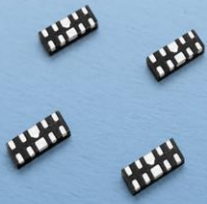


Together We Make It Safe!



TVS Protection Array (TPA)



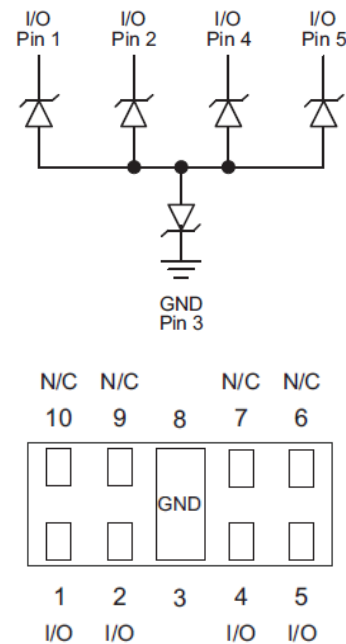


TVS Protection Array TPAu10L-2

- DFN10P
- 0.25pF
- 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: 0.25 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	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~150	$^{\circ}\text{C}$

TVS Protection Array TPAu10L-2

• DFN10P • 0.25pF

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		11		V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	V_C		13		V	$I_{PP} = 2\text{A}$ (8 x 20 μs pulse)
Peak Pulse Current	I_{PP}			3	A	$t_p = 8/20\mu\text{s}$
Junction Capacitance	C_J		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)

Fig1. Peak Pulse Current Waveform

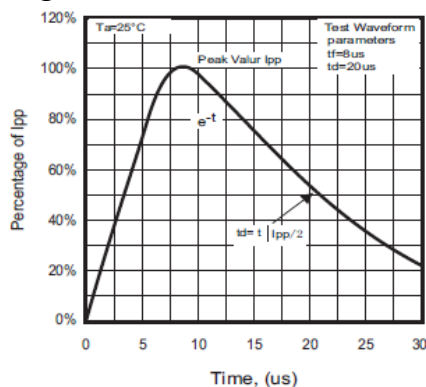
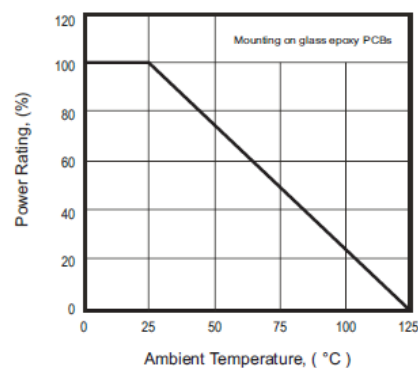


Fig2. Power Derating Curve



TVS Protection Array TPAu10L-2

• DFN10P • 0.25pF

Figure 3. Clamping Voltage vs. Peak Pulse Current

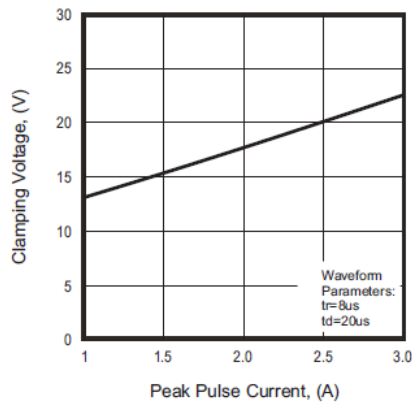


Figure 4. Typical Capacitance Between Terminals Characteristics

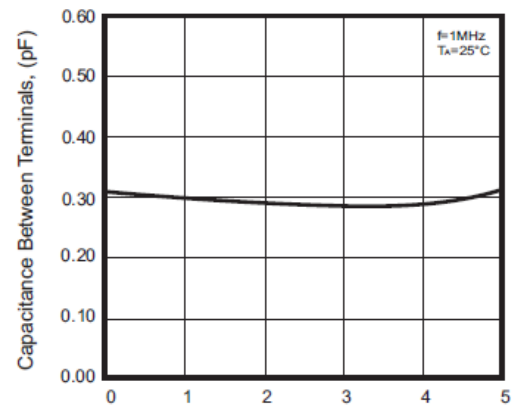
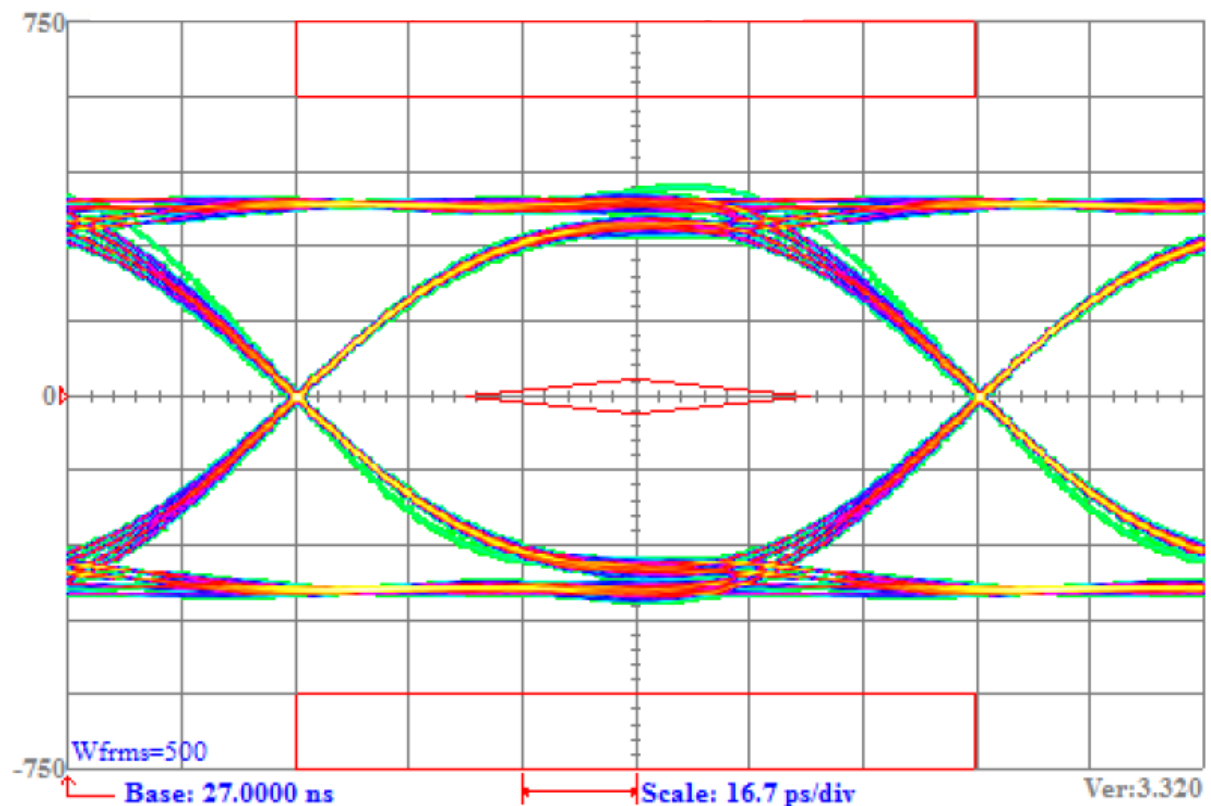


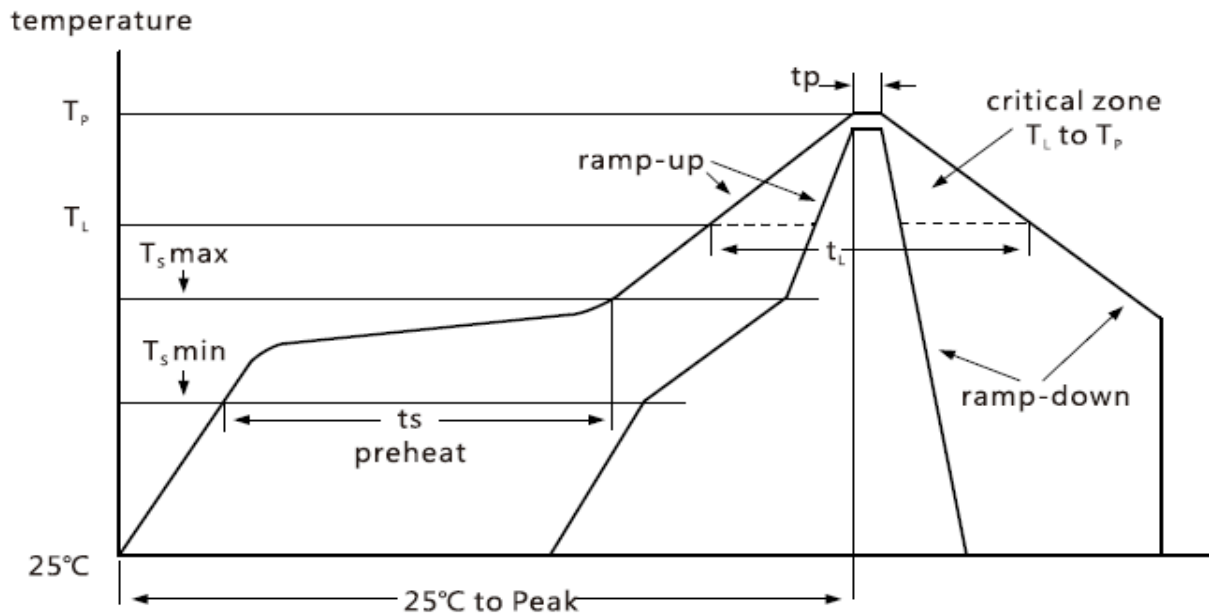
Figure 5. ESD 10Gbps Eye Diagram (dRate: 10Gbits/s; 100.0ps. V: 400mV, Gain: 0dB)



TVS Protection Array TPAu10L-2

• DFN10P • 0.25pF

Reflow Soldering Profile



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 ($T_{s,min}$)	100°C	150°C
Temperature maximum ($T_{s,max}$)	150°C	200°C
Time ($T_{s,min}$ to $T_{s,max}$)	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

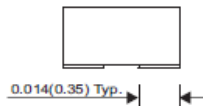
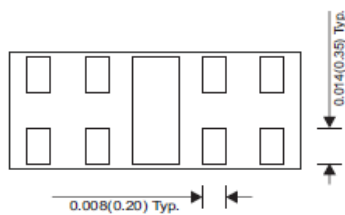
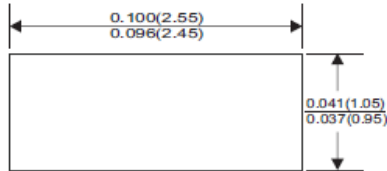
Product Marking



TVS Protection Array TPAu10L-2

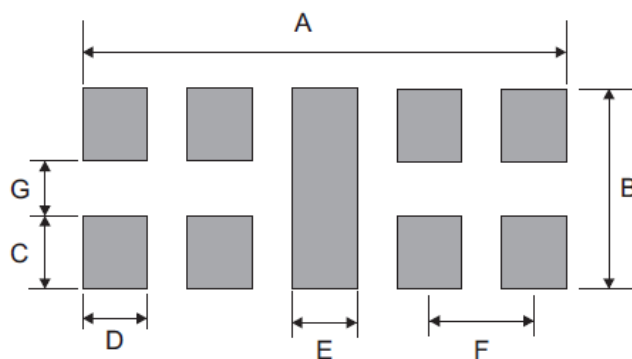
DFN10P 0.25pF

Package Dimension (DFN10P) Unit: inch / mm



Layout Dimension Unit: mm

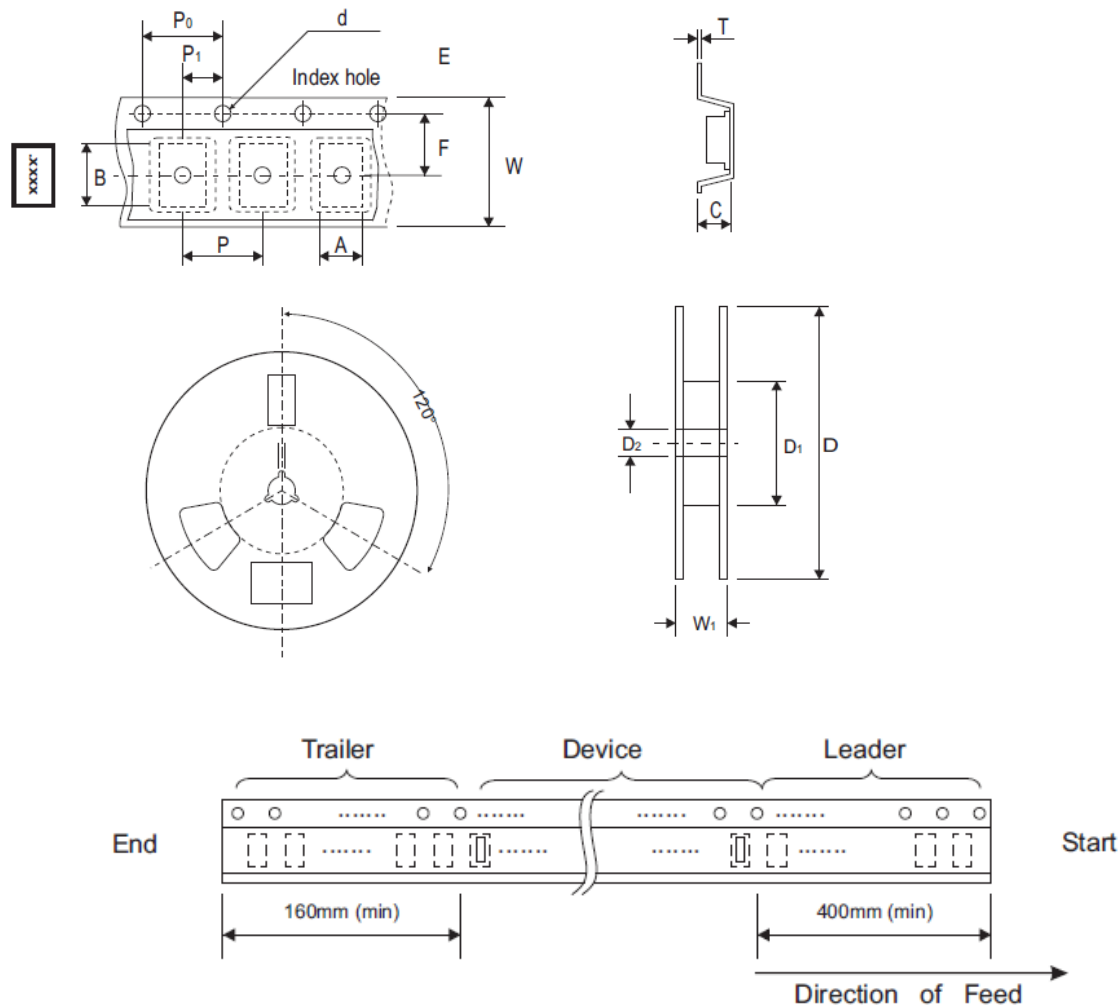
SIZE	DFN10P	
	(mm)	(inch)
A	2.30	0.091
B	1.00	0.039
C	0.38	0.015
D	0.30	0.012
E	0.30	0.012
F	0.50	0.020
G	0.24	0.009



TVS Protection Array TPAu10L-2

DFN10P 0.25pF

Packaging



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