

1.Description

They feature large cross-sectional area junctions for conduction high transient currents. They offer desirable characteristics for board level protection including fast response time, low and clamping voltage, and no device degradation. The devices may be used to meet the immunity requirements of IEC61000-4-2, level 4.

3.Features

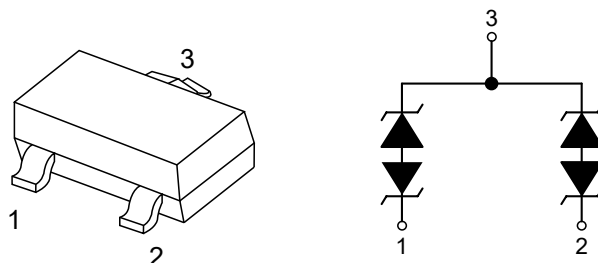
- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOT-23 surface mount package
- Protects bidirectional two I/O lines
- Peak power dissipation of 350W under 8/20 μ s waveform
- Working voltage: 5V, 12V, 15V, 24V
- Low leakage current

2.Applications

- RS-232 and RS-422 data lines
- Microprocessor based equipment
- LAN/WAN equipment
- Desktops PC and servers
- Notebook, Laptop and Palmtop computers
- Set Top Box
- Peripherals
- Serial and Parallel ports

- 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
- AEC-Q101 qualified

4.Pinning information



SOT-23



5. Absolute Maximum Ratings $T_J = 25^\circ\text{C}$

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$ waveform)	P_{PP}	350	W
ESD voltage (Contact discharge)	V_{ESD}	± 30	kV
ESD voltage (Air discharge)		± 30	kV
Storage & junction temperature range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$



6.1 Electrical Characteristic (SDT23C05L02)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_{BR}=1mA$	6			V
Reverse Leakage Current	I_R	$V_R=5V$, Each I/O pin			5	μA
Clamping voltage ($t_p=8/20\mu s$)	V_C	$I_{pp}=1A$			9.8	V
Clamping voltage ($t_p=8/20\mu s$)	V_C	$I_{pp}=10A$			18	V
Off state junction capacitance	C_J	0Vdc, f=1MHz Between I/O pins and GND		150		pF

6.2 Electrical Characteristic (SDT23C12L02)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_{BR}=1mA$	13.3			V
Reverse Leakage Current	I_R	$V_R=5V$, Each I/O pin			1	μA
Clamping voltage ($t_p=8/20\mu s$)	V_C	$I_{pp}=1A$			19	V
Clamping voltage ($t_p=8/20\mu s$)	V_C	$I_{pp}=10A$			32	V
Off state junction capacitance	C_J	0Vdc, f=1MHz Between I/O pins and GND		65		pF



6.3 Electrical Characteristic (SDT23C15L02)

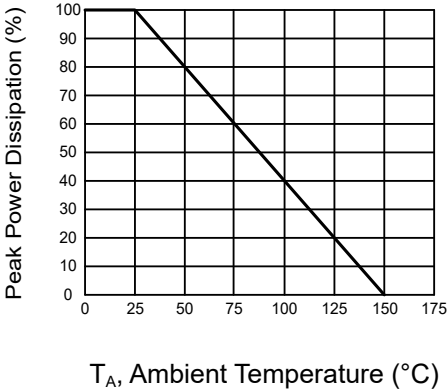
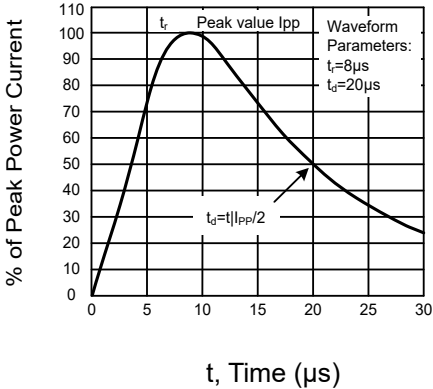
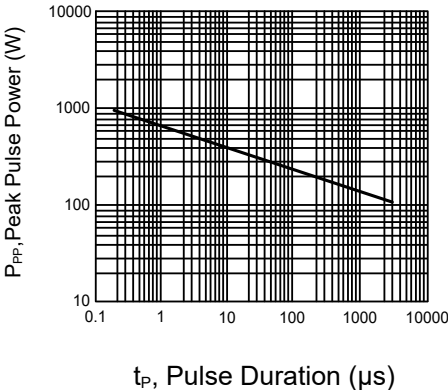
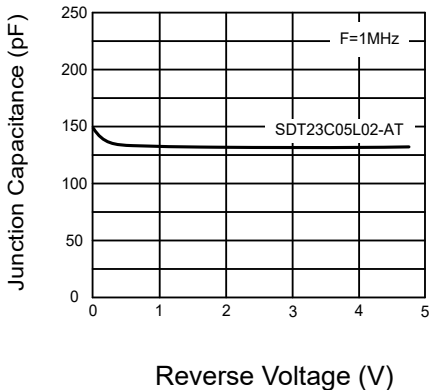
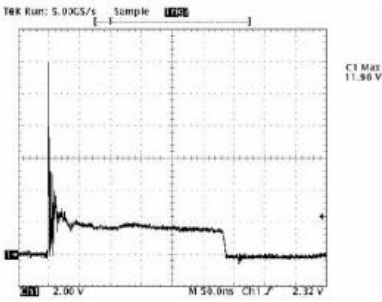
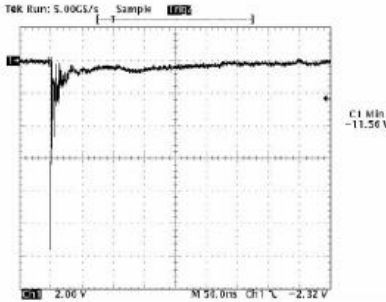
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_{BR}=1\text{mA}$	16.7			V
Reverse Leakage Current	I_R	$V_R=5\text{V}$, Each I/O pin			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1\text{A}$			24	V
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=10\text{A}$			38	V
Off state junction capacitance	C_J	0Vdc, f=1MHz Between I/O pins and GND		60		pF

6.4 Electrical Characteristic (SDT23C24L02)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
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	$V_R=5\text{V}$, Each I/O pin			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1\text{A}$			43	V
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=5\text{A}$			52	V
Off state junction capacitance	C_J	0Vdc, f=1MHz Between I/O pins and GND		40		pF

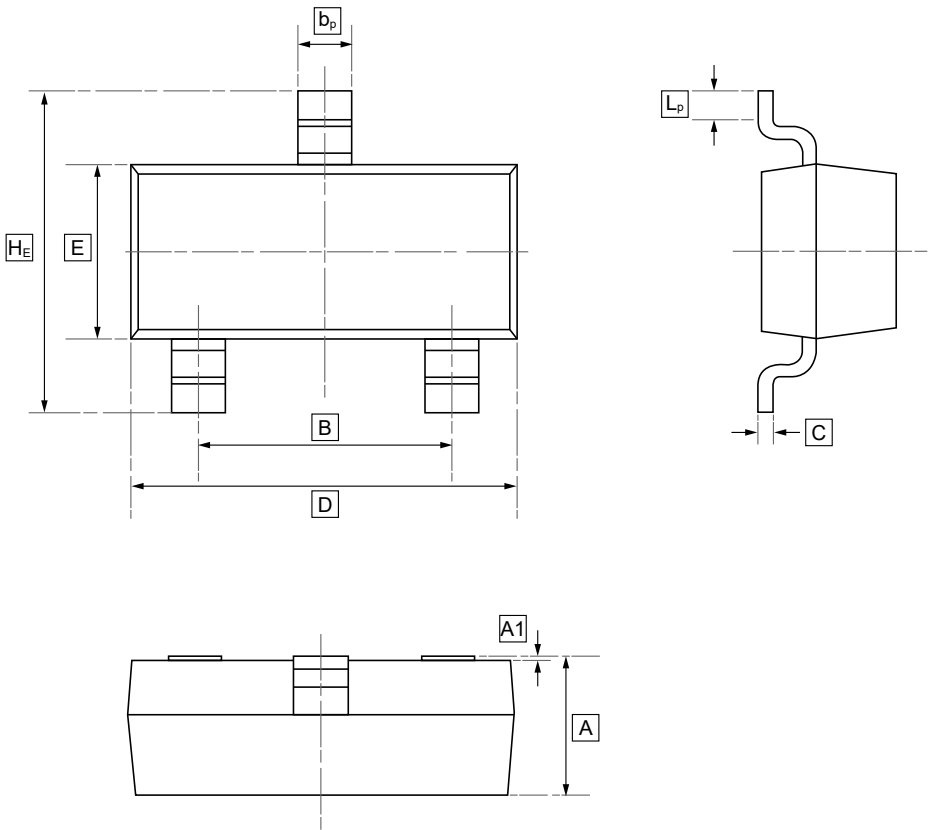


7. Typical characteristic

	
Figure 1: Power Derating Curve	Figure 2: Pulse Waveforms
	
Figure 3: Non-Repetitive Peak Pulse Power vs. Pulse Time	Figure 4: Normalized Capacitance vs. Reverse Voltage
	
Figure 5: ESD Clamping(8kV Contact IEC61000-4-2)	Figure 6: ESD Clamping(-8kV Contact IEC61000-4-2)



8.SOT-23 Package Outline Dimensions

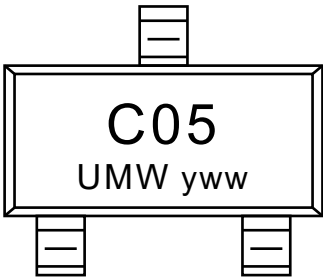


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b _p	C	D	E	H _E	A1	L _p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50



9.Ordering information



yww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SDT23C05L02	C05	SOT-23	3000	Tape and reel
UMW SDT23C12L02	C12	SOT-23	3000	Tape and reel
UMW SDT23C15L02	C15	SOT-23	3000	Tape and reel
UMW SDT23C24L02	C24	SOT-23	3000	Tape and reel



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