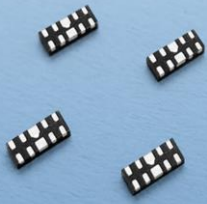
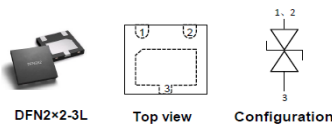


Together We Make It Safe!



TVS Protection Array (TPA)





TVS Protection Array TPA2231H

- DFN2X2-3L
- Low Clamping Voltage

Features

- 240A Peak pulse current per line ($t_p = 8/20\mu s$)
- DFN2x2-3L package
- Response time is typically $< 1\text{ ns}$
- Protect one I/O or power line
- Low clamping Voltage
- RoHS compliant
- Transient protection for data lines to
- IEC 61000-4-2(ESD) $\pm 15\text{KV}(\text{air})$, $\pm 8\text{KV}(\text{contact})$

Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{PP}	240	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	
Junction Temperature Range	T_J	-45~125	°C
Storage Temperature Range	T_{STG}	-45~125	°C

Note: 1. Ratings at 25°C ambient temperature unless otherwise specified.

Electrical Characteristics

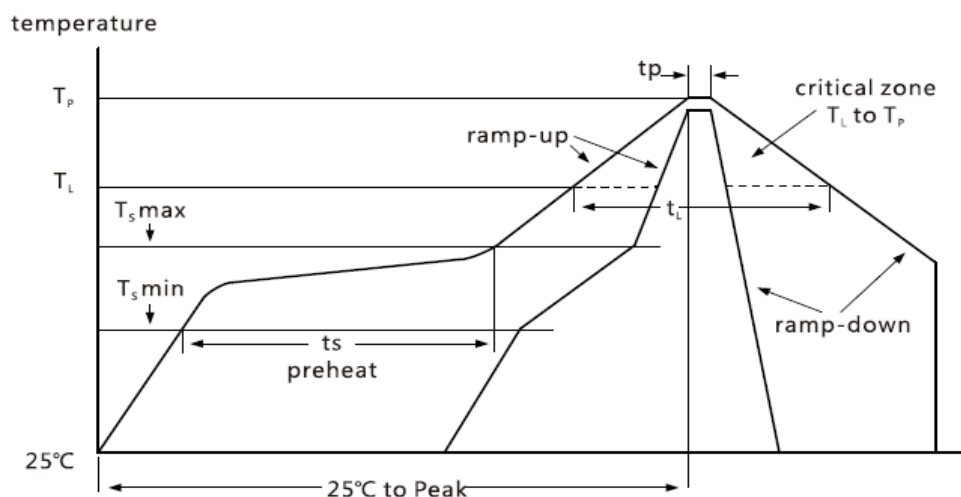
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Stand-off Voltage	VRWM			4.5	V	
Breakdown Voltage	VBR	4.6		6.5	V	$I_T = 1\text{mA}$
Reverse Leakage Current	IR			1	μA	VRWM = 4.5V
Clamping Voltage	VC			30	V	IPP = 240A (8 x 20 μs pulse)
Clamping Voltage	VC			16	V	IPP = 22A (8 x 20 μs pulse)
Junction Capacitance	CJ			1000	pF	VR = 0V, f = 1MHz

TVS Protection Array TPA2231H

• DFN2x2-3L • Low Clamping Voltage

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)

Reflow Soldering Profile

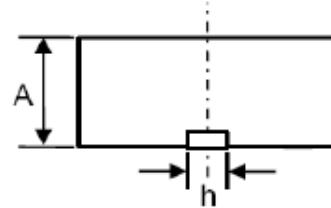
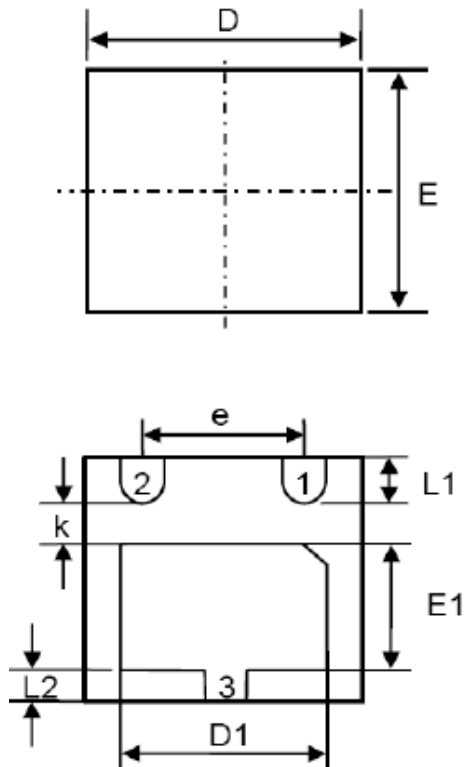


Reflow Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T_{smax} to T_p)	3°C/s maximum	3°C/s maximum
Preheat		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax})	60 s to 120 s	60 s to 180 s
Time maintained above		
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 (tp)	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

TVS Protection Array TPA2231H

• DFN2x2-3L • Low Clamping Voltage

Package Dimension (DFN2x2-3L) Unit: mm



DFN2x2-3L (unit: mm)		
Dim.	Min.	Max.
A	0.50	0.65
D	1.90	2.10
D1	1.40	1.60
E	1.90	2.10
E1	0.90	1.15
e	1.30 BSC.	
L1	0.324	0.476
L2	0.20	0.30
k	0.20	0.45
h	0.30 BSC.	

Layout Dimension Unit: mm

