

Descriptions

The SP4P523A12P01 of Transient Voltage Suppressors (TVS) Array are designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook, and PDAs. They offer superior electrical characteristics such as lower clamping voltage and no device degradation damage or upset due to electrostatic discharge (ESD), lightning, electrical when compared to MLVs. They are designed to protect sensitive semiconductor components from fast transients (EFT) and cable discharge events (CDE).



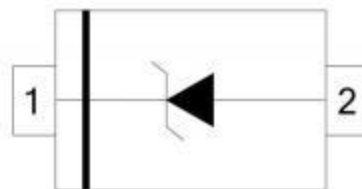
Features

- ◆ Max. peak pulse power: $P_{PPM} = 350 \text{ W}$ at $t_p = 8/20 \mu\text{s}$
- ◆ IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- ◆ Small SOD-523 surface mount package
- ◆ Protects one Uni-directional line
- ◆ Reverse stand-off voltage is 12V
- ◆ Lower leakage current
- ◆ Excellent clamping voltages
- ◆ Solid-state silicon avalanche technology
- ◆ Solder reflow temperature: Pure Tin-Sn, 260-270°C
- ◆ Plastic package has underwriters laboratory flammability 94V-0
- ◆ Meet Lead Free/RoHS compliant

Applications

- ◆ Cordless phones, smart phones
- ◆ Servers, notebook and desktop PC
- ◆ Personal Digital Assistants (PDA's)
- ◆ Portable instrumentation

Schematic



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

Rating	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PPM}	350	W
ESD voltage (HBM contact)	V_{ESD}	± 30	KV
ESD voltage (AIR contact)		± 30	
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 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}				12	V
Reverse breakdown voltage	V_{BR}	$I_{\text{BR}}=1.0\text{mA}$	13.3			V
Reverse leakage current	I_{R}	$V_{\text{R}}=12\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_{C}	$I_{\text{PP}}=10\text{A}$			28.6	V
Peak Pulse Current($t_p=8/20\mu\text{s}$)	I_{PP}				10	A
Off state junction capacitance	C_{J}	0Vdc, $f=1\text{MHz}$		50		PF

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

Figure 1. Peak Pulse Power Rating Curve

Figure 2. Pulse Derating Curve

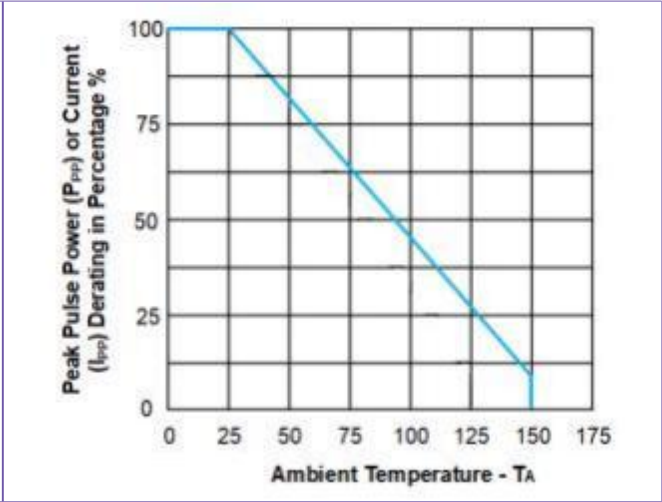
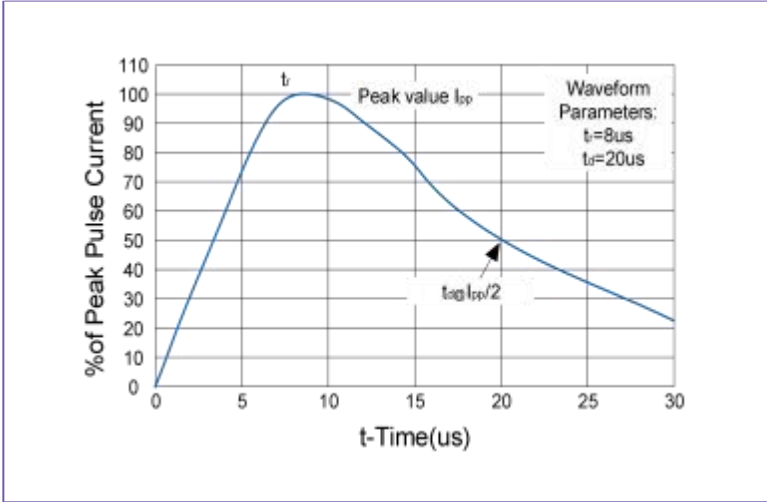
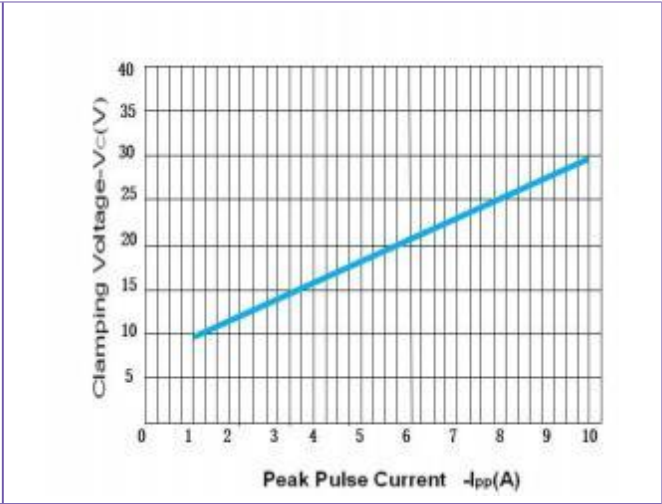
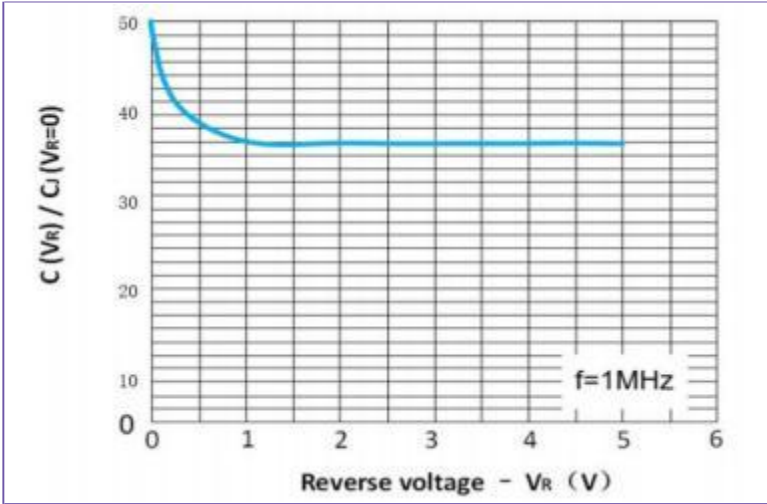
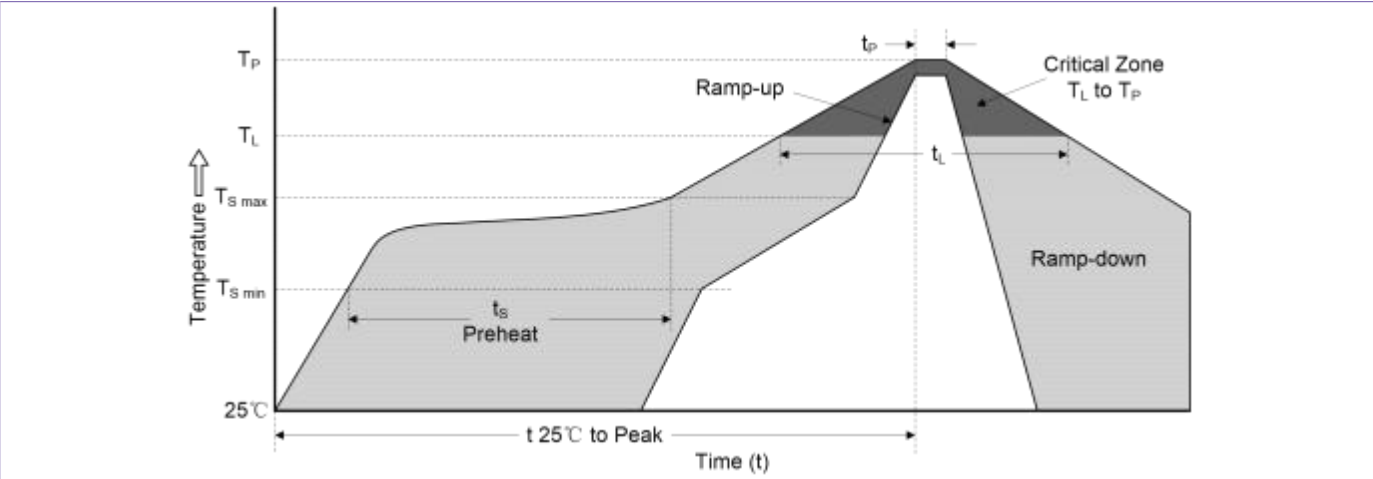


Figure 3. Typical Junction Capacitance

Figure 4. Clamping Voltage VS IPP

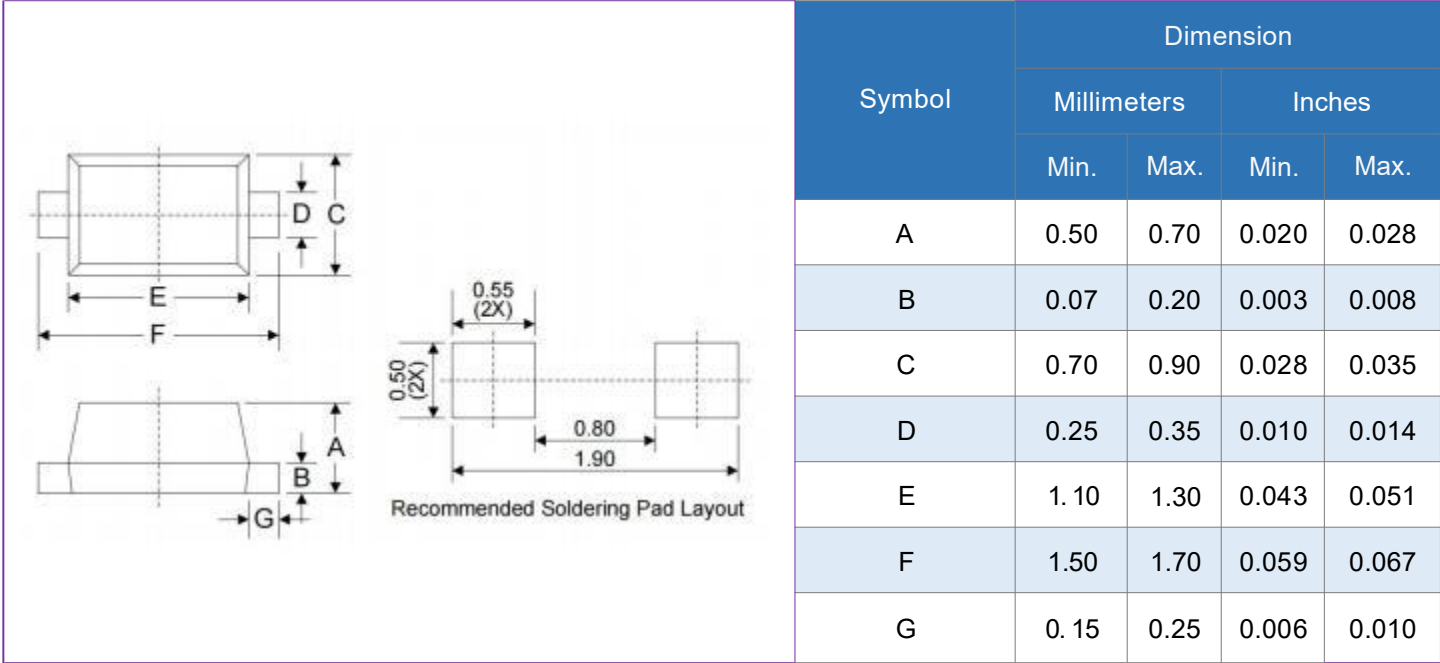


Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min (T _{s min})	150 C
	-Temperature Max (T _{s max})	200 C
	-Time (min to max) (t _s)	60- 180 seconds
Average ramp-up rate (T _L to T _P)		3 C/ second max.
T _{s max} to T _L -Ramp-up Rate		3 C/ second max.
Reflow	-Temperature (T _L) (Liquidus)	217 C
	-Time (min to max) (t _s)	60- 150 seconds
Peak Temperature (T _P)		260(+0/-5)C
Time within 5C of actual Peak Temperature (t _p)		20-40 seconds
Ramp-down Rate		6 C/ second max.
Time 25C to Peak Temperature(T _p)		8 minutes max.
Do not exceed		260 C

Dimensions (SOD-523)



Packaging

