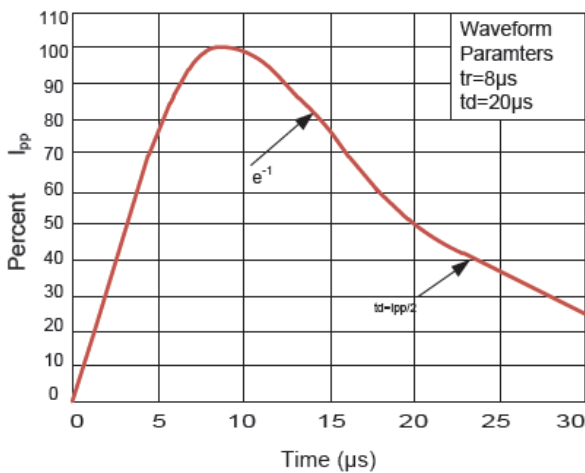


Figure 4: Clamping Voltage vs. Ipp

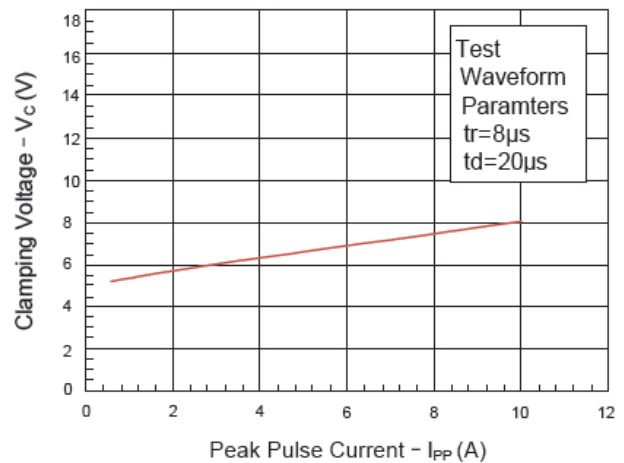


Figure 5: TLP Positive I-V Curve

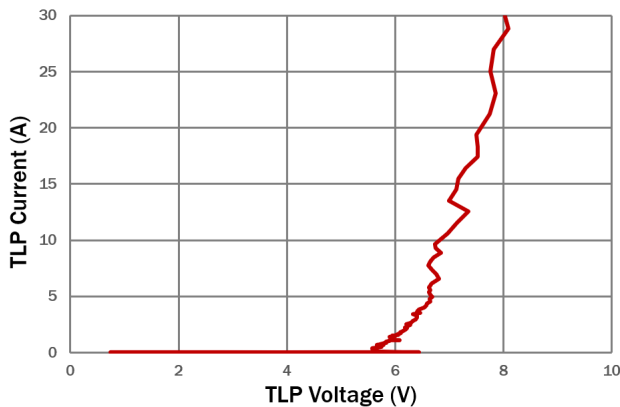
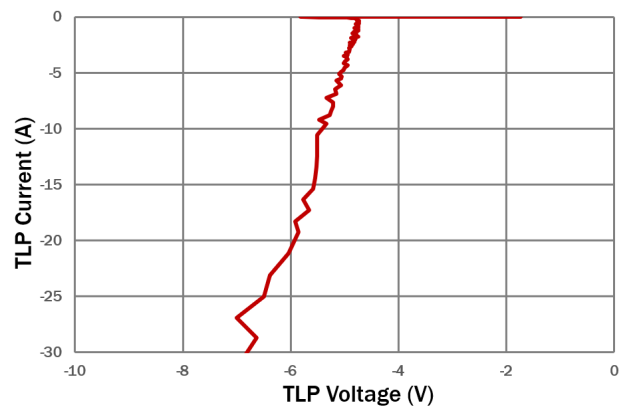
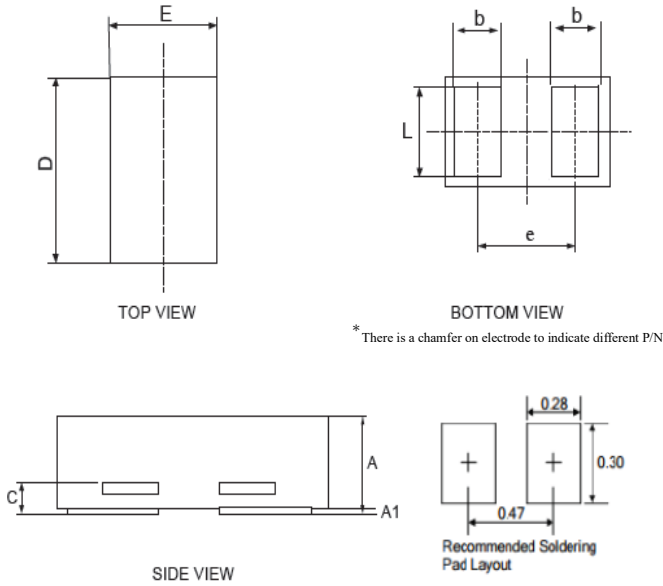


Figure 6: TLP Negative I-V Curve



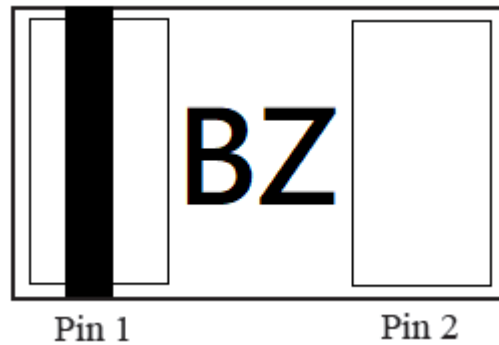
## PT0321NS – ESD Protection Diode

### DFN0603 Package Outline Dimensions



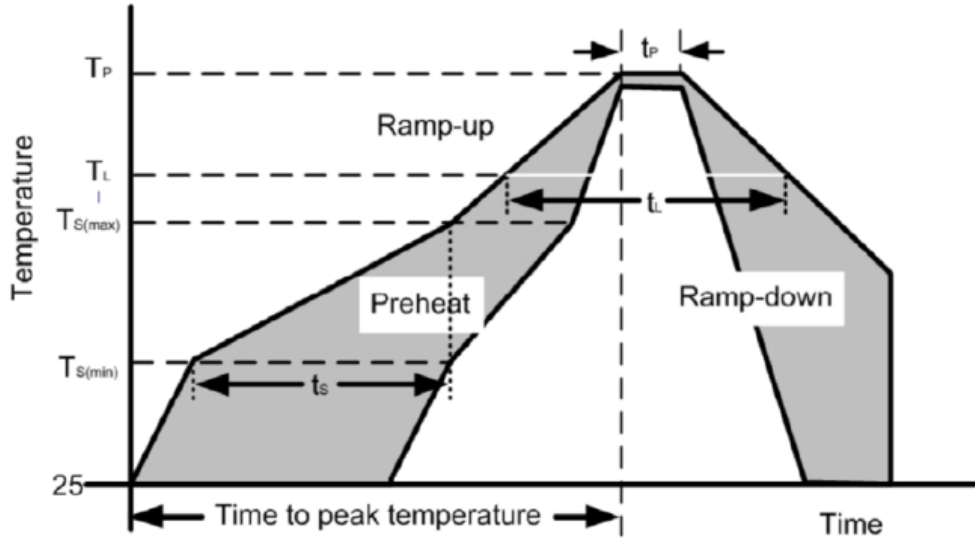
Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.28	0.30	0.34
A1	0.00	0.02	0.05
C	0.05	0.10	0.15
D	0.55	0.60	0.65
E	0.25	0.30	0.35
e		0.40	
b	0.13	0.19	0.24
L	0.20	0.25	0.30

### Marking



## PT0321NS – ESD Protection Diode

### Reflow Soldering Parameters

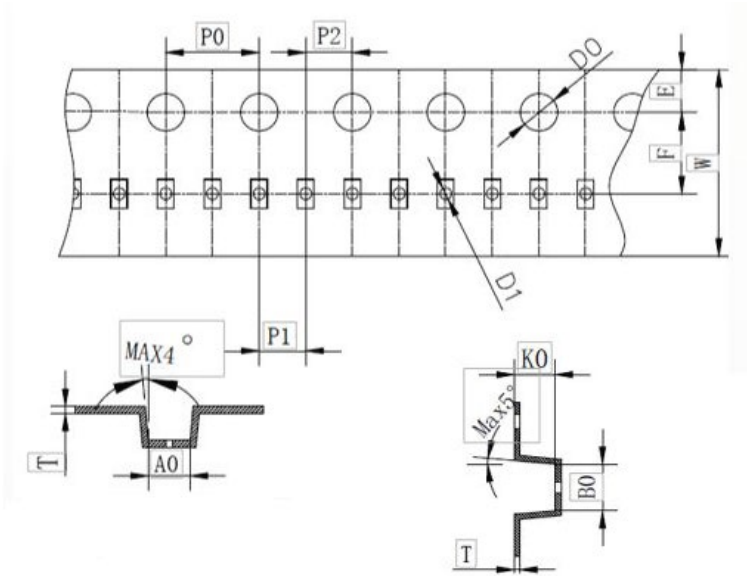


Reflow Condition	Pb-Free assembly
Pre Heat Temperature Min (Ts (min) ) 150°C	Temperature Min (Ts (min) ) 150°C
Pre Heat Temperature Min (Ts (max) ) 200°C	Temperature Min (Ts (max) ) 200°C
Pre Heat Time (min to max) (ts) 60-190 secs	Time (min to max) (ts) 60-190 secs
Average ramp up rate (Liquidus Temp) (TL) to peak	5°C/seconds max
Ts(max)to TL—Ramp-up Rate	5°C/seconds max
Reflow Temperature (TL) (Liquidus)	217°C
Reflow Temperature (tl)	60-150 seconds
Peak Temperature (Tp)	260+0/-5°C
Time within actual peak Temperature (tp)	20-40 seconds
Ramp-down Rate	5°C/seconds max
Time 25°C to peak Temperature (Tp)	8 minutes Max.
Do not exceed	280°C

## PT0321NS – ESD Protection Diode

### Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PT0321NS	DFN0603	7 inch	10,000



Symbol	Dimension (mm)
A0	0.38±0.03
B0	0.68±0.03
K0	0.34±0.03
P0	4.00±0.10
P1	2.00±0.05
P2	2.00±0.05
T	0.18±0.03
E	1.75±0.10
F	3.50±0.05
D0	1.55±0.05
D1	0.20±0.05
W	8.00±0.10

### DFN0603 Reel

