

L05AUT23-Q1

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300W Surface Mount TVS For ESD Protection : 5V

Features

- Protects I/O lines.
- Low capacitance.
- Low clamping voltage.
- Transient protection for high-speed data lines:
IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (Air), $\pm 8\text{kV}$ (Contact).
IEC61000-4-5 (Lighting) 25A (8/20 μs).
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex.L05AUT23-Q1-H.

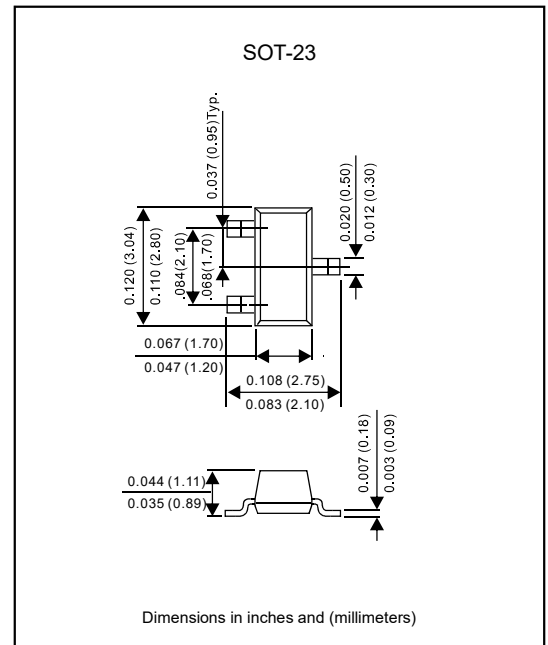
Applications

- High speed data line.
- Cellular handsets.
- USB port protection.
- LAN equipment.
- Peripherals.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline



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

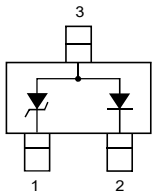
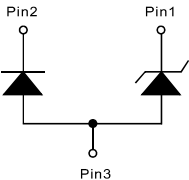
Parameter	Symbol	Ratings	Units
Peak pulse power, pin1-2 (pin3 N.C.) (8/20 μs)	P_{PP}	300	W
Peak pulse power, pin1-2 (pin3 N.C.) (8/20 μs)	I_{PP}	25	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	
Blocking voltage, pin2-1 or pin1-3	V_B	100	V
Operating temperature	T_J	-55 to +125	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

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Electrical characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Conditions (pin1-pin2;pin3 N.C.)	Symbol	Min.	Typ.	Max.	Units
Reverse working voltage		V_{RWM}			5	V
Reverse leakage current	$V_{RWM}=5\text{V}$	I_R		0.1	1	μA
Reverse breakdown voltage	$I_T=1\text{mA}$	V_{BR}	6	7.5		V
Parasitic capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$	C_{ESD}		1		pF
Number of lines which can be protected		$N_{channel}$			1	Lines

Pinning information

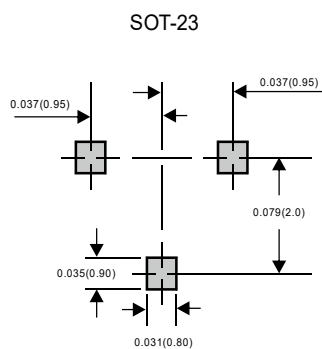
Pin configuration	Circuit diagram
	

Marking

Type number	Marking code
L05AUT23-Q1	12VΣΣA

Note: 1. "12V" is part number, fixed.
 2. "ΣΣ" is the internal control code.
 3. "A" is satisfy AEC-Q101.

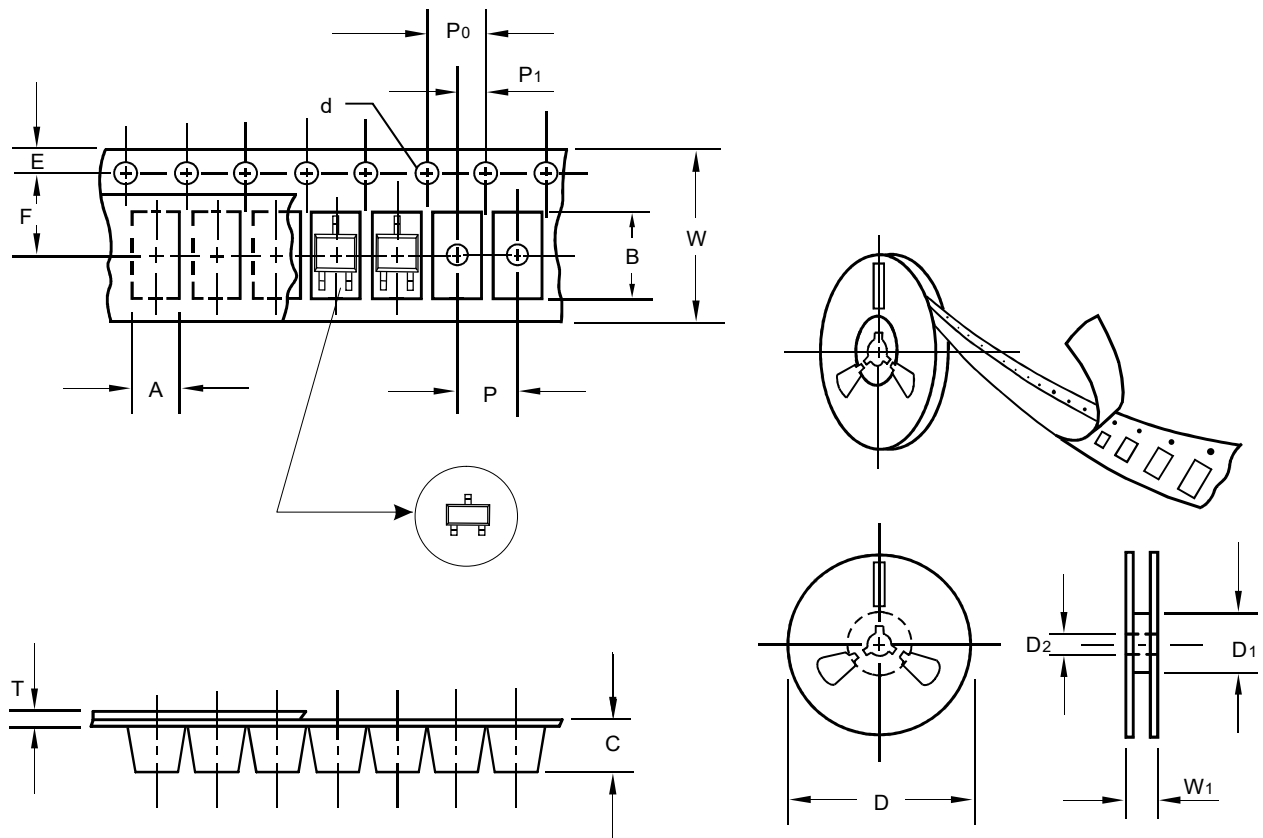
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

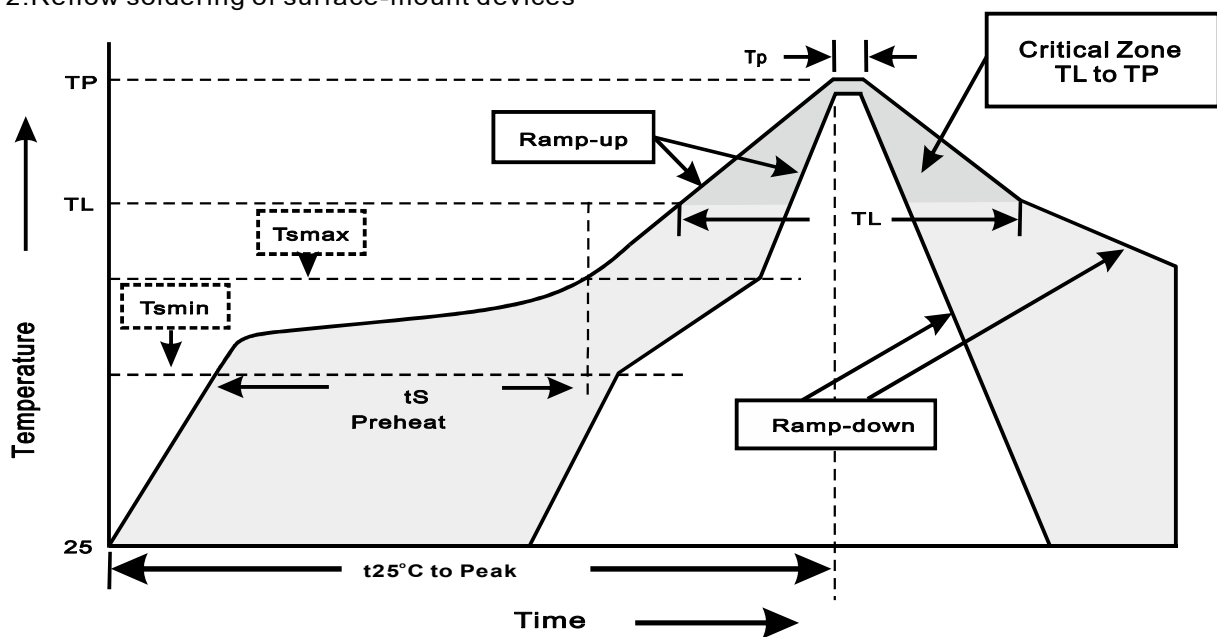
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{Smin}) -Temperature Max(T _{Smax}) -Time(min to max)(t _S)	150°C 200°C 60~120sec
T _{Smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes