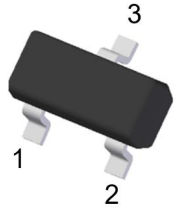


Descriptions

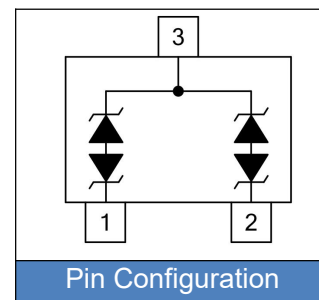
UP4PT23CXXP02 series are ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by electrostatic discharge (ESD), cable discharge events(CDE) and electrical fast transients(EFT).The series has a typical capacitance of only 0.8pF, which can be used on circuits operating in excess of 3GHz without signal attenuation.



Features

- ◆ IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- ◆ SOT-23 surface mount package
- ◆ Protects two high speed data line
- ◆ Peak power dissipation of 400W under 8/20 μ s waveform
- ◆ Working voltage: 3.3V, 5V, 12V, 15V
- ◆ 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

Schematic

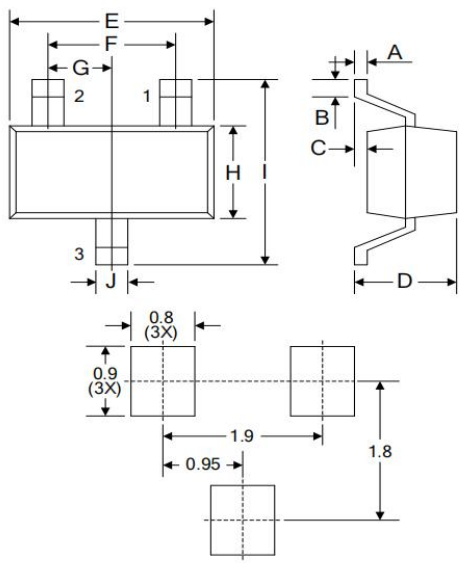


Applications

- ◆ HDMI interface protection
- ◆ Mobile display digital interface
- ◆ RF/Antenna circuits
- ◆ USB 2.0 & Firewire ports
- ◆ GaAs photodetector protection
- ◆ HBT power Amp protection
- ◆ Infiniband

Dimensions (SOT-23)

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.08	0.18	0.003	0.007
B	0.15	-	0.006	-
C	-	0.13	-	0.005
D	0.89	1.09	0.035	0.043
E	2.80	3.05	0.110	0.120
F	1.90		0.075	
G	0.95		0.037	
H	1.19	1.40	0.047	0.055
I	2.10	2.49	0.083	0.098
J	0.35	0.50	0.014	0.020



Recommended Soldering Pad Layout

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

Rating	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$ waveform)	P_{PP}	400	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)

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current @ $t_p=8/20\mu\text{s}$	Reverse Leakage Current @ V_{RWM}	Capacitance At 1MHZ 0V
	$V_{RWM}(V)$	$V_{BR}(V)\text{min}$	$I_T(\text{mA})$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	$C_j(\text{PF})$
UP4PT23C03P02	3.3	4.0	1	19	21	20	1.5
UP4PT23C05P02	5.0	6.0	1	24	17	5	0.8
UP4PT23C12P02	12	13.3	1	40	10	1	0.8
UP4PT23C15P02	15	16.7	1	50	8	1	0.8

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

Figure 1. Power Derating Curve

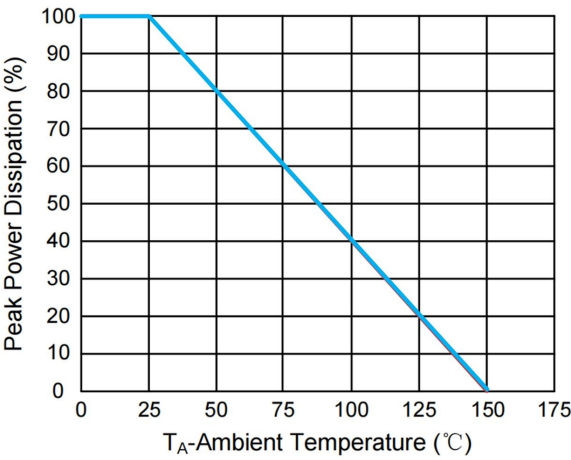


Figure 2. Pulse Waveforms

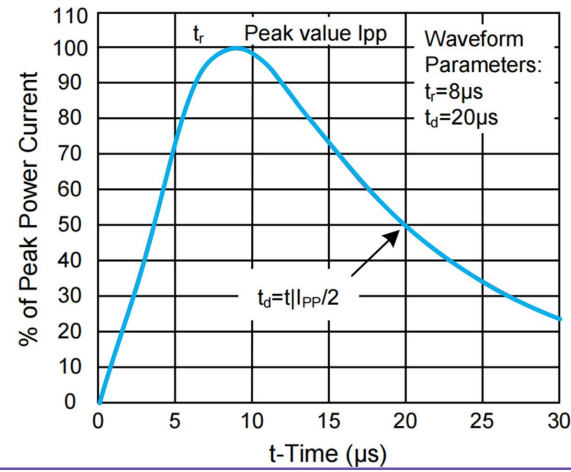


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

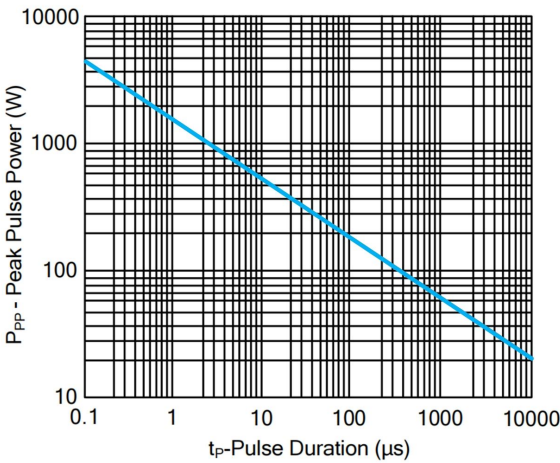
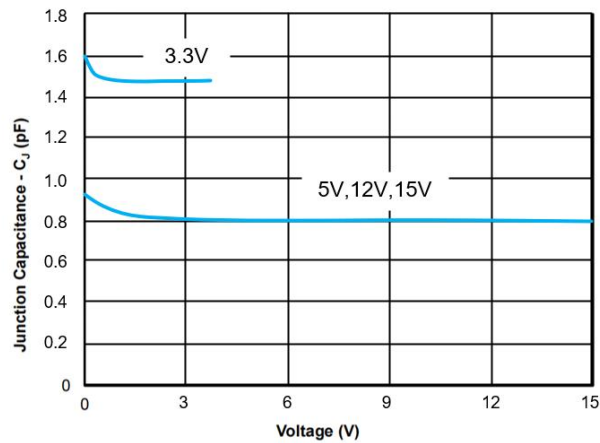
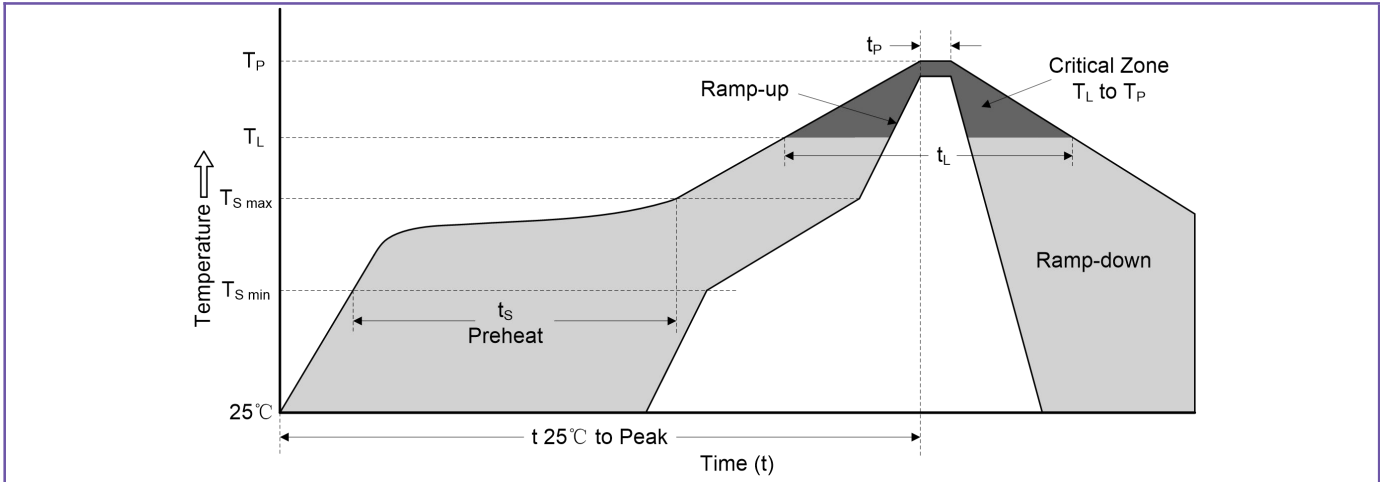


Figure 4. Typical Junction Capacitance



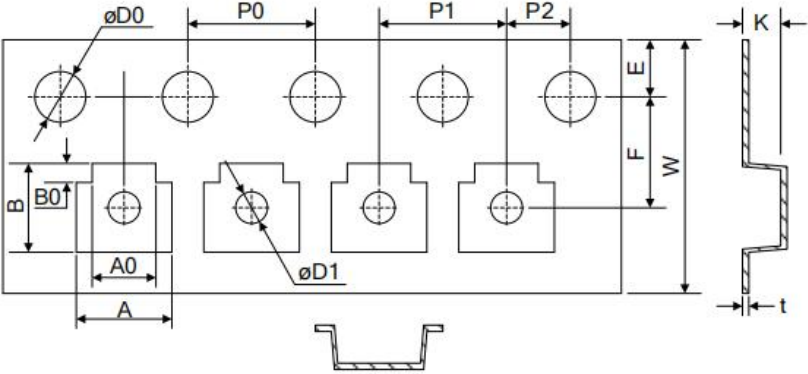
Reflow Soldering Parameters



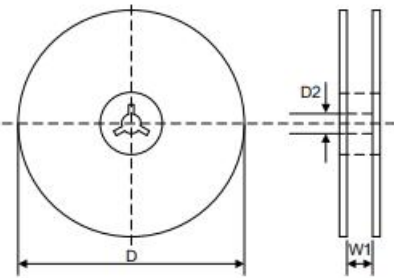
Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\ min}$)	150°C
	-Temperature Max ($T_{S\ max}$)	200°C
	-Time (min to max) (t_s)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3°C/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (Liquidus)	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

Packaging

Tape



Reel



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ1.00±0.05
E	1.75±0.10
F	3.50±0.10
A	3.10±0.10
A0	2.10±0.10
B	2.75±0.10
B0	0.65±0.10
K	1.10±0.10
t	0.20±0.05
D	Φ178.0±2.0
D2	Φ13.0
W	9.5

Quantity: 3000PCS