

N052AT23A-H

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300W 2-Channel Uni-Directional TVS For ESD Protection : 5.0V

Features

- 300Watts peak pulse power($t_p=8/20\mu s$).
- Protects one two uni-directional line(s).
- Complies with following standards:
IEC 61000-4-2 (ESD) $\pm 30kV$ (Contact), $\pm 30kV$ (Air).
IEC 61000-4-5 (Lightning) 22A (8/20us).
- Lead-free parts meet RoHS requirements.
- Halogen-free (IEC61249-2-21).

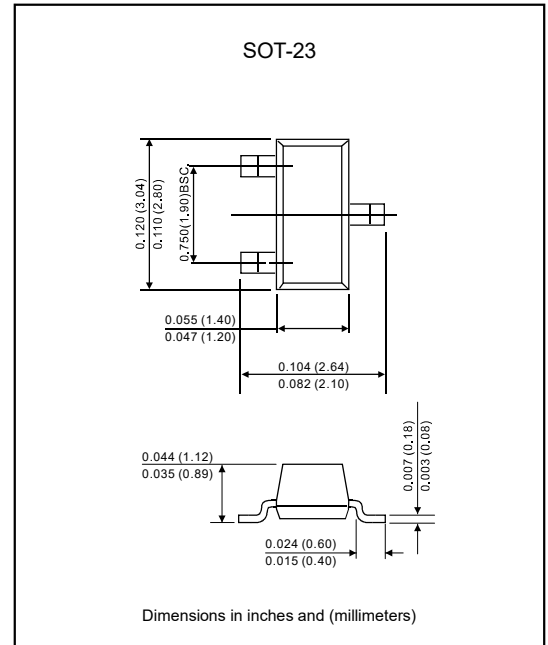
Applications

- Peripherals.
- Industrial equipment.
- Notebook computers .
- Portable instrumentation and microprocessor based equipment.
- Cell phone handsets and accessories.
- Personal digital assistants(PDAs) and pagers.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Weight : Approximated 10mg.

Package outline



Maximum ratings (At $T_A=25^\circ C$ unless otherwise noted)

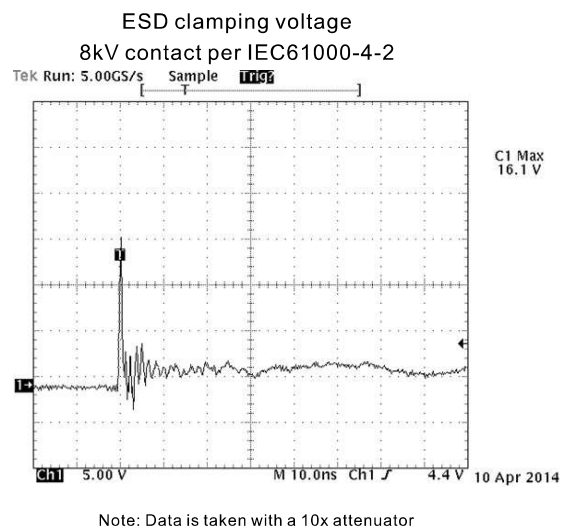
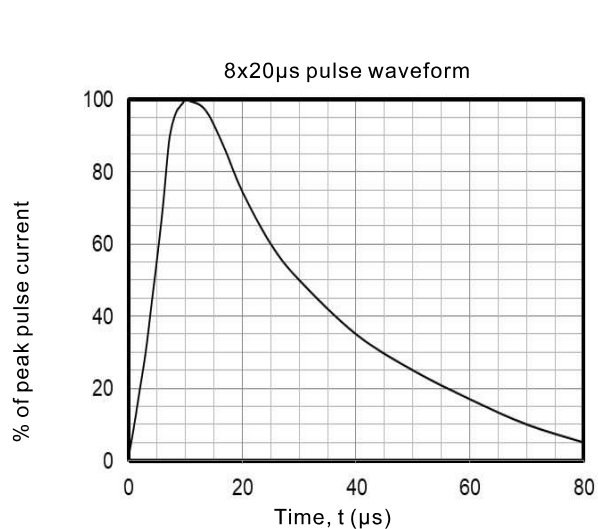
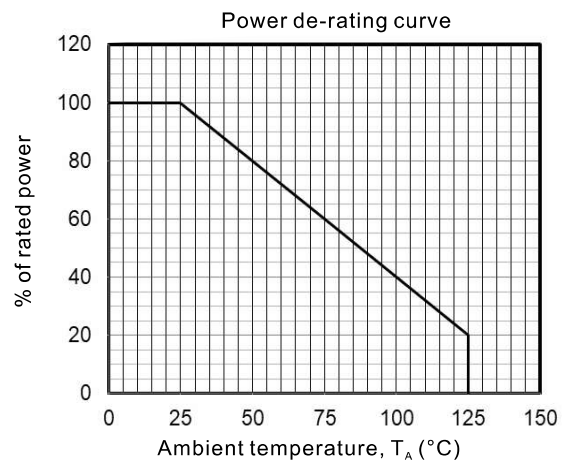
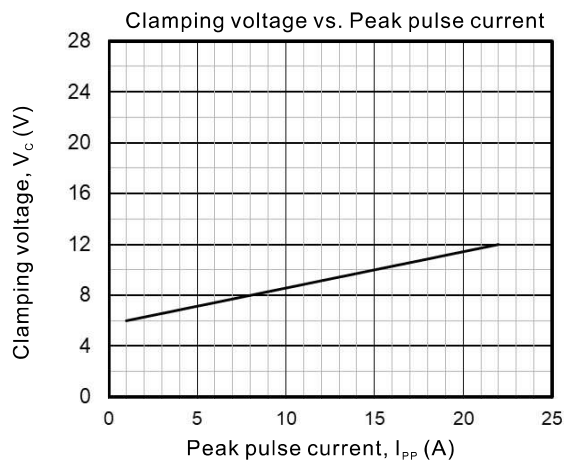
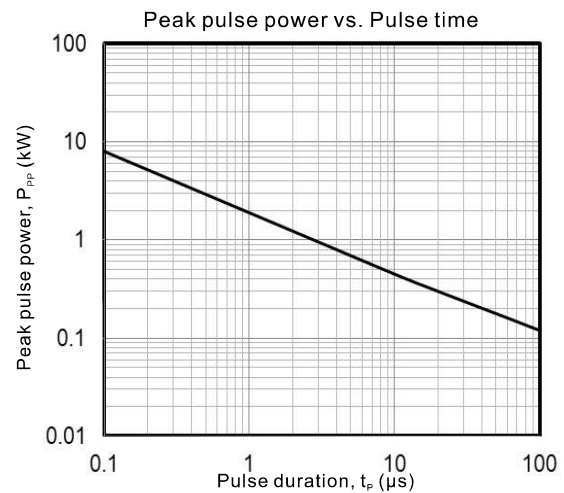
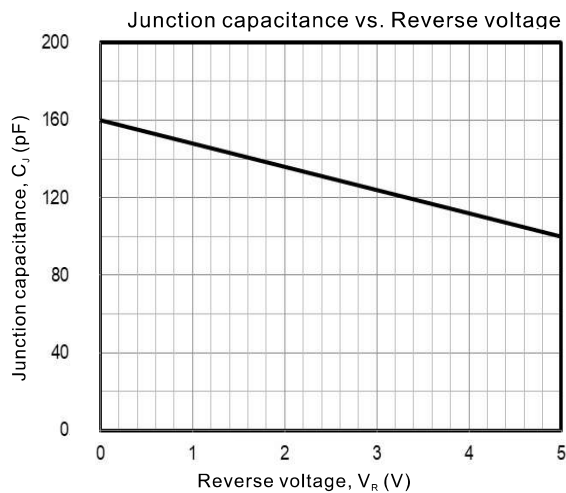
Parameter	Symbol	Ratings	Unit
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	300	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	22	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating temperature	T_J	+125	$^\circ C$
Storage temperature range	T_{STG}	-55 to +150	$^\circ C$

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

Parameter	Test condition	Symbol	Min	Typ	Max	Unit
Reverse stand-off voltage		V_{RWM}			5	V
Reverse breakdown voltage	$I_T=1mA$	V_{BR}	6			V
Reverse leakage current	$V_{RWM}=5V$, any I/O pin to ground	I_R			0.5	μA
Clamping voltage	$I_{PP}=1A$ (8x20 μs pulse), any I/O pin to ground	V_C			8	V
	$I_{PP}=22A$ (8x20 μs pulse), any I/O pin to ground				14	
Junction capacitance	$V_R=0V$, $f=1.0MHz$, any I/O pin to ground	C_J		160		pF

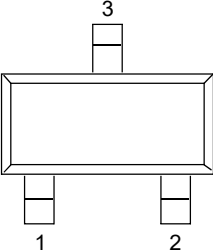
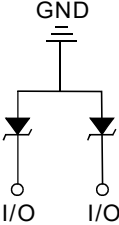
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Rating and characteristic curves



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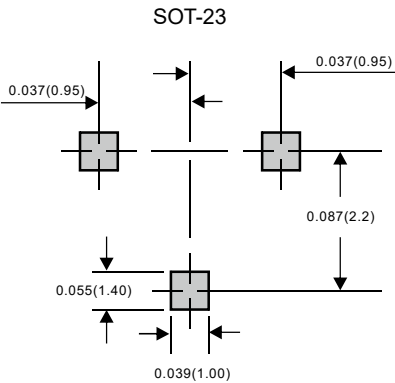
Pinning information

Pin	Simplified outline	Symbol
Pin 1 I/O Pin 2 I/O Pin 3 GND		

Marking

Type number	Marking code
N052AT23A-H	S05

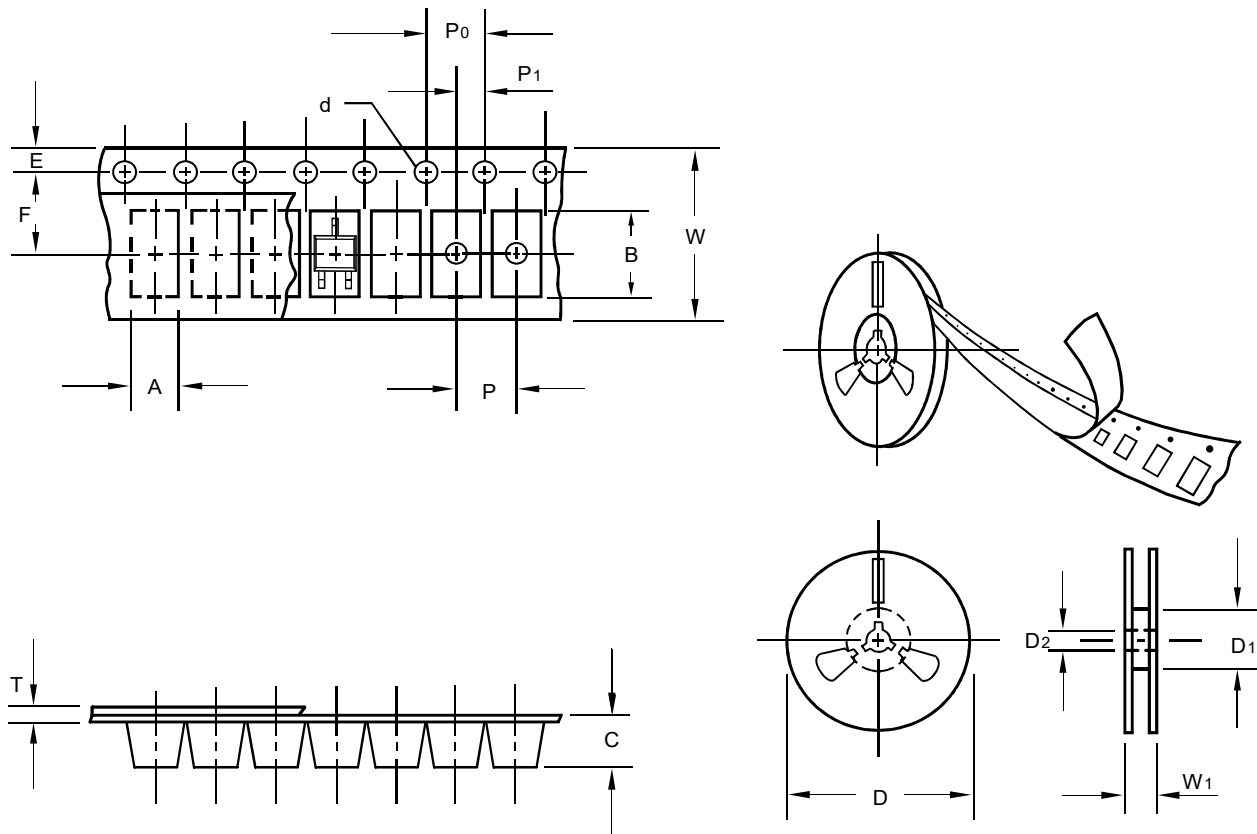
Suggested solder pad layout



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	54.40
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	0.4	0.22
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.

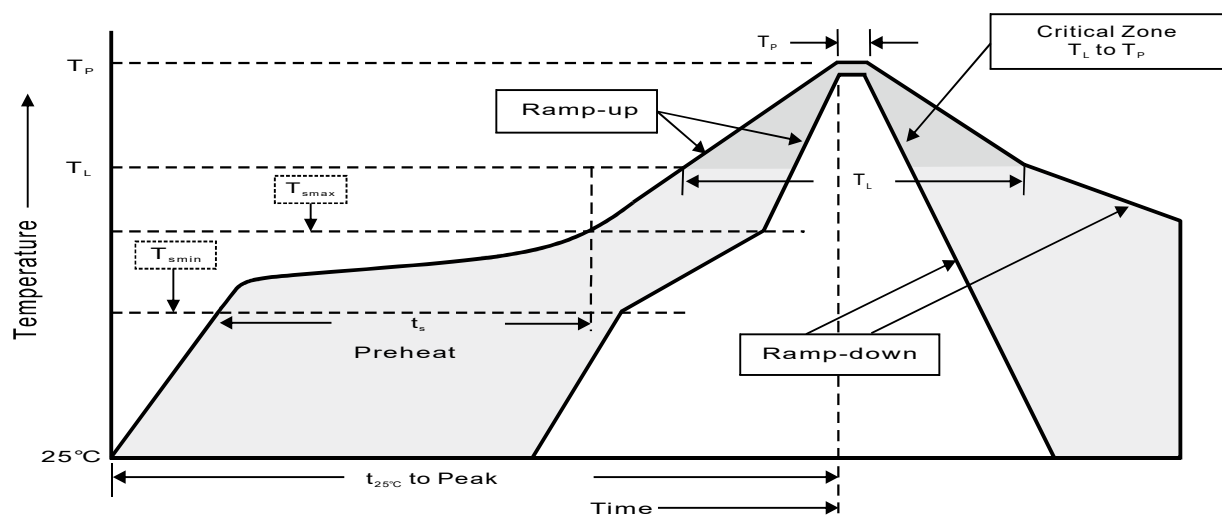
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	REEL DIA, (m/m)	CARTON (pcs)
SOT-23	7"	3,000	4.0	30,000	178	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_{min}) - Temperature Max (T_{max}) - Time (Min to Max) (t_s)	150°C 200°C 60 ~ 120 sec
T_{smax} to T_L - Ramp-up rate	< 3 °C/sec
Time maintained above : - Temperature (T_L) - Time (T_L)	217°C 60 ~ 260 sec
Peak temperature (T_P)	255 °C -0/+5°C
Time with 5°C of actual peak temperature (T_P)	10 ~30 sec
Ramp-down rate	< 6 °C/sec
Time 25°C to peak temperature	< 6 minutes