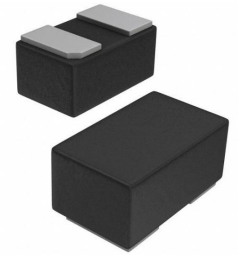
SP36PN16AXXP01 Series

Electrostatic Discharged Protection Devices

Descriptions

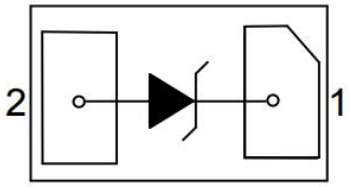


The SP36PN16 Series are designed to protect power port and the chip Vbus interfaces. It has been specifically designed to protect sensitive components which are connected to power lines from overvoltage caused by electrostatic discharge (ESD),cable discharge events (CDE) and lightning.The devices will meet IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge).

Features

- 3600W Peak power dissipation under 8/20μs waveform
- IEC 61000-4-2 (ESD): Air 30KV, Contact 30KV
- DFN1610 surface mount package
- Protects power line
- Working voltage:5V,12V,15V,24V
- Low leakage current
- Low clamping voltages
- Solid-state silicon avalanche technology
- Solder reflow temperature: Pure Tin-Sn,260-270℃
- Plastic package has underwriters laboratory flammability 94V-0
- Meet Lead Free/RoHS compliant

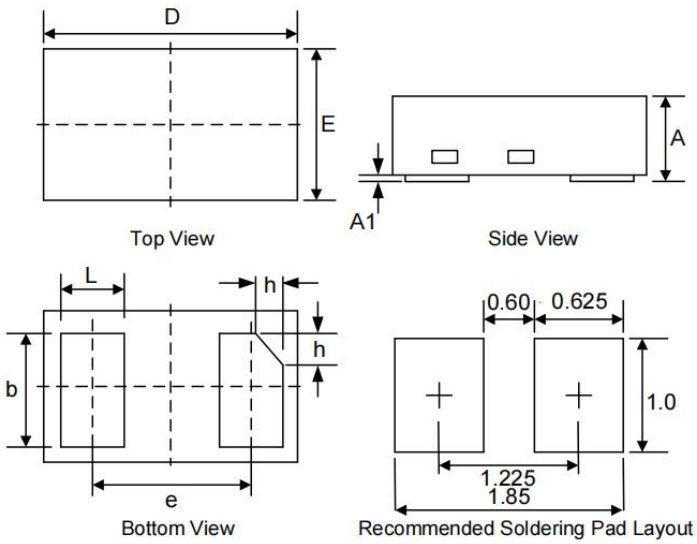
Schematic



Applications

- Power port
- I^2C bus protection

Dimensions (DFN1610-2L)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.55	0.66	0.022	0.026
A1	0.00	0.05	0.000	0.002
D	1.55	1.68	0.061	0.066
E	0.95	1.08	0.037	0.043
b	0.8 TYP		0.031 TYP	
e	1.1 TYP		0.043 TYP	
L	0.35	0.45	0.014	0.018
h	0.15	0.25	0.006	0.010

Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PPM}	3600	W
ESD voltage (Contact discharge)	V_{ESD}	±30	KV
ESD voltage (Air discharge)		±30	
Operating junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150	℃

Electrical Characteristics (T_A=25℃ Unless Otherwise Noted)

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage @	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current @tp=8/20μs	Reverse Leakage Current @V_{RWM}	Capacitance At 1MHZ 0V
	V_{RWM}(V)	V_{BR}(V)min	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)	Cj(PF)
SP36PN16A05P01	5.0	6.0	1	18.3	185	1	650
SP36PN16A12P01	12	13.3	1	28.6	130	1	365
SP36PN16A15P01	15	16	1	30	120	1	300
SP36PN16A24P01	24	26.7	1	56	64	1	200

Typical Characteristic Curves (T_A=25℃ Unless Otherwise Noted)

Figure 1. Power Derating Curve

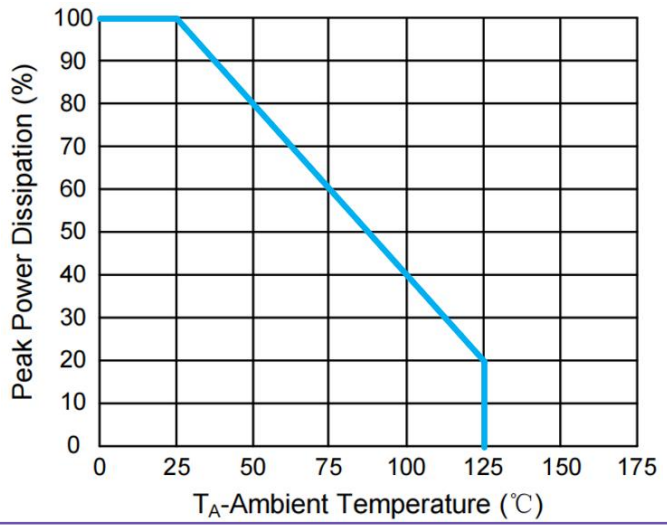


Figure 2. 8/20μs Pulse Waveforms

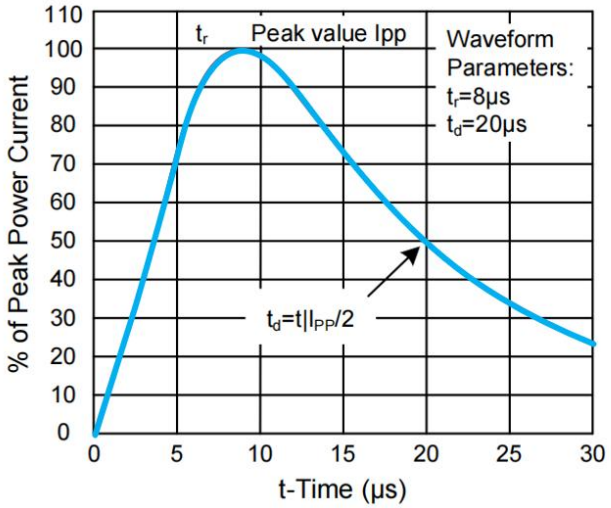


Figure 3. Clamping Voltage vs. Peak Pulse Current

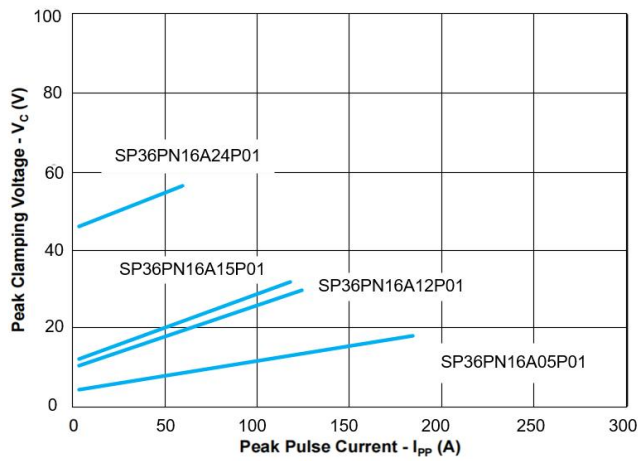


Figure 4. ESD Clamping (8kV Contact IEC61000-4-2)

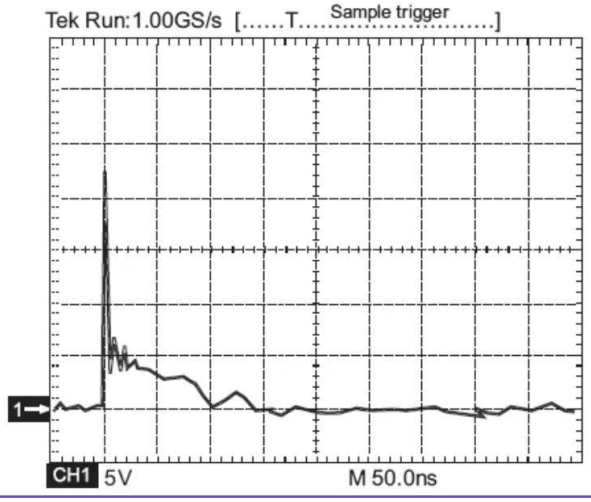


Figure 5.10/1000 μ s Pulse Waveform

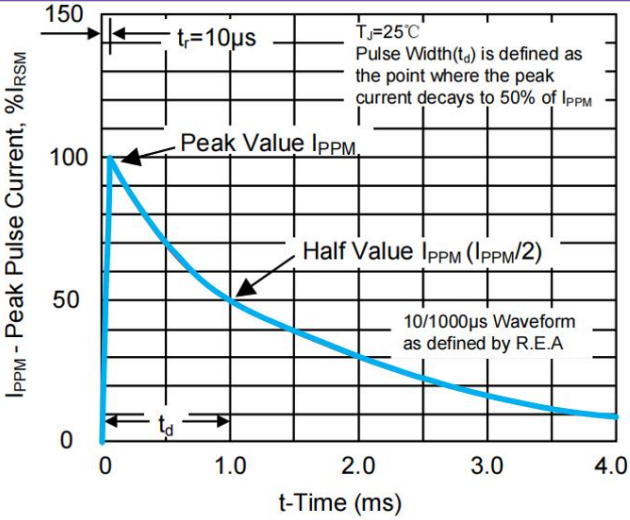
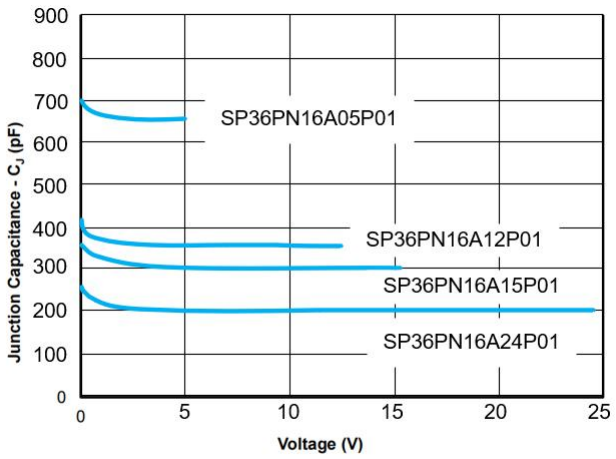
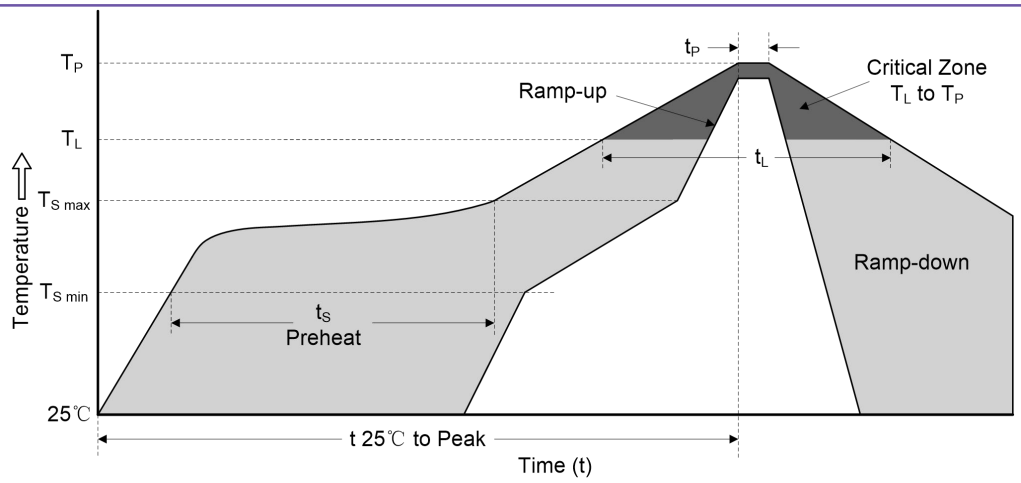


Figure 6.Typical Junction Capacitance



Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\ min}$)	150℃
	-Temperature Max ($T_{S\ max}$)	200℃
	-Time (min to max) (t_S)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3℃/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3℃/second max.
Reflow	-Temperature (T_L) (Liquidus)	217℃
	-Time (min to max) (t_S)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)℃
Time within 5℃ of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6℃/second max.
Time 25℃ to Peak Temperature(T_P)		8 minutes max.
Do not exceed		260℃

Package

Part number	QTY/Reel	Reel Size
SP36PN16 Series	3000PCS	7Inch