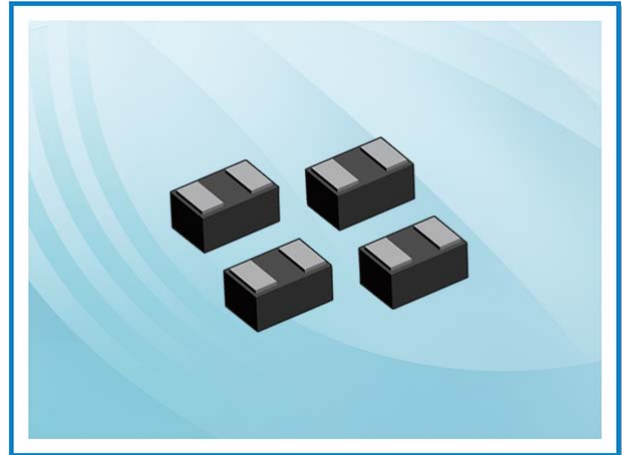


PTUC0521NS – ESD Protection Diode

Feature

- 100 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) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 5A (8/20 μ s)



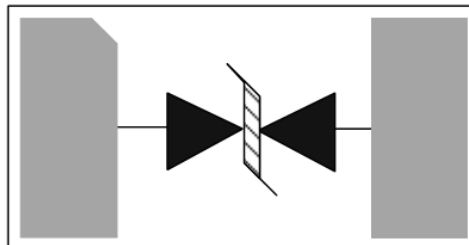
Applications

- USB3.0, HDMI2.0, Thunderbolt
- 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	$V_{ESD}^{(1)}$	± 20	kV
IEC61000-4-2 ESD Voltage – Contact Mode		± 15	
Peak Pulse Power	$P_{PP}^{(2)}$	100	W
Peak Pulse Current	$I_{PP}^{(2)}$	5	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 μ 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.

PTUC0521NS – ESD Protection Diode

Electrical Characteristics

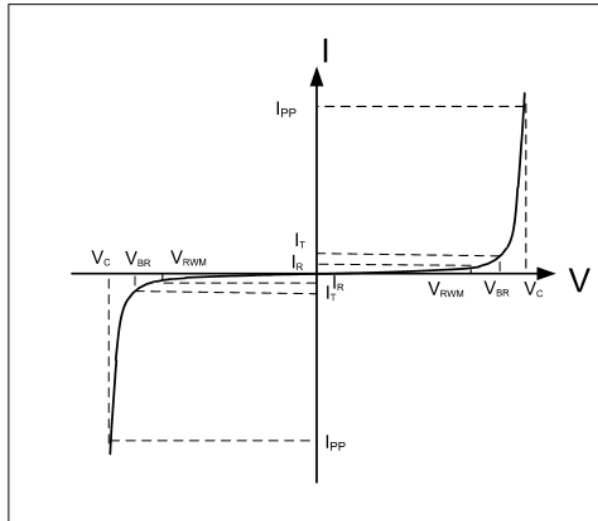
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	5.5	8.5		V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$		5	100	nA
Peak Pulse Current	I_{PP}				5.0	A
Clamping Voltage	$V_C^{(2)}$	$I_{PP} = 5\text{A}$			20	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		0.2	0.3	pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 μs 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



PTUC0521NS – ESD Protection Diode

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

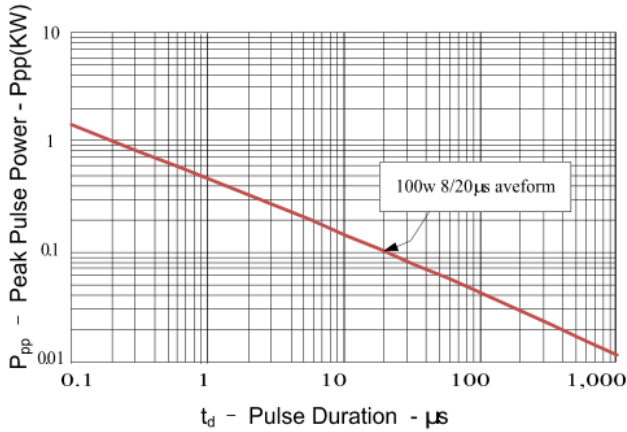


Figure 2: Power Derating Curve

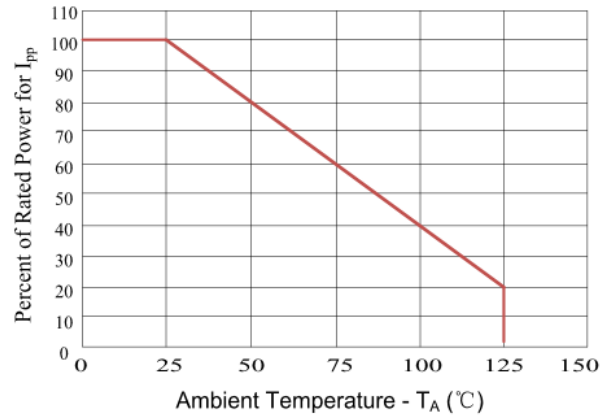


Figure3: Pulse Waveform

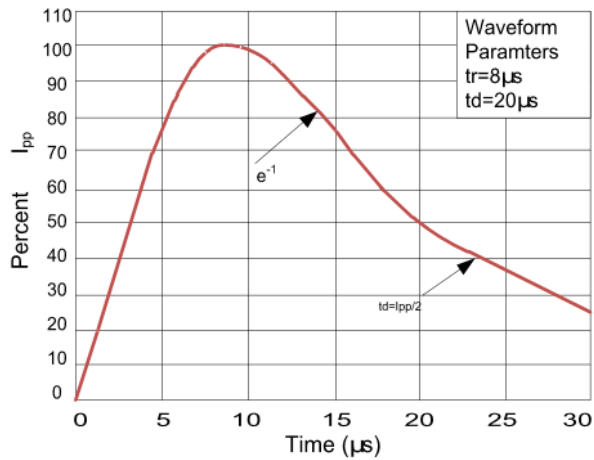
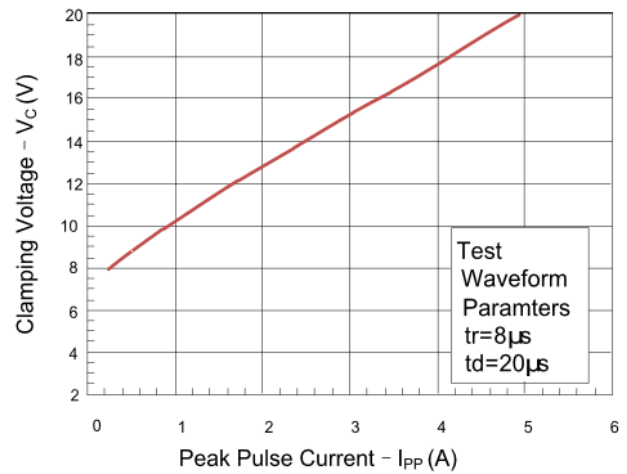
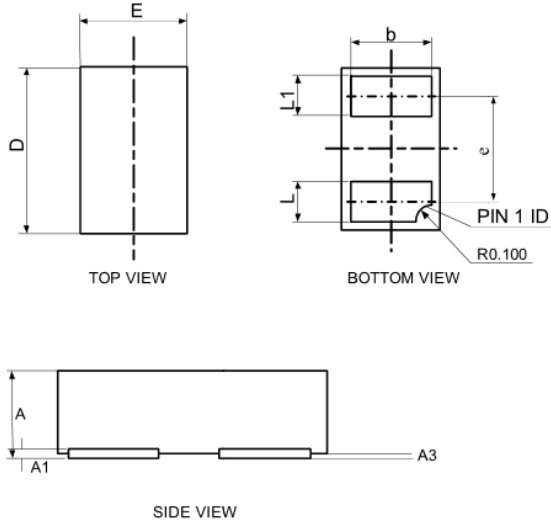


Figure 4: Clamping Voltage vs. I_pp



PTUC0521NS – ESD Protection Diode

DFN0603 Package Outline Dimensions



Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.28	0.30	0.32
A1	0.102 Ref.		
A3	0.00	-	0.05
D	0.55	0.60	0.65
E	0.25	0.30	0.35
b	0.215	0.245	0.275
L	0.115	0.145	0.175
L1	0.115	0.145	0.175
e	0.40 BSC		

Marking



Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PTUC0521NS	DFN0603	7 inch	15,000