

L034AT25

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4-Channel Low Capacitance TVS For ESD Uni-Directional Protection Array : 3.3V

Features

- Package optimized for high-speed lines.
- Provides protection for two line pairs.
- Complies with following standards:
IEC61000 -4-2 (ESD) $\pm 30\text{kV}$ (Air), $\pm 30\text{kV}$ (Contact).
IEC61000 -4-4 (EFT) 40kV (5/50ns).
IEC61000 -4-5 (Surge) 23A (8/20 μs).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates halogen-free parts, ex. L034AT25-H.

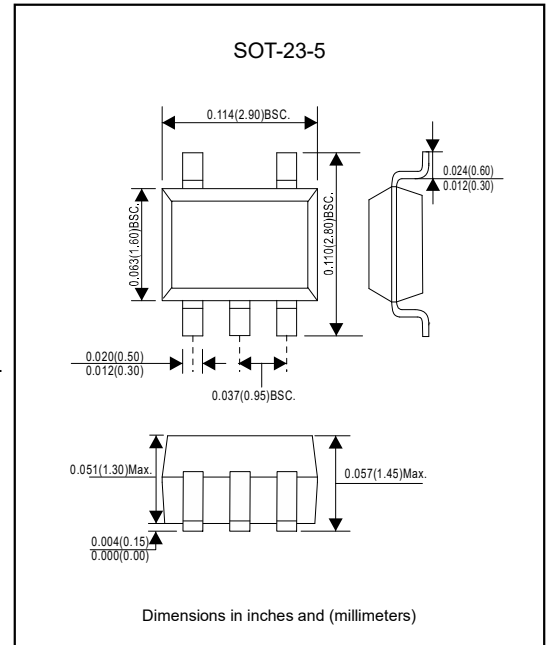
Applications

- 10/100/1000M ethernet pots, WAN/LAN equipment and switching systems.
- Desktops, servers, notebooks, cellular phones and audio/video inputs.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23-5.
- Mounting Position : Any.

Package outline



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

Parameter	Symbol	Ratings	Unit
Peak pulse power (8/20 μs)	P_{PK}	100	W
Peak pulse current (8/20 μs)	I_{PP}	23	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC61000-4-2 (Contact)		± 30	
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

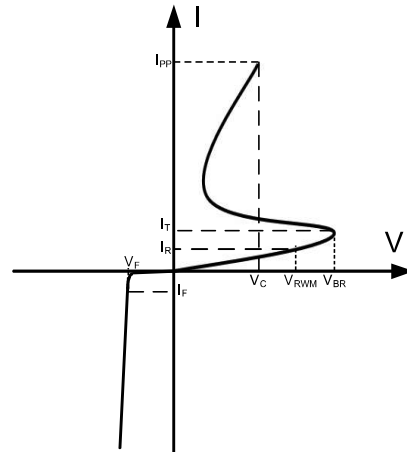
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse working voltage		V_{RWM}			3.3	V
Reverse leakage current	$V_{RWM} = 3.3\text{V}$, between I/O and GND	I_R		0.01	0.1	μA
Reverse breakdown voltage	$I_T = 1\text{mA}$, between I/O and GND	V_{BR}	5	7	9	V
Clamping voltage	$I_{PP} = 23\text{A}$, $t_p = 8/20\mu\text{s}$, between I/O and GND	V_C		5.4		V
Clamping voltage	$I_{PP} = 8\text{A}$, $t_p = 100\text{ns}$ (Note1)	V_C		3		V
	$I_{PP} = 16\text{A}$, $t_p = 100\text{ns}$ (Note1)			4.05		
Dynamic resistance	$I_{PP} = 12\text{A}$, $t_p = 100\text{ns}$ (Note1)	R_{dyn}		0.13		Ω
Parasitic capacitance	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$, between I/O and GND	C_{ESD}		2.6		pF
	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$, between I/O and I/O			1.3		

Note: 1. Measurements performed using a 100ns, transmission line pulse (TLP) system, between I/O and GND.

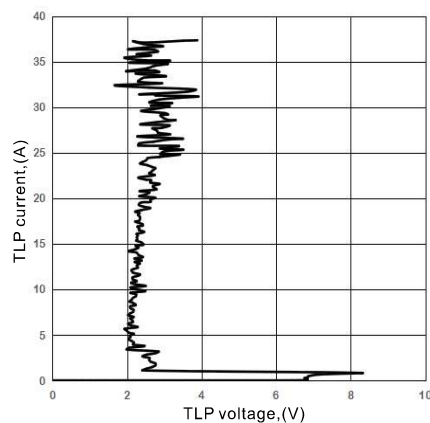
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Rating and characteristic curves

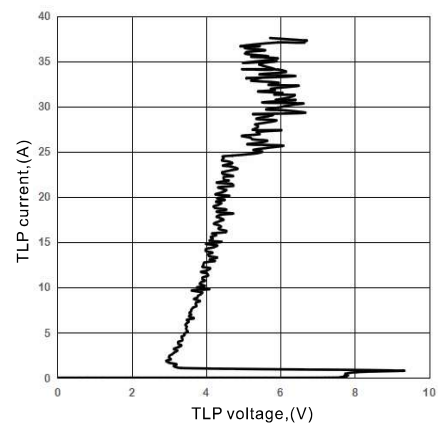
Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F



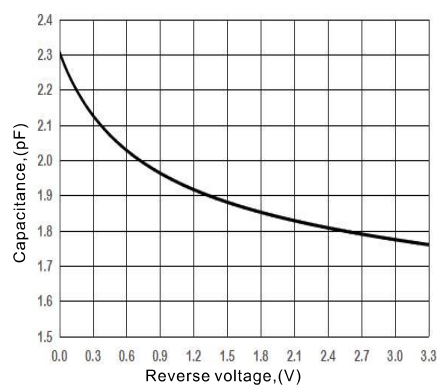
TLP Measurement of I/O to GND



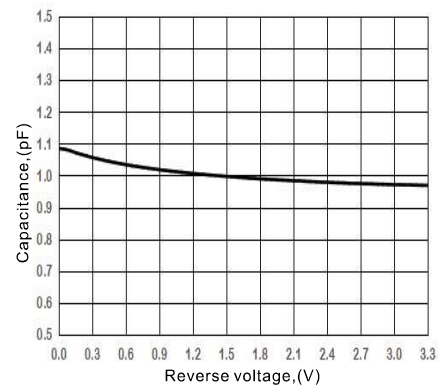
TLP Measurement of I/O to I/O



Capacitance vs Reverse Voltage IO to GND

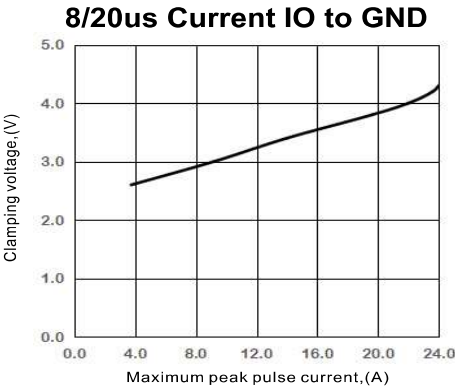


Capacitance vs Reverse Voltage IO to IO



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Rating and characteristic curves



Pinning information

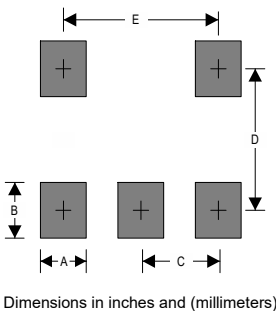
Pin Configuration	Simplified outline	Circuit Diagram
Pin 1,3,4,5 I/O Pin 2 GND		

Marking

Type number	Marking code
L034AT25	4PYWWX

YWW:Wafer lot code.
Y:Year
WW: Week
X: Assy.code

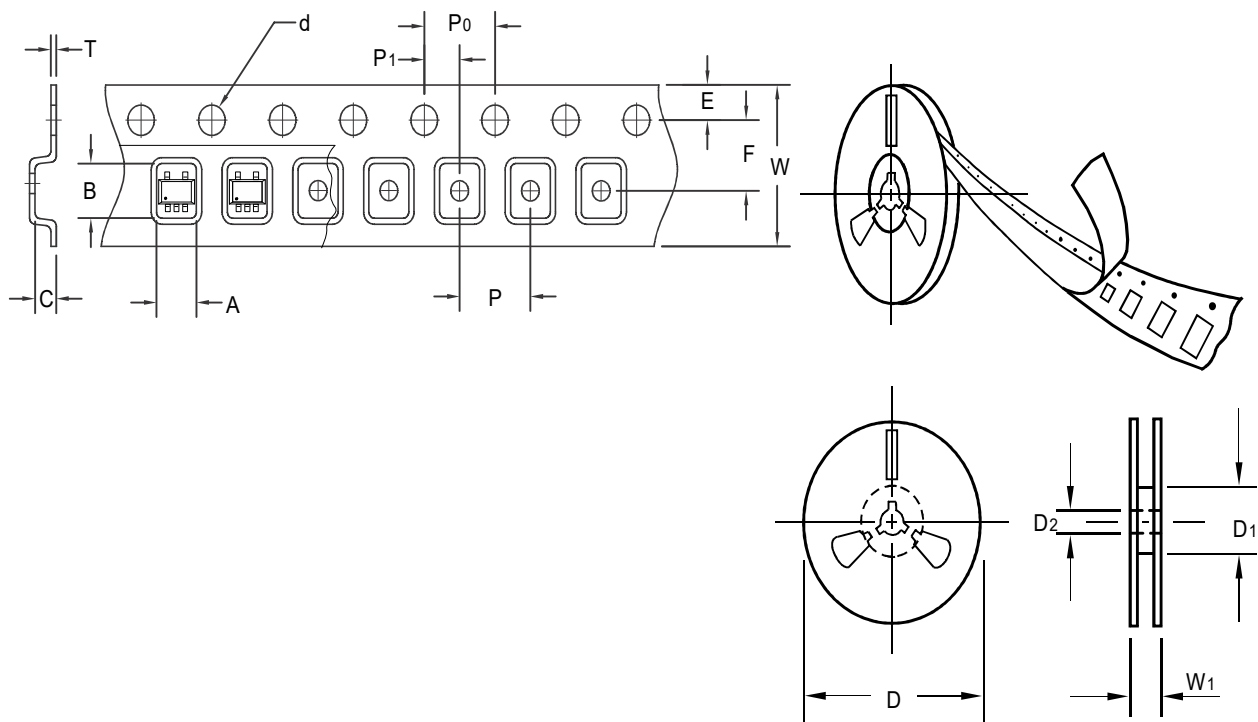
Suggested solder pad layout



Package	A	B	C	D	E
SOT-23-5	0.023(0.60)	0.043(1.10)	0.037(0.95)	0.098(2.50)	0.075(1.90)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23-5
Carrier width	A	0.1	3.23
Carrier length	B	0.1	3.17
Carrier depth	C	0.1	1.37
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	59.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.05	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.05	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.5

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

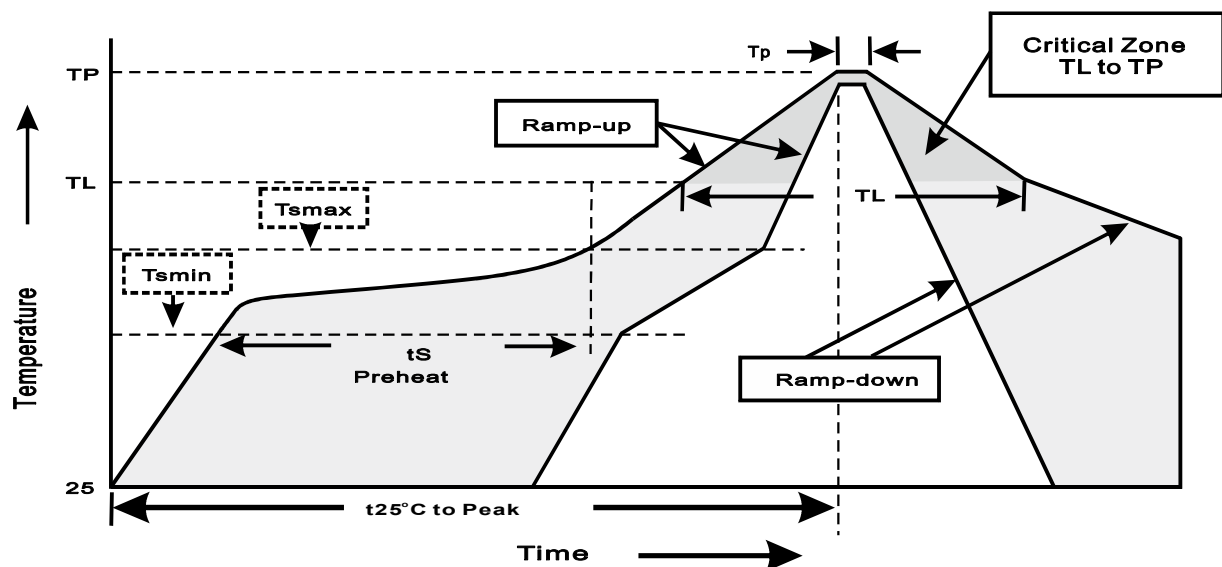
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Reel packing

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-23-5	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)	$<3^{\circ}\text{C}/\text{sec}$
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	$<3^{\circ}\text{C}/\text{sec}$
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	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$