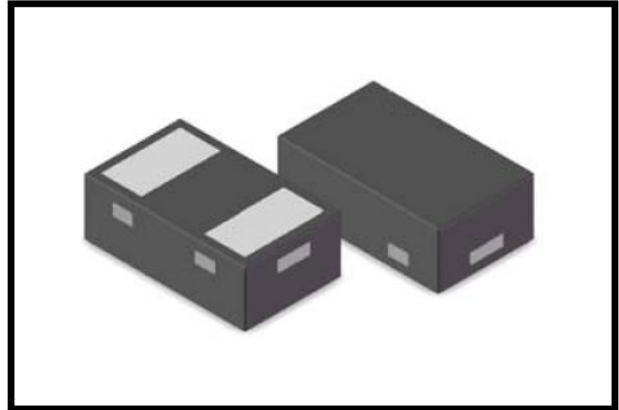


PTUC0325NS – ESD Protection Diode

Feature

- 40 Watts peak pulse power (8/20 μ s)
- Tiny DFN0603 package
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ($C_j = 0.2$ pF typ.)
- Protect one data/power line
- IEC61000-4-2 (ESD) ± 20 kV (Air), ± 15 kV (Contact)
- IEC61000-4-4 (EFT) 40 A (5/50 ns)
- IEC61000-4-5 (Lightning): 6 A (8/20 μ s)



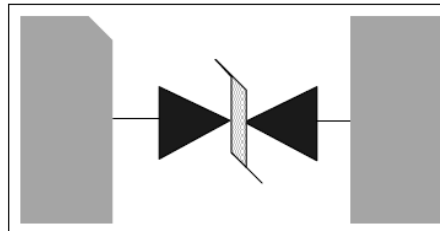
Applications

- 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

	Symbol	Limit	Unit
Peak Pulse Power ($t_p = 8/20 \mu$ s)	$P_{pp}^{(1)}$	40	Watts
Peak Pulse Current ($t_p = 8/20 \mu$ s)	$I_{pp}^{(2)}$	6	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD}^{(3)}$	20	kV
ESD per IEC 61000-4-2 (Contact)		15	
Lead Soldering Temperature	T_L	260 (10seconds)	$^{\circ}$ C
Junction Temperature	T_J	-55 to + 125	$^{\circ}$ C
Storage Temperature	T_{stg}	-55 to + 125	$^{\circ}$ C

Note:

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

PTUC0325NS – ESD Protection Diode

Electrical Characteristics

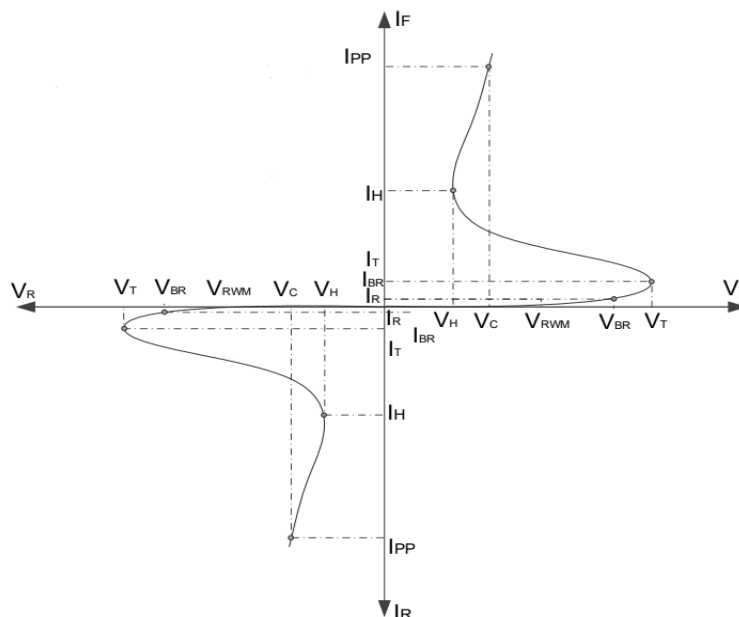
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	$V_{RWM}^{(1)}$				3.3	V
Reverse Leakage Current	I_R	$V_{RWM} = 3.3\text{ V}, T = 25\text{ }^\circ\text{C}$		5	200	nA
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{ mA}$	4.0		9.0	V
Holding Voltage	V_H	$I_H = 50\text{ mA}$	2.0		3.3	V
Clamping Voltage	V_C	$I_{PP} = 6\text{ A}, t_p = 8/20\text{ }\mu\text{s}$		5.5	6.5	V
ESD Clamping Voltage	V_C	$I_{TLP} = 4\text{ A}, t_p = 0.2/100\text{ ns}$		5.8		V
ESD Clamping Voltage	V_C	$I_{TLP} = 16\text{ A}, t_p = 0.2/100\text{ ns}$		9.4	11.8	V
ESD Dynamic Resistance	R_{DYN}	$TLP = 0.2/100\text{ ns}$		0.3	0.5	Ω
Junction Capacitance	C_j	$V_R = 0\text{ V}, f = 1\text{M Hz}$		0.22	0.32	pF

Note:

- Other voltages available upon request.

Electrical Parameters

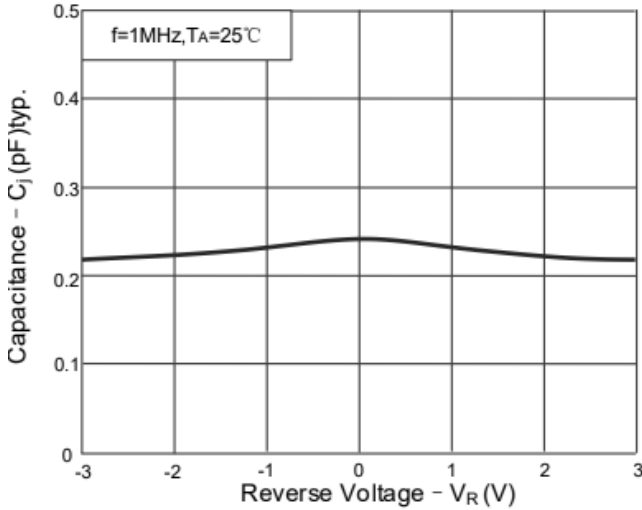
Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Stand-off Voltage
V_T	Trigger Voltage
V_H	Holding Voltage
I_H	Holding Current



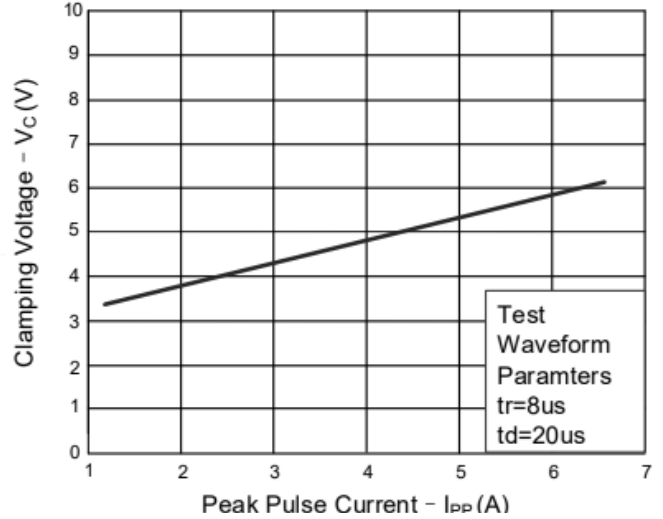
PTUC0325NS – ESD Protection Diode

Typical Characteristics

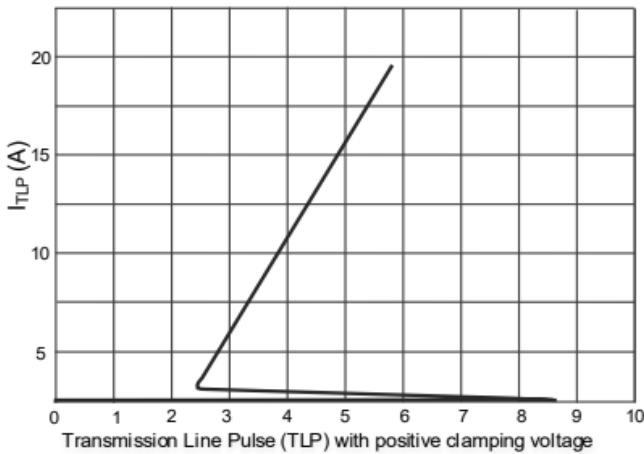
Capacitance vs. Reverse Voltage



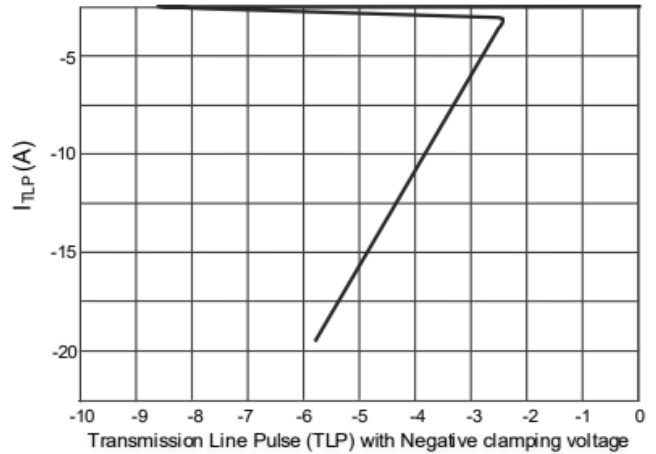
Reverse Clamping Voltage vs. Peak Pulse Current



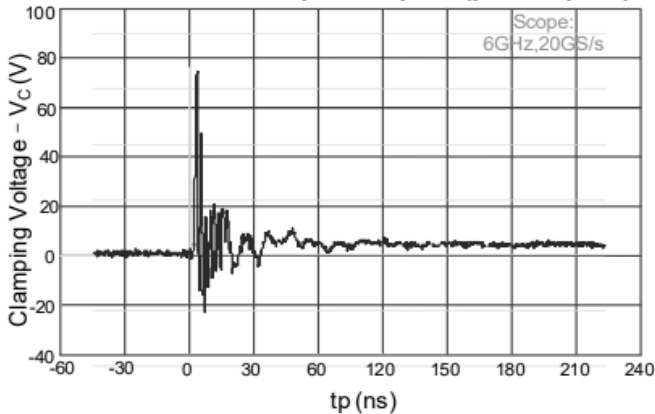
Positive Clamping voltage (TLP)



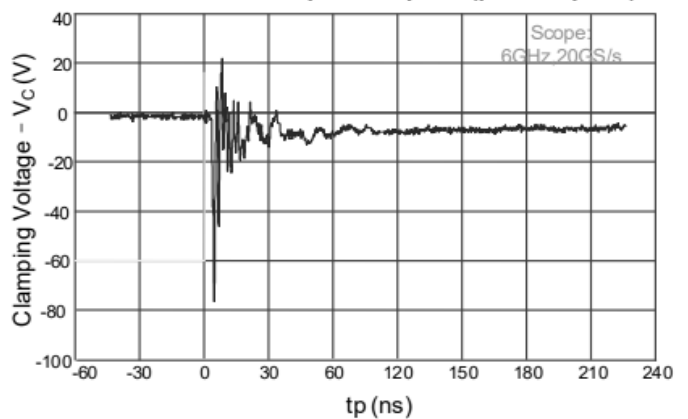
Positive Clamping voltage (TLP)



IEC61000-4-2 : 8 kV positive pulse(pin 1 to pin 2)

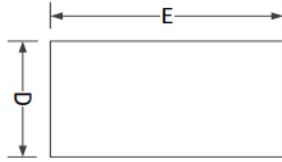


IEC61000-4-2 : 8 kV positive pulse(pin 2 to pin 1)

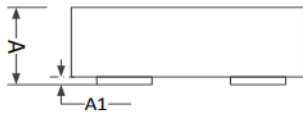


PTUC0325NS – ESD Protection Diode

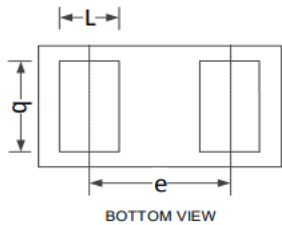
DFN0603 Package Outline Dimensions



TOP VIEW



SIDE VIEW

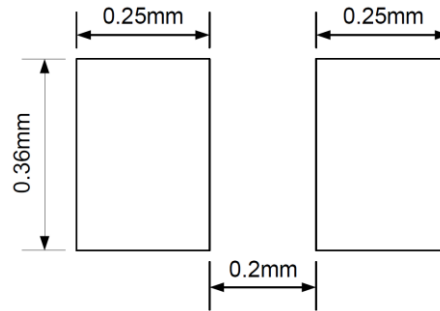


BOTTOM VIEW

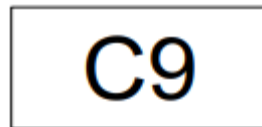
* There is a chamfer on electrode to indicate different P/N

Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.28	0.30	0.34
A1	0.00	0.02	0.05
b	0.21	0.23	0.265
L	0.14		0.24
D	0.25	0.30	0.35
E	0.55	0.60	0.65
e	0.35 BSC		

Recommend PCB Layout

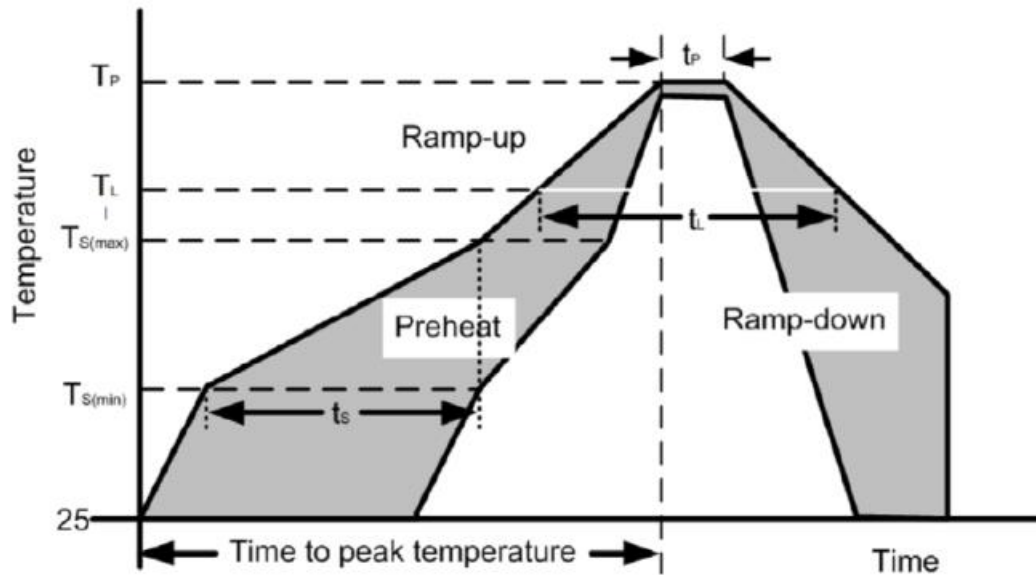


Marking



PTUC0325NS – ESD Protection Diode

Soldering Parameters

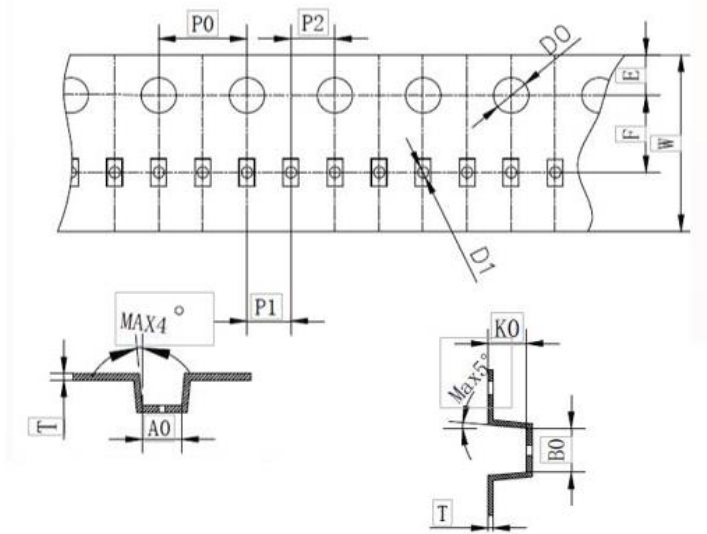


Reflow Condition	Pb-Free assembly
Pre Heat Temperature Min (T_s (min))	150°C
Pre Heat Temperature Min (T_s (max))	200°C
Pre Heat Time (min to max) (t_s)	60-190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak	5°C/seconds max
$T_s(max)$ to T_L --Ramp-up Rate	5°C/seconds max
Reflow Temperature (T_L) (Liquidus)	217°C
Reflow Temperature (t_l)	60-150 seconds
Peak Temperature (T_p)	260+0/-5°C
Time within actual peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	5°C/seconds max
Time 25°C to peak Temperature (T_p)	8 minutes Max.
Do not exceed	280°C

PTUC0325NS – ESD Protection Diode

Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PTUC0325NS	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
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

