

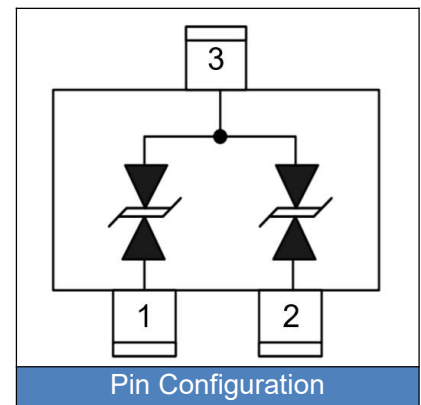
Descriptions

LP4PT23C24P02 component is designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage induced transient events. It is designed for use in applications where board space is at a premium. The device will protect up to two lines. It is bidirectional devices and may be used on lines where the signal polarities are above ground. TVS diodes are solid state device designed specifically for transient suppression. It features large cross-sectional area junctions for conduction high transient currents. It offers desirable characteristics for board level protection including fast response time, low and clamping voltage, and no device degradation.



Features

- ◆ IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- ◆ SOT-23 surface mount package
- ◆ Protects bidirectional two I/O lines
- ◆ Working voltage: 24V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology
- ◆ 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

- ◆ CAN bus protection
- ◆ Automotive applications

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

Rating	Symbol	Value	Unit
Peak Pulse Power($t_p=8/20\mu\text{s}$)	P_{PP}	440	W
ESD voltage (Contact discharge)	V_{ESD}	± 30	kV
ESD voltage (Air discharge)		± 30	
Storage & operating temperature range	T_{STG}, T_J	$-55\sim+150$	$^{\circ}\text{C}$

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

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Reverse stand-off voltage	V_{RWM}				24	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1\text{mA}$	26.7			V
Reverse leakage current	I_R	$V_R=24\text{V}$			200	nA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=8\text{A}$		50	55	V
Peak pulse current ($t_p=8/20\mu\text{s}$)	I_{PP}				8	A
Off state junction capacitance	C_J	Pin 1 to 3 or Pin 2 to 3 $V_R=0\text{V}, f=1\text{MHz}$		20	30	pF

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

Figure 1. Pulse Waveforms

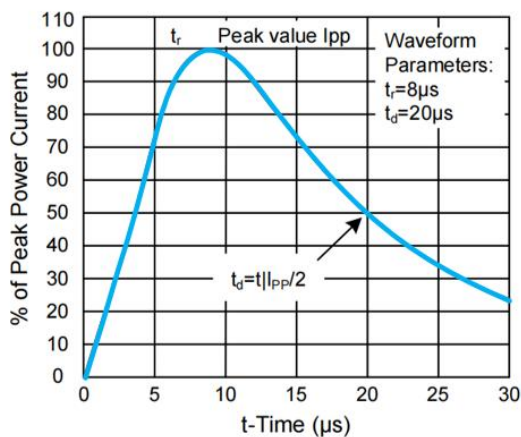


Figure 2. Power Derating Curve

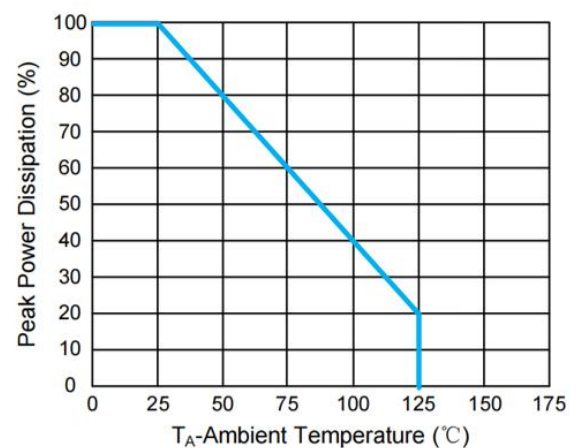


Figure 3. Clamping Voltage vs. Peak Pulse Current

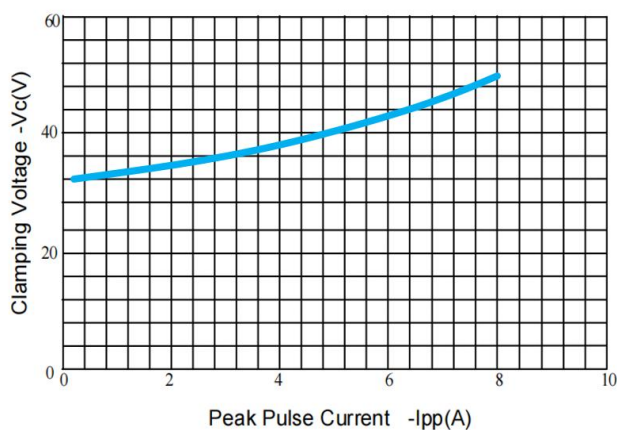
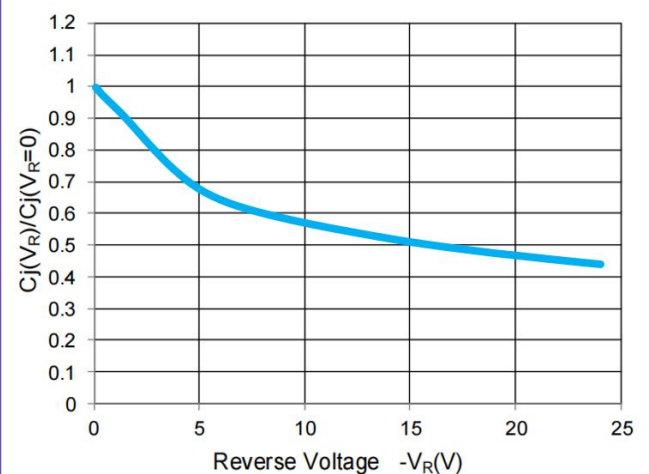
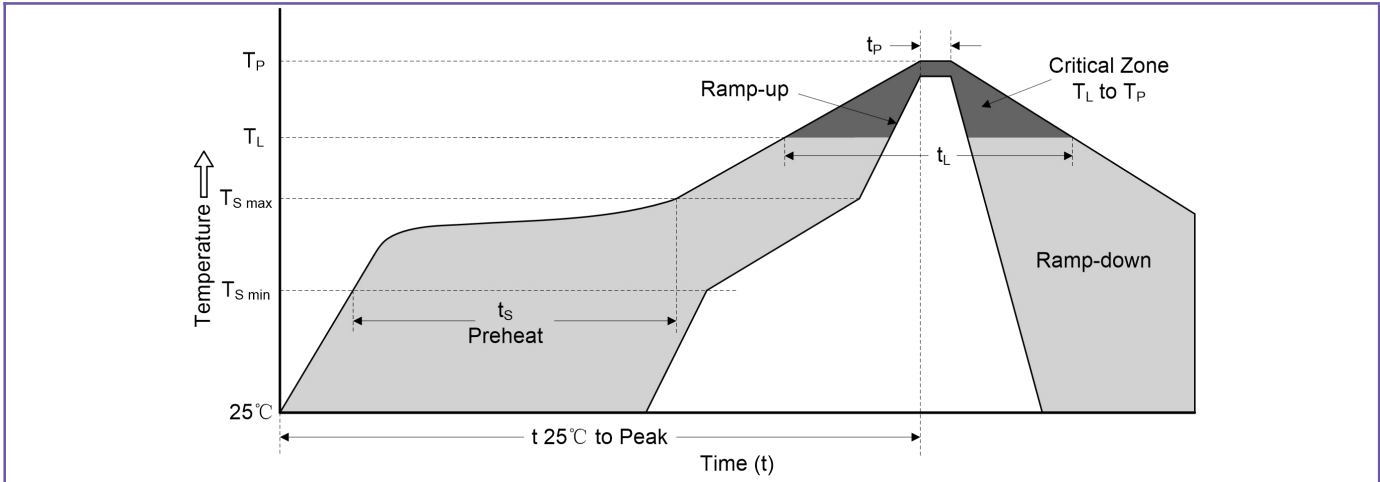


Figure 4. Normalized Junction Capacitance vs. Reverse Voltage

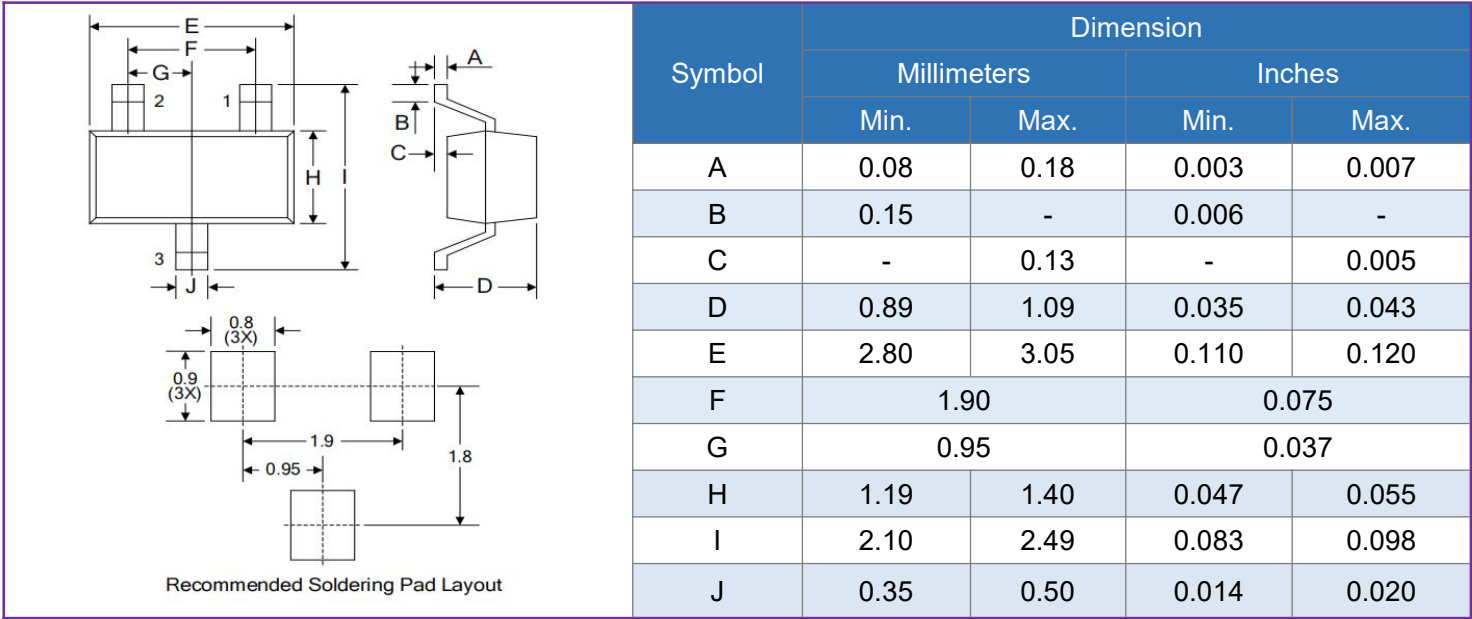


Reflow Soldering Parameters



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 (SOT-23)



Packaging

