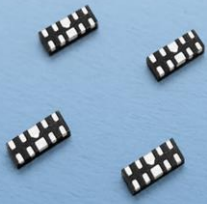
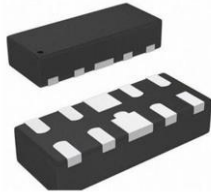


Together We Make It Safe!



TVS Protection Array (TPA)



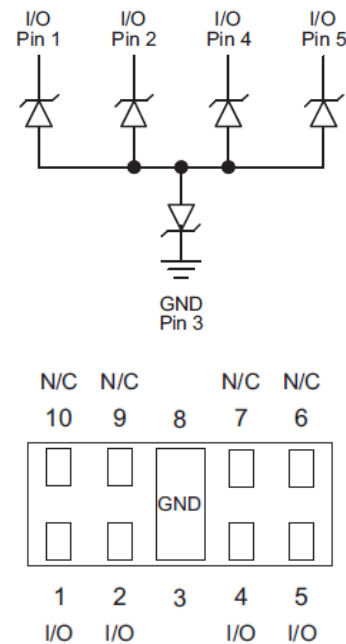


TVS Protection Array TPAu10L-3

- DFN10P
- 0.15pF
- 60W

Features

- ESD Protection Diode
- DFN10P package
- IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (Air)
 $\pm 14\text{kV}$ (Contact)
- Working voltage: 5 V
- Low leakage current
- Low capacitance: 0.15 pF typical (I/O to GND)
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026
- RoHS Compliant
- Pb Free



Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{pp}	60	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{pp}	3	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 14	
Junction Temperature Range	T_j	-55~125	°C
Storage Temperature Range	T_{STG}	-55~150	°C

TVS Protection Array TPAu10L-3

DFN10P 0.15pF

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	6			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			50	nA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C		12		V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	C_J		0.15	0.25	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

Symbol	Parameter	Explanation
(1) I_{PP}	Peak pulse current	The maximum surge current that flows through the TVS
(2) V_{BR}	Breakdown voltage	The Voltage that flows through the TVS at a specified test current (I_T)
(3) I_T	Test current	A specified test current that flows through 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)

Figure 1. Peak Pulse Current Waveform

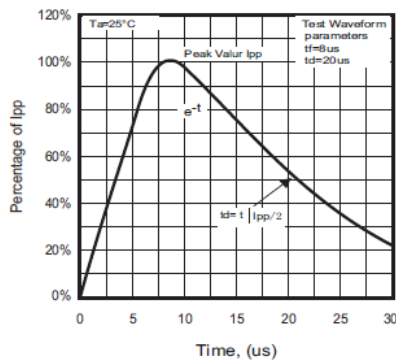


Figure 2. Power Derating Curve

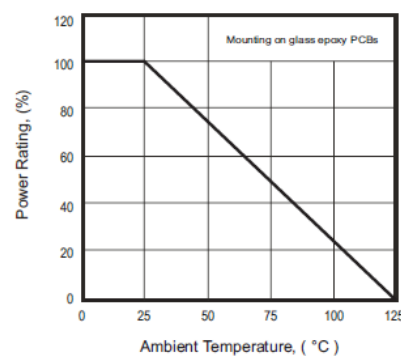


Figure 3. Clamping Voltage vs. Peak Pulse Current

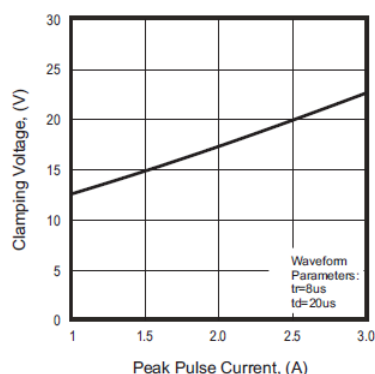
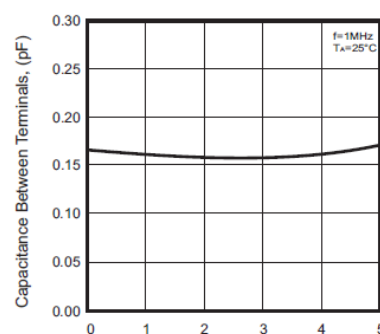


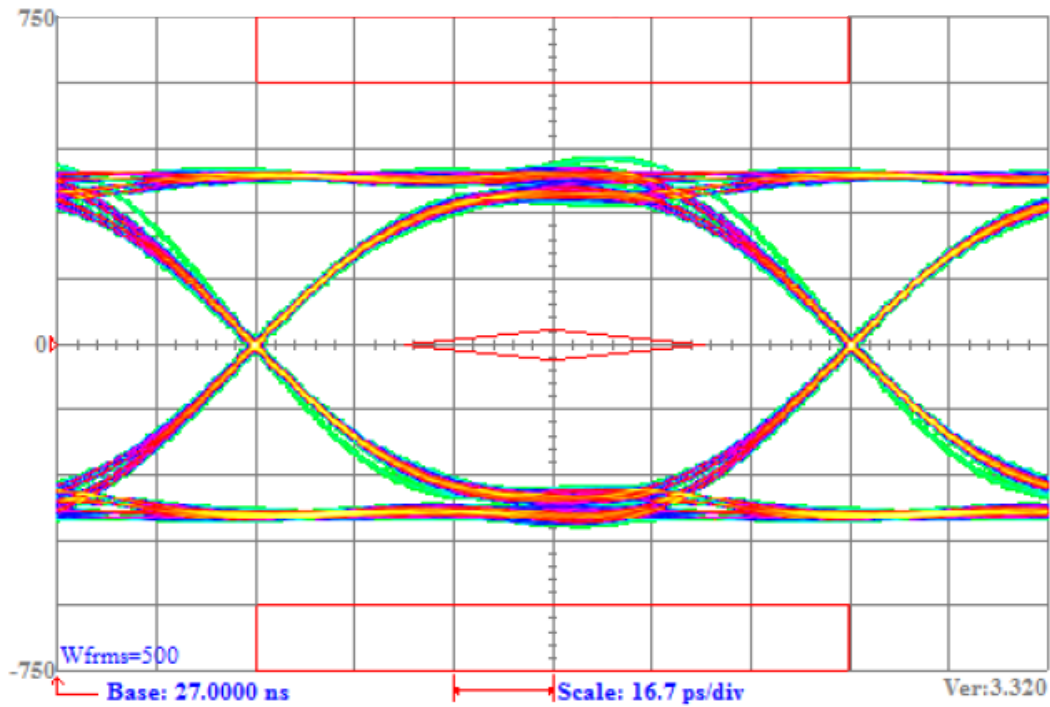
Figure 4. Typical Capacitance Between Terminals Characteristics



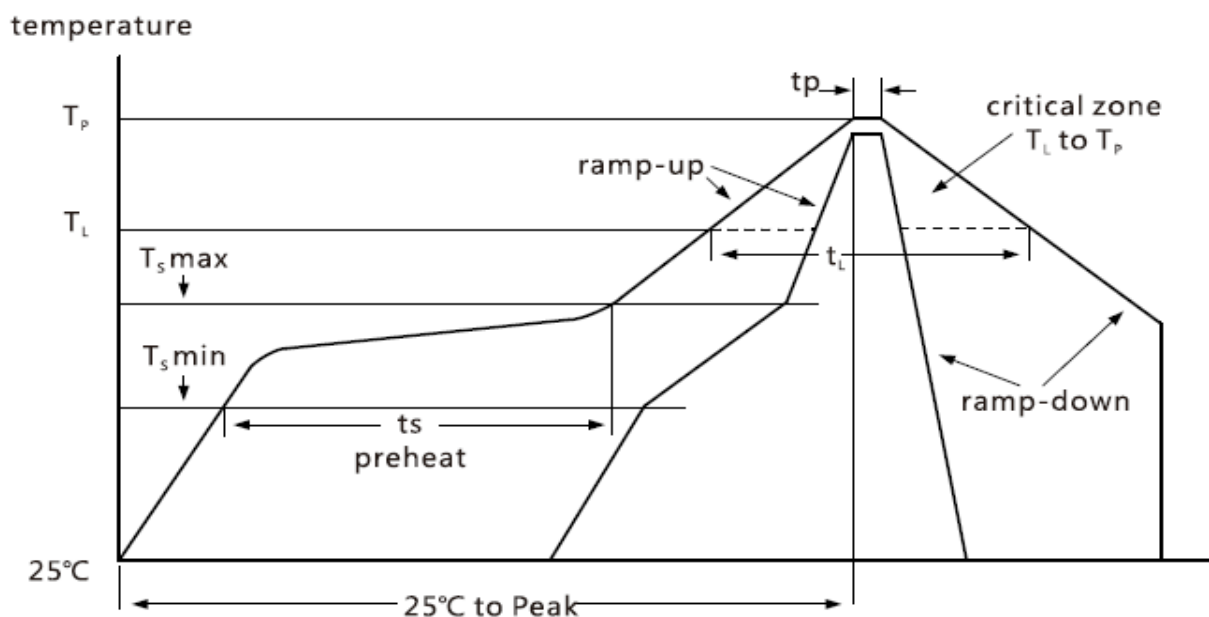
TVS Protection Array TPAu10L-3

DFN10P 0.15pF

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



Reflow Soldering Profile



TVS Protection Array TPAu10L-3

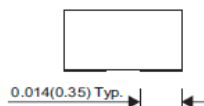
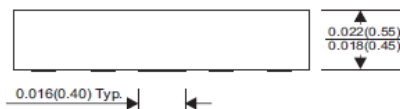
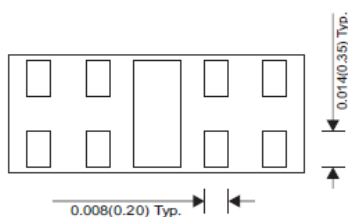
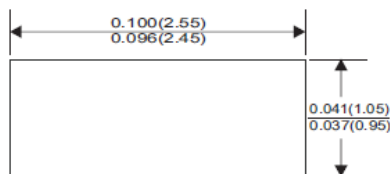
DFN10P 0.15pF

Reflow Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T_s max 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



Package Dimension (DFN10P) Unit: inch / mm

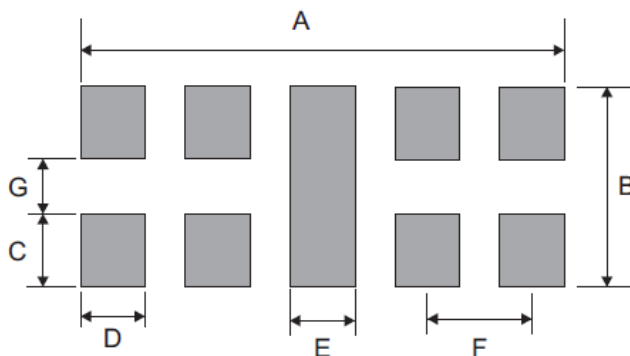


TVS Protection Array TPAu10L-3

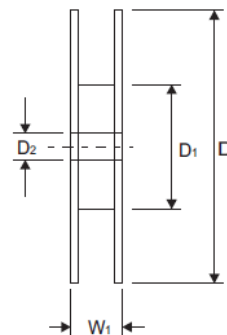
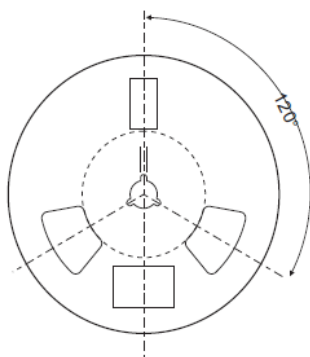
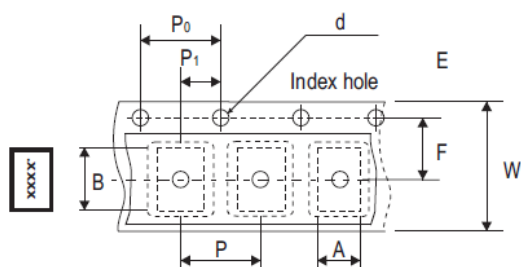
DFN10P 0.15pF

Layout Dimension Unit: mm

SIZE	DFN10P	
	(mm)	(inch)
A	2.30	0.091
B	1.00	0.039
C	0.38	0.015
D	0.30	0.012
E	0.30	0.012
F	0.50	0.020
G	0.24	0.009

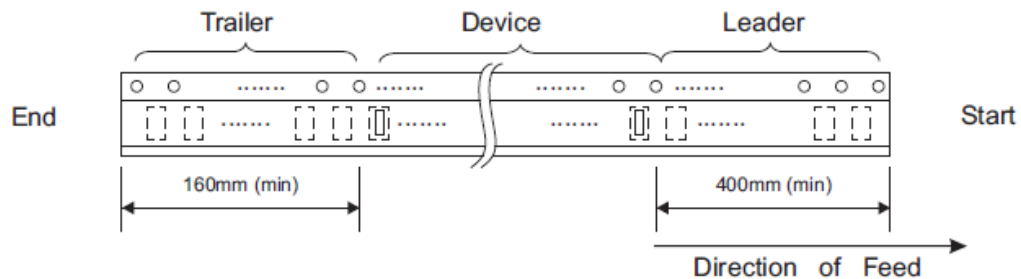


Packaging



TVS Protection Array TPAu10L-3

DFN10P 0.15pF



DFN10P	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	1.14 ± 0.05	2.64 ± 0.05	0.64 ± 0.05	1.50 + 0.10 - 0	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.045 ± 0.002	0.104 ± 0.002	0.025 ± 0.002	0.059 + 0.004 - 0	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

DFN10P	SYMBOL	E	F	P	P ₀	P ₁	T	W	W ₁
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.05	8.00 ± 0.30	12.00 + 0.50 - 0
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.002	0.315 ± 0.012	0.472 + 0.020 - 0