

Descriptions

The SP5P882C05P01 is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computer, and PDAs. It offers superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs. It is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD), lightning, electrical fast transients (EFT), and cable discharge events (CDE).

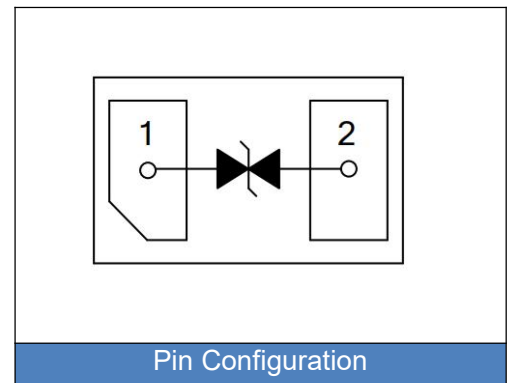


Features

- ◆ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 30A (8/20 μs)
- ◆ SOD-882 surface mount package
- ◆ Working voltage: 5V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ RoHS compliant
- ◆ Solder reflow temperature: Pure Tin-Sn, 260~270°C
- ◆ Flammability rating UL 94V-0
- ◆ Meets MSL level 1, per J-STD-020

Applications

- ◆ Cellular Handsets & Accessories
- ◆ Notebooks & Handhelds
- ◆ Digital Cameras
- ◆ Personal Digital Assistants (PDAs)
- ◆ Portable Instrumentation
- ◆ MP3 players



Dimensions (SOD-882)

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.32	0.55	0.013	0.022
D	0.45		0.018	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

The mechanical drawing illustrates the SOD-882 package dimensions. The Top View shows overall width A and height B. The Side View shows the package height C. The Bottom View shows the lead length D, lead width E, and a 45° lead angle. The Recommended Soldering Pad Layout shows two pads with a center-to-center distance of 1.40 mm, pad width of 0.60 mm, and pad length of 0.55 mm, with a 0.30 mm gap between pads. Other dimensions include 0.05 mm for lead thickness and 0.125 mm for a reference dimension.

Maximum Ratings and Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Peak pulse power dissipation at 8/20 μs waveform	P_{PP}	480	W
ESD voltage (Contact discharge)	V_{ESD}	± 30	kV
ESD voltage (Air discharge)		± 30	
Operating Junction temperature range	T_J	$-55\sim+125$	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	$-55\sim+150$	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1\text{mA}$	5.5	7.0		V
Reverse leakage current	I_R	$V_R=5\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1\text{A}$		6.5	9	V
		$I_{PP}=20\text{A}$		10.5	14	
		$I_{PP}=30\text{A}$		10	16	
Peak pulse current($t_p=8/20\mu\text{s}$)	I_{PP}				30	A
Off state junction capacitance	C_J	0Vdc, f=1MHz		90	110	pF

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1. Pulse waveform (8/20μs)

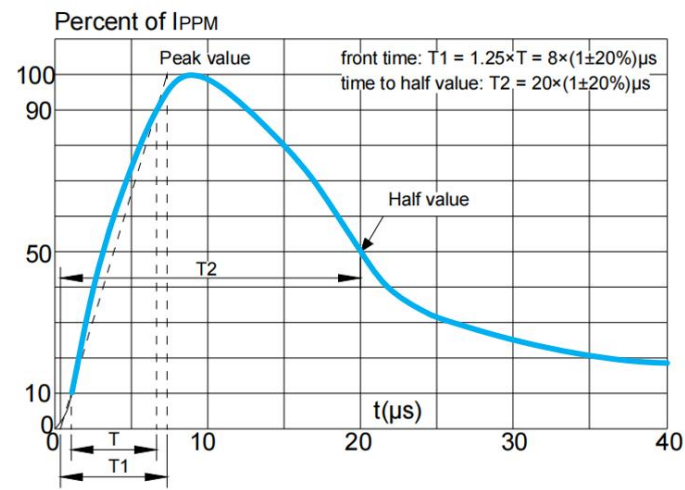


Figure 2. Pulse Derating Curve

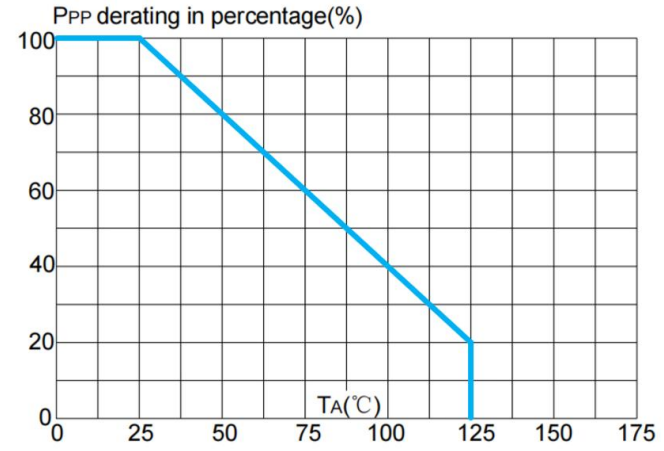


Figure 3. Typical Junction Capacitance

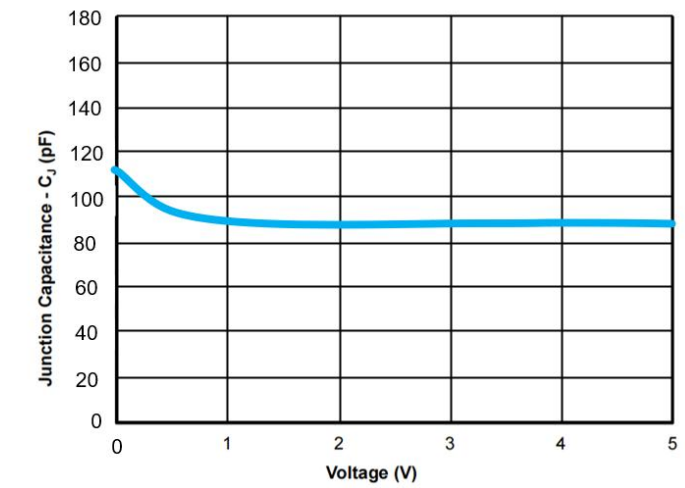
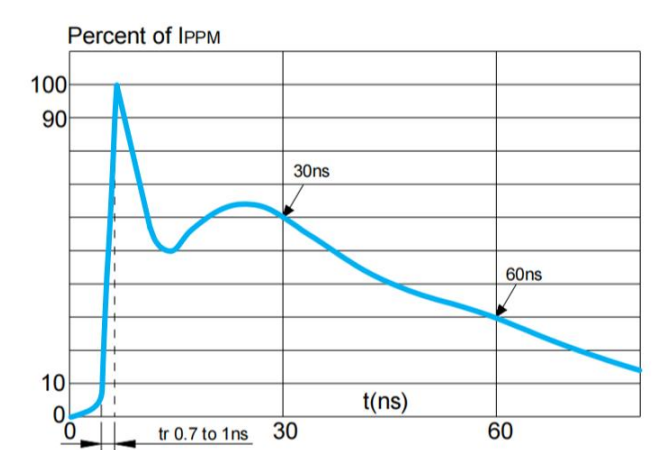
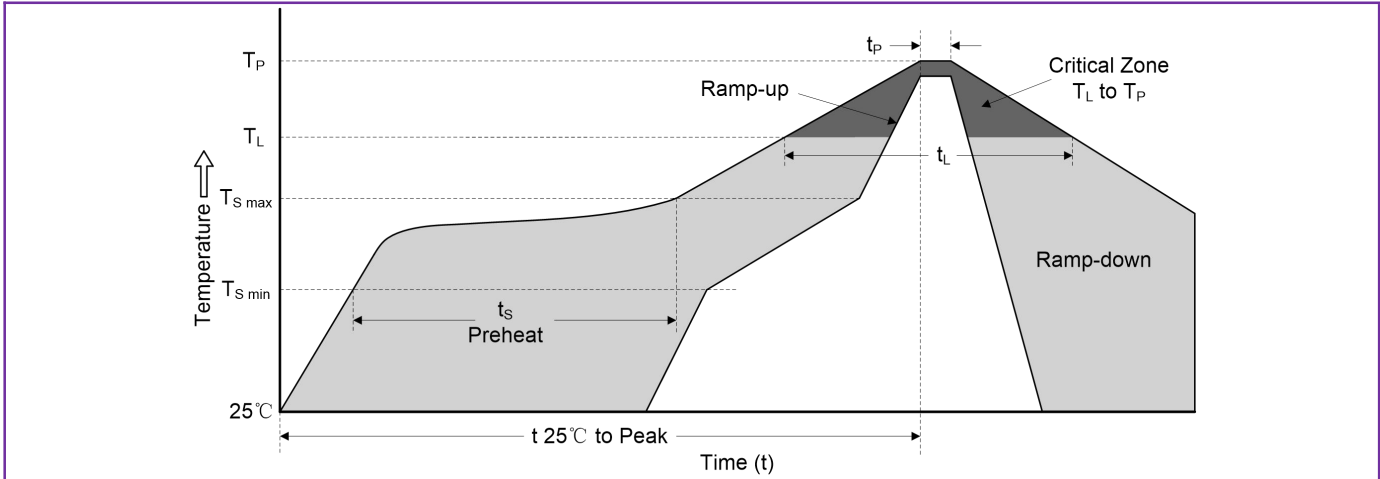


Figure 4. ESD clamping (30kV contact)



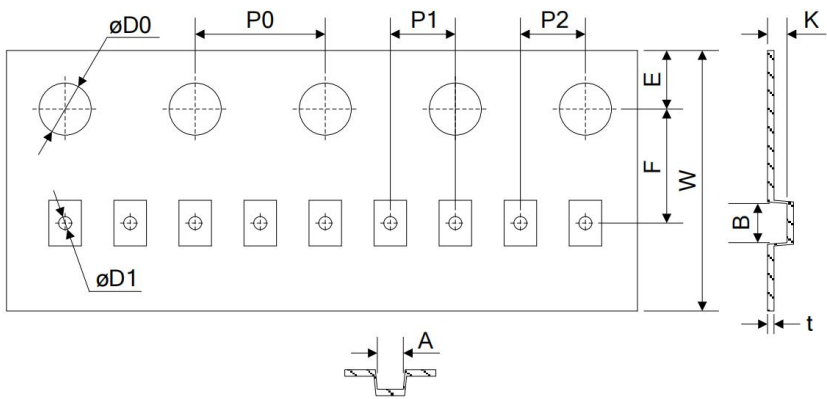
Reflow Soldering Parameters



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℃

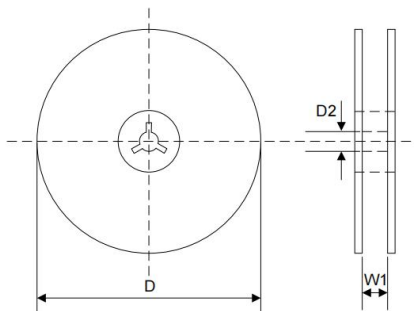
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ0.40±0.05
E	1.75±0.10
F	3.50±0.10
A	0.75±0.10
B	1.15±0.10
K	0.60±0.05
t	0.20±0.05

Reel



D	Φ328.0±2.0
D2	Φ14.4
W1	10.0

Quantity: 40000PCS