

Descriptions

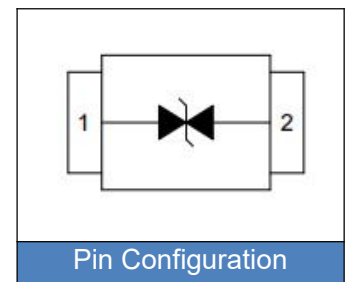
The LP1P523CXXP01 series of Transient Voltage Suppressors (TVS) are designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computer, and PDAs.

They offer superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs. They are 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 30KV Air, 30KV contact compliance
- ◆ SOD-523 surface mount package
- ◆ Working voltage: 3.3V, 5V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology
- ◆ Lead Free/RoHS compliant
- ◆ Solder reflow temperature: Pure Tin-Sn, 260~270°C
- ◆ Flammability rating UL 94V-0
- ◆ Meets MSL level 1, per J-STD-020



Maximum Ratings($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	V_{ESD}	± 30	kV
ESD voltage (Air discharge)		± 30	
Storage & operating temperature range	T_{STG}, T_J	-55~+150	$^{\circ}\text{C}$

Electrical Characteristics($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

LP1P523C03P01

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				3.3	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1.0\text{mA}$	4.0			V
Reverse leakage current	I_R	$V_R=3.3\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1.0\text{A}$			7	V
Peak Pulse Current($t_p=8/20\mu\text{s}$)	I_{PP}				6	A
Off state junction capacitance	C_J	$0\text{Vdc}, f=1\text{MHz}$		10		pF

LP1P523C05P01

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1.0\text{mA}$	6.0			V
Reverse leakage current	I_R	$V_R=5\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1.0\text{A}$			9.8	V
Peak Pulse Current($t_p=8/20\mu\text{s}$)	I_{PP}				5	A
Off state junction capacitance	C_J	$0\text{Vdc}, f=1\text{MHz}$		12		pF

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

Figure 1.Pulse Waveforms

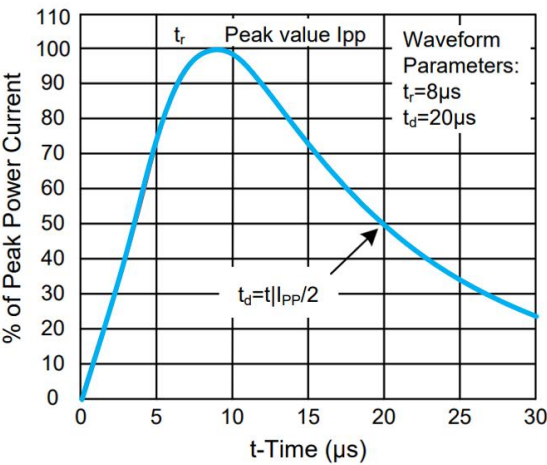


Figure 2. Clamping Voltage vs. Peak Pulse Current

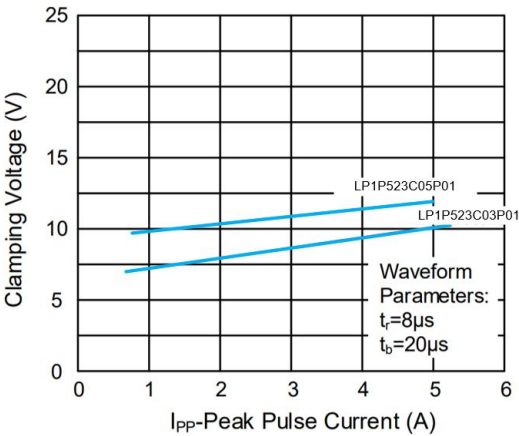


Figure 3. Capacitance vs. Reverse Voltage

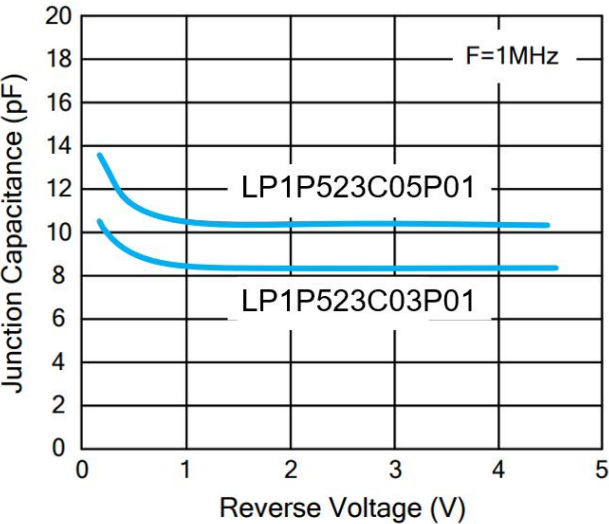
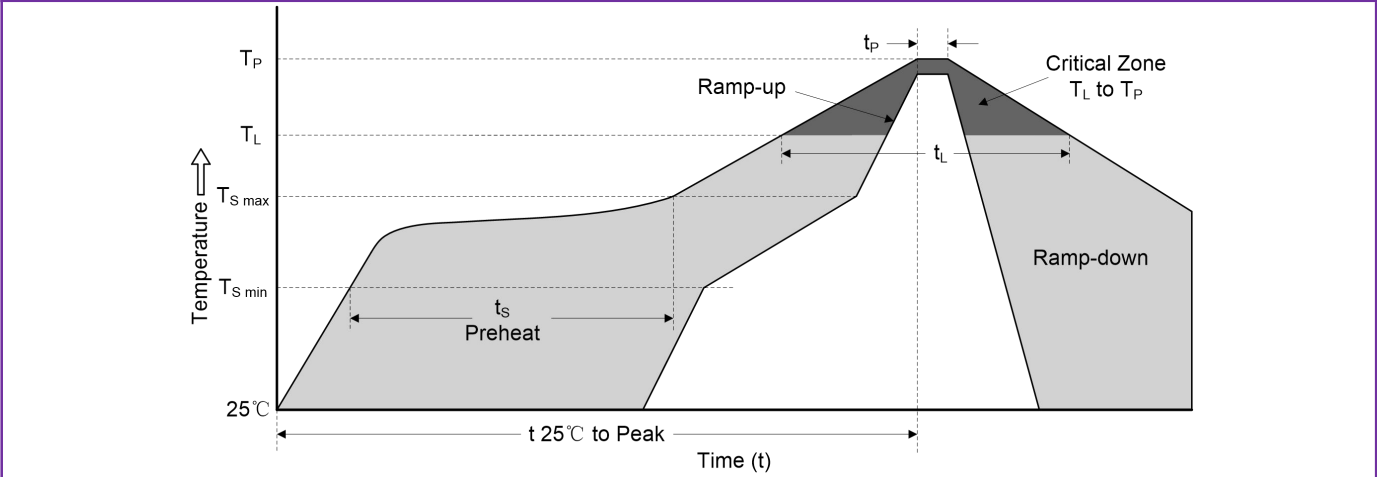


Figure 4. ESD Clamping(8kV Contact IEC61000-4-2)

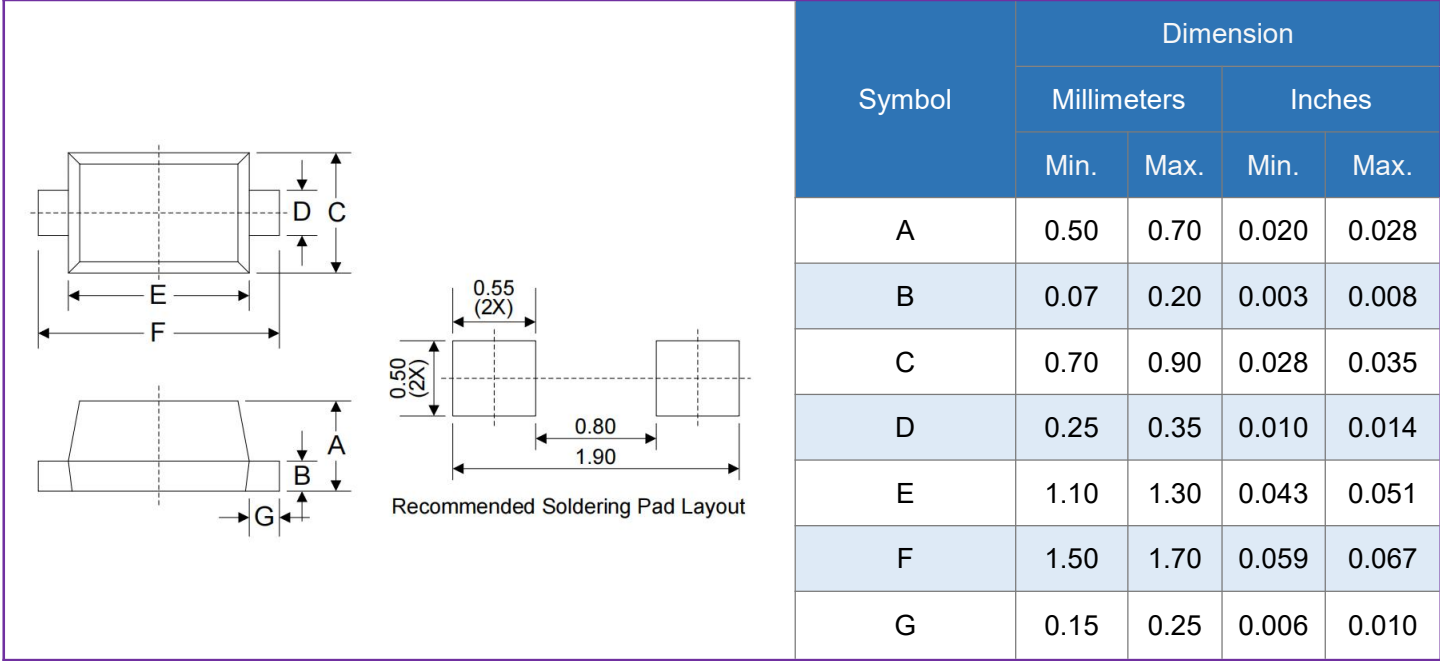


Reflow Soldering Parameters



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 5°C of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to Peak Temperature(T_p)		8 minutes max.
Do not exceed		260°C

Dimensions (SOD-523)



Packaging

