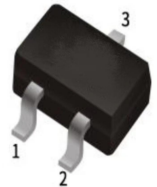


Descriptions

The UP2PT52A05P02 is designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (cable discharge events), and EFT (electrical fast transients).

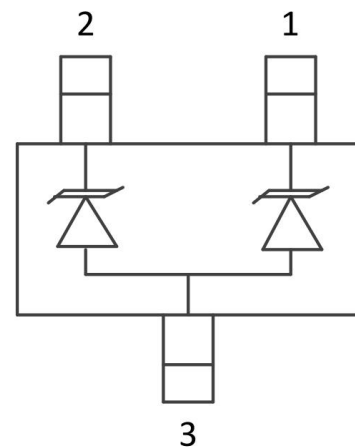
The UP2PT52A05P02 has a typical capacitance of only 0.50pF (pin1 to 2). This means it can be used on circuits operating in excess of 3GHz with minimal signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 18\text{kV}$ air, $\pm 12\text{kV}$ contact discharge). Each device can be configured to protect 1 bidirectional line or two unidirectional lines.



Features

- ◆ Transient protection for high-speed data lines to
IEC 61000-4-2 (ESD) $\pm 18\text{kV}$ (air), $\pm 12\text{kV}$ (contact)
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Surge) 5A (8/20 μs)
- ◆ Protects up to two I/O lines
- ◆ Low capacitance ($<1\text{pF}$)
- ◆ No insertion loss to $> 3.0\text{ GHz}$
- ◆ Low profile ($<1\text{mm}$)
- ◆ Low leakage current and clamping voltage
- ◆ Low operating voltage: 5.0V
- ◆ Solid-state silicon-avalanche technology

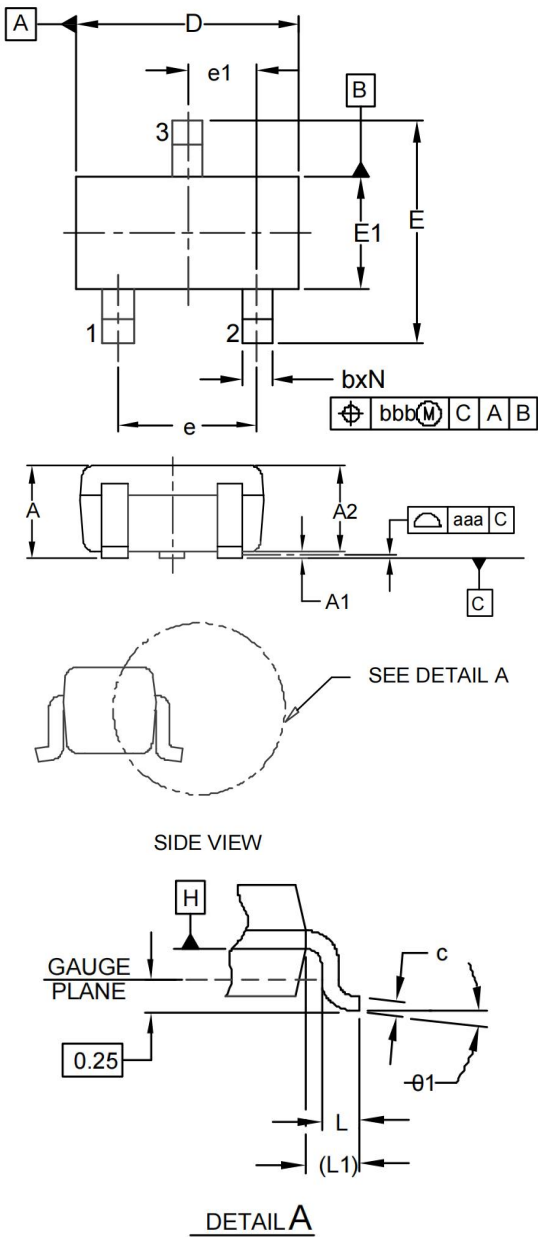
Schematic



Applications

- ◆ Mobile Display Digital Interface (MDDI)
- ◆ USB 2.0/USB 3.0
- ◆ GaAs Photodetector Protection
- ◆ HBT Power Amp Protection
- ◆ Infiniband Transceiver Protection

Dimensions (SOT-523)



Symbol	Dimension	
	Millimeters	
	Min.	Max.
A	0.60	0.90
A1	0.00	0.10
A2	0.60	0.80
b	0.15	0.30
c	0.10	0.20
D	1.50	1.70
E	1.45	1.75
E1	0.75	0.85
e	1.00 BSC	
e1	0.50 BSC	
L	0.10	0.30
L1	(0.40)	
N	3	
θ	0°	8°
aaa	0.10	
bbb	0.20	

Maximum Rating and Characteristics at 25°C ambient temperature unless otherwise Noted.

Rating	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PP}	125	W
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{PP}	5	A
ESD voltage (Air discharge)	V_{ESD}	± 18	KV
ESD voltage (Contact discharge)		± 12	
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min.	Typical	Max.	Unit
Reverse Stand-Off Voltage	V_{RWM}	Pin 1 or Pin 2 to Pin 3, and between Pin 1 & 2			5	V
Breakdown Voltage	V_{BR}	$I_t=1mA$ Pin 1 or Pin 2 to Pin 3	6			V
Reverse Leakage	I_R	$V_{RWM}=5V$ Pin 1 or Pin 2 to Pin 3 and between Pin 1 & 2			1	μA
Clamping Voltage	V_C	$I_{PP}=1A, t_p=8/20\mu s$ Pin 1 or Pin 2 to Pin 3			15	V
		$I_{PP}=5A, t_p=8/20\mu s$ Pin 1 or Pin 2 to Pin 3			22	
		$I_{PP}=5A, t_p=8/20\mu s$ between Pin 1 & 2			25	
Junction Capacitance	C_J	$V_R=0V, f=1MHz$ Pin 1 to Pin 2		0.5	0.9	pF
		$V_R=0V, f=1MHz$ Pin 1 or Pin 2 to Pin 3			1.2	pF

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

Figure 1. Non-Repetitive Peak Pulse Power vs. T_p

Figure 2. Power Derating Curve

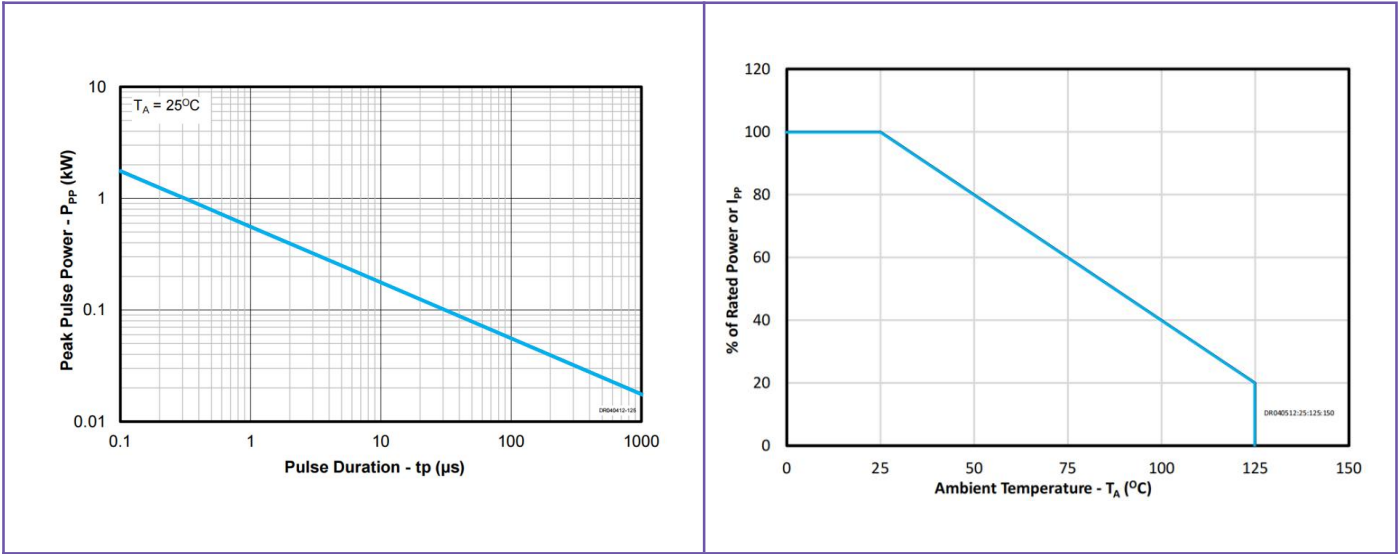
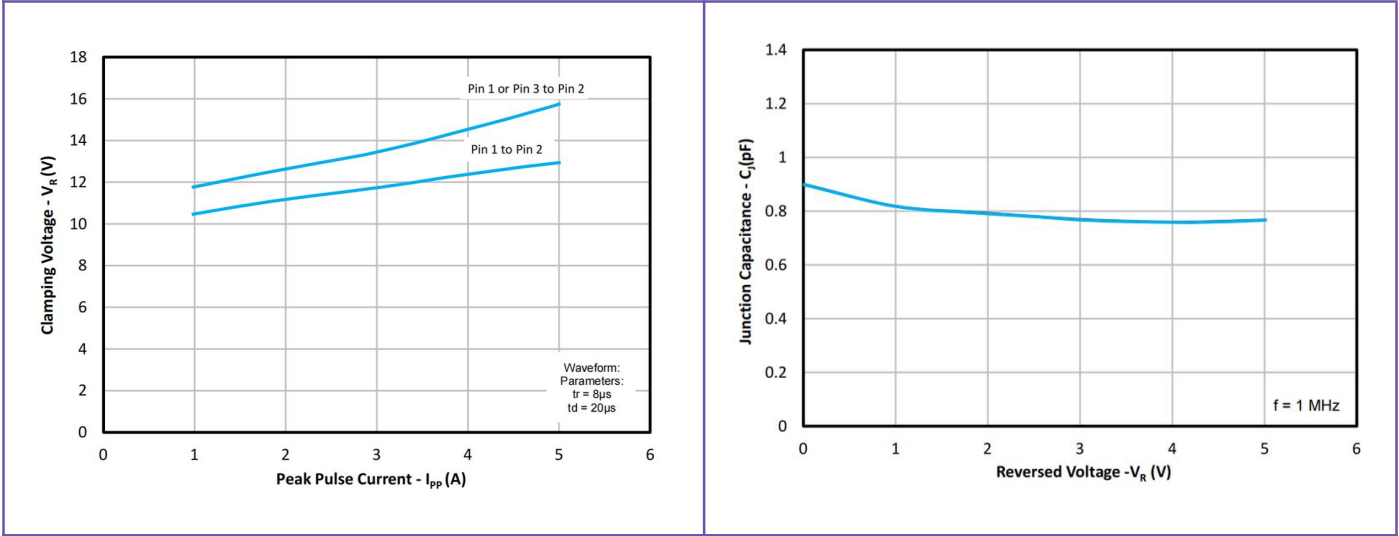
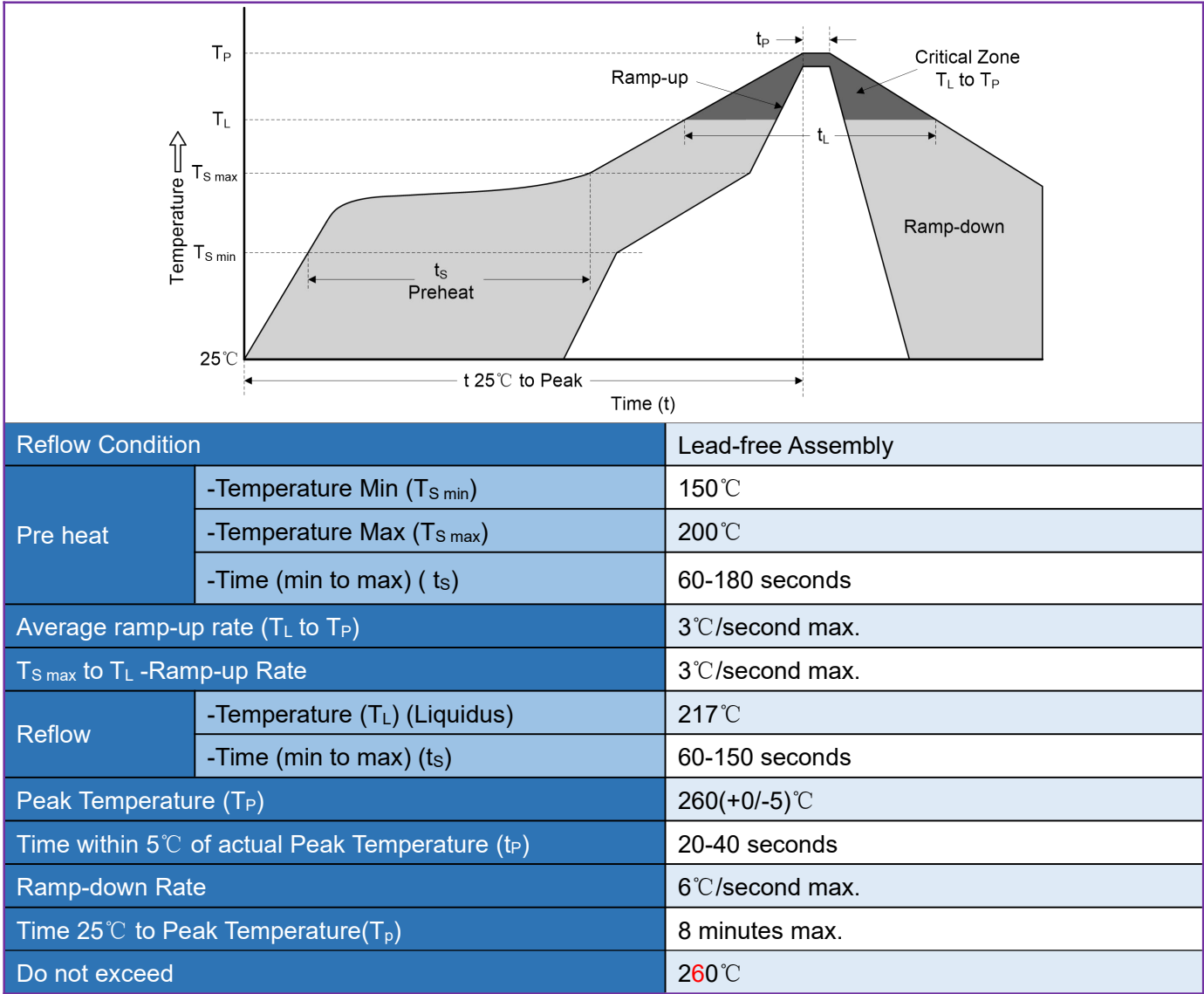


Figure 3. Clamping Voltage vs. Peak Pulse Current (t_p=8/20μs)

Figure 4. Capacitance vs. Reverse voltage (Pin 1 or Pin 2 to Pin 3)



Reflow Soldering Parameters



Package

Part number	QTY/Reel	Reel Size
UP2PT52A05P02	3000PCS	7Inch