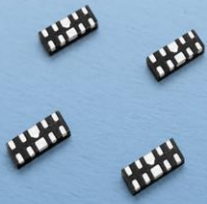
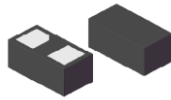


Together We Make It Safe!



TVS Protection Array (TPA)





TVS Protection Array TPA0603L

- DFN0603
- 100W

Features

- 100Watts peak pulse power ($t_p = 8/20\mu s$)
- Tiny DFN0603 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ($C_j = 0.2pF$ typ.)
- RoHS/WEEE Compliant
- Molding compound flammability rating: UL 94V-0
- Transient protection for data/power lines to:
IEC61000-4-2(ESD) $\pm 20kV$ (air), $\pm 15kV$ (contact)
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 5A (8/20 μs)

Applications

- USB3.0, HDMI2.0, Thunderbolt
- Notebooks, Desktops, and Servers
- Portable Instrumentation

Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	100	W
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 20	KV
ESD per IEC 61000-4-2 (Contact)		± 15	
Junction Temperature Range	T_J	-55~125	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55~125	$^{\circ}C$

Note: 1. Ratings at 25 $^{\circ}C$ ambient temperature unless otherwise specified.

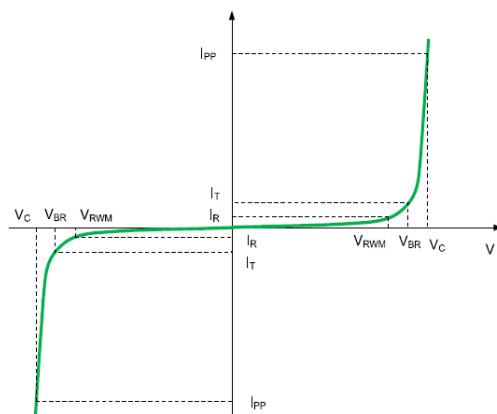
TVS Protection Array TPA0603L

DFN0603L 100W

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Stand-off Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	5.5	8.5		V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R		5	100	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C			20	V	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	C_J		0.2	0.3	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

I-V Curve Characteristics

Bidirectional



Symbol	Parameter	Explanation
(1) I_{PP}	Peak pulse current	The maximum surge current that flows though the TVS
(2) V_{BR}	Breakdown voltage	The Voltage that flows though the TVS at a specified test current (I_T)
(3) I_T	Test current	A specified test current that flows though the TVS
(4) V_{RWM}	Stand-off voltage	Maximum voltage that can be applied to the TVS without operation
(5) I_R	Leakage current @ V_R	Current measured at V_R
(6) V_C	Clamping voltage	Peak voltage measured across the suppressor at a specified I_{PP} (peak impulse current)

TVS Protection Array TPA0603L

DFN0603L 100W

Figure 1. Pulse Waveform

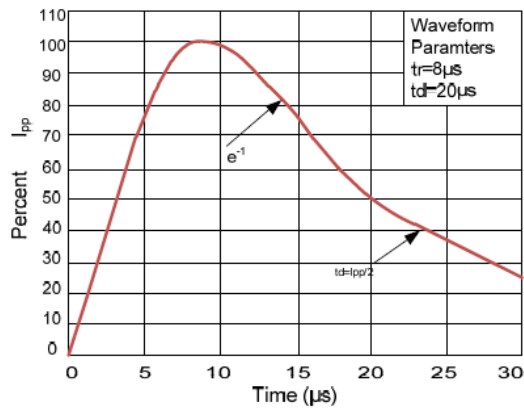


Figure 2. Power Derating Curve

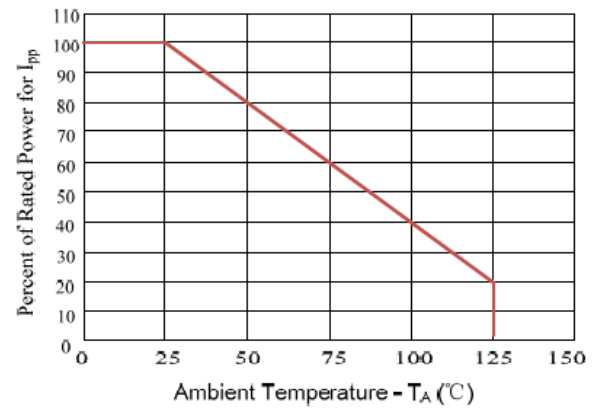


Figure 3. Clamping Voltage vs. I_{pp}

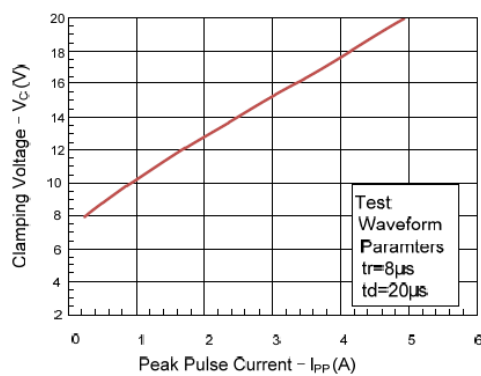


Figure 4. Peak Pulse Power Rating Curve

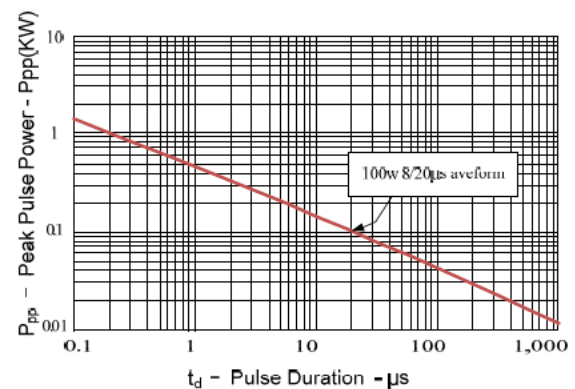
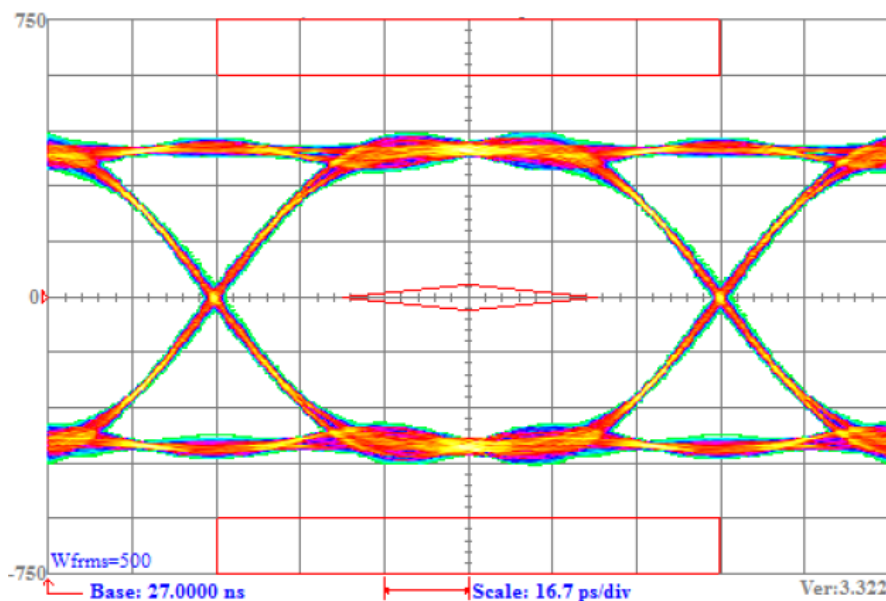


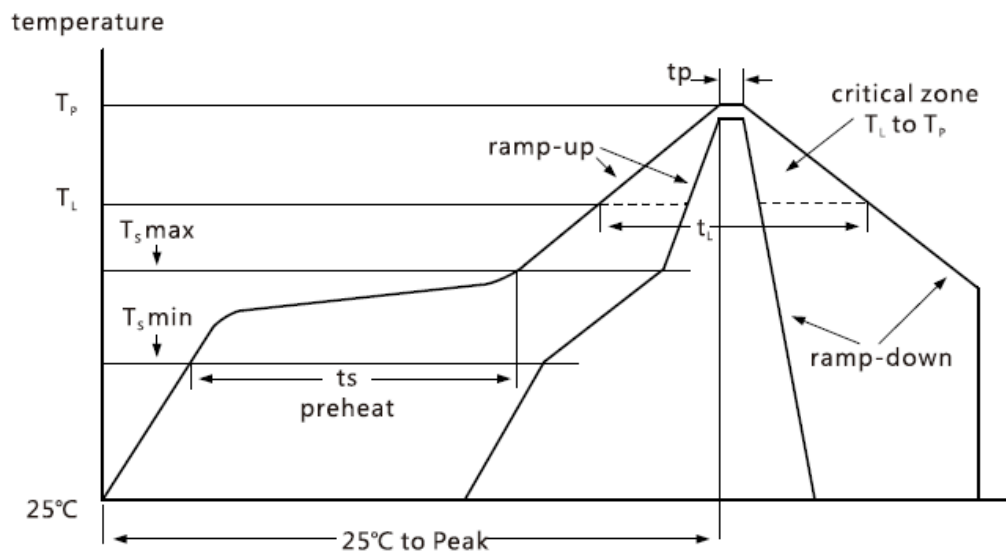
Figure 5. ESD 10Gbps Eye Diagram (dRate: 10Gbits/s; 100.0ps. V: 400mV, Gain: 0dB)



TVS Protection Array TPA0603L

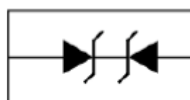
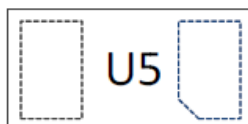
DFN0603L 100W

Reflow Soldering Profile



Reflow Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T_{smax} to T_p)	3°C/s maximum	3°C/s maximum
Preheat		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax})	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T_l)	183°C	217°C
Time (t_l)	60 s to 150 s	60 s to 150 s
Peak/classification temperature (T_p)	235°C	260°C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (t_p)	10 s to 30 s	10 s to 30 s
Ramp-down rate	6°C/s maximum	6°C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum

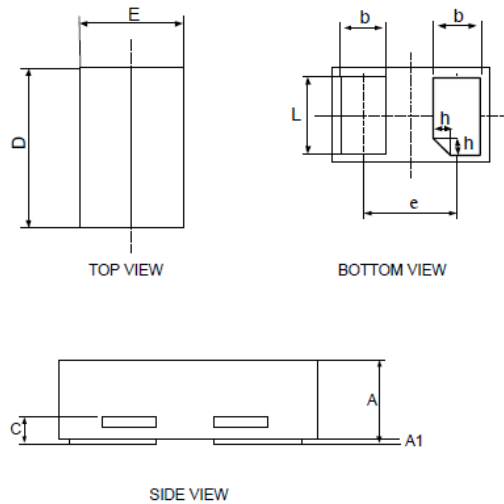
Product Marking



TVS Protection Array TPA0603L

DFN0603L 100W

Package Dimension (DFN0603) Unit: mm



Symbol	Dimensions in millimeters		
	Min	Nom	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
b	0.14	0.19	0.24
L	0.20	0.25	0.30
h	0	0.05	0.10

Packaging

Part	Component Package	Quantity	Packaging Option
TPA0603L	DFN0603	15kpcs	Tape & Reel