

N242AT23

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N242AT23

2 Channel Uni-Directional TVS For ESD Protection : 24V

Features

- Protects two I/O lines.
- High temperature soldering guaranteed : 260°C/10s.
- Complies with following standards:
IEC 61000-4-2(ESD) $\pm 30\text{kV}$ (Air).
IEC 61000-4-2(ESD) $\pm 30\text{kV}$ (Contact).
IEC 61000-4-4(EFT) 40A(5/50ns) .
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. N242AT23-H.

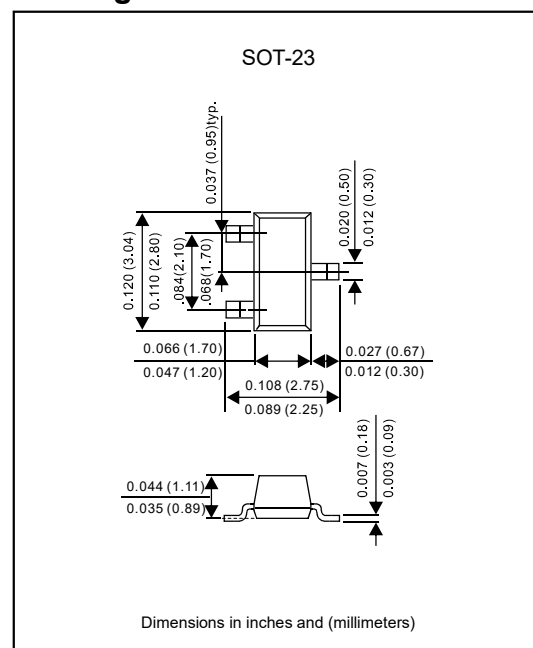
Applications

- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, desktops, and servers.
- Portable instrumentation.
- Networking and telecom.

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	Value	Units
Peak pulse power (8/20 μs)	P_{PK}	200	W
Peak pulse current (8/20 μs)	I_{PP}	3.5	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC61000-4-2 (Contact)			
Operating temperature range	T_J	-45 to +85	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

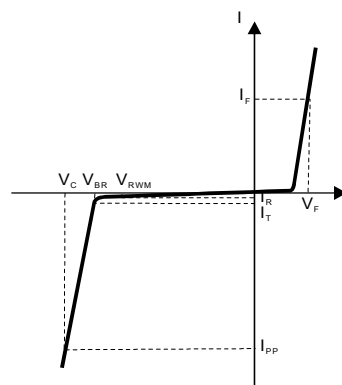
Electrical Characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Units
Reverse working voltage		V_{RWM}			24	V
Reverse leakage current	$V_{RWM}=24\text{V}$, $T=25^\circ\text{C}$ between I/O and GND	I_R		0.1	1	μA
Reverse breakdown voltage	$I_T=1\text{mA}$, between I/O and GND	V_{BR}	26.7			V
Forward voltage	$I_F=10\text{mA}$	V_F			1.2	V
Clamping voltage	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$ between I/O and GND	V_C			42	V
	$I_{PP}=3.5\text{A}$, $t_p=8/20\mu\text{s}$ between I/O and GND				60	
Parasitic capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$, between I/O and GND	C_{ESD}		20		pF

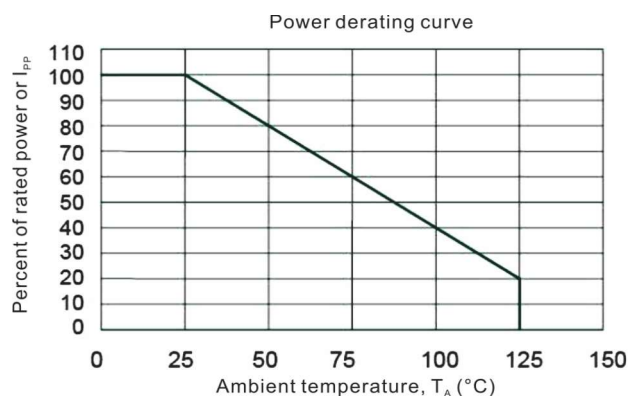
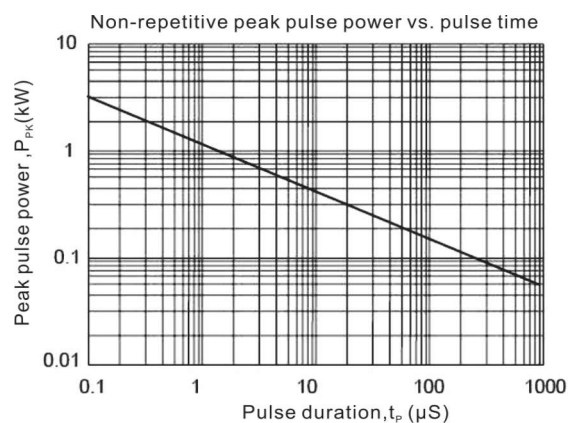
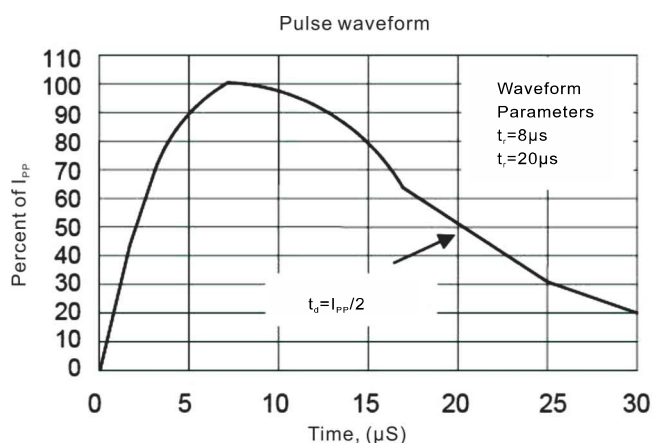
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Rating and characteristic curves

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
V_R	Reverse voltage
f	Small signal frequency

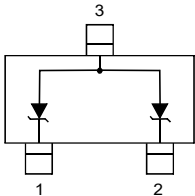
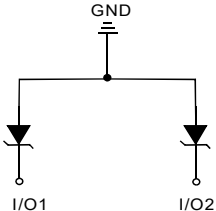


Uni-directional TVS



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Pinning information

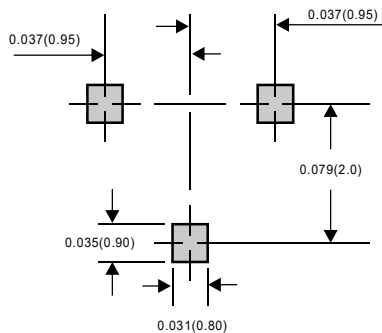
Pin	Simplified outline	Circuit diagram
Pin 1 I/O Pin 2 I/O Pin 3 GND		

Marking

Type number	Marking code
N242AT23	CM2

Suggested solder pad layout

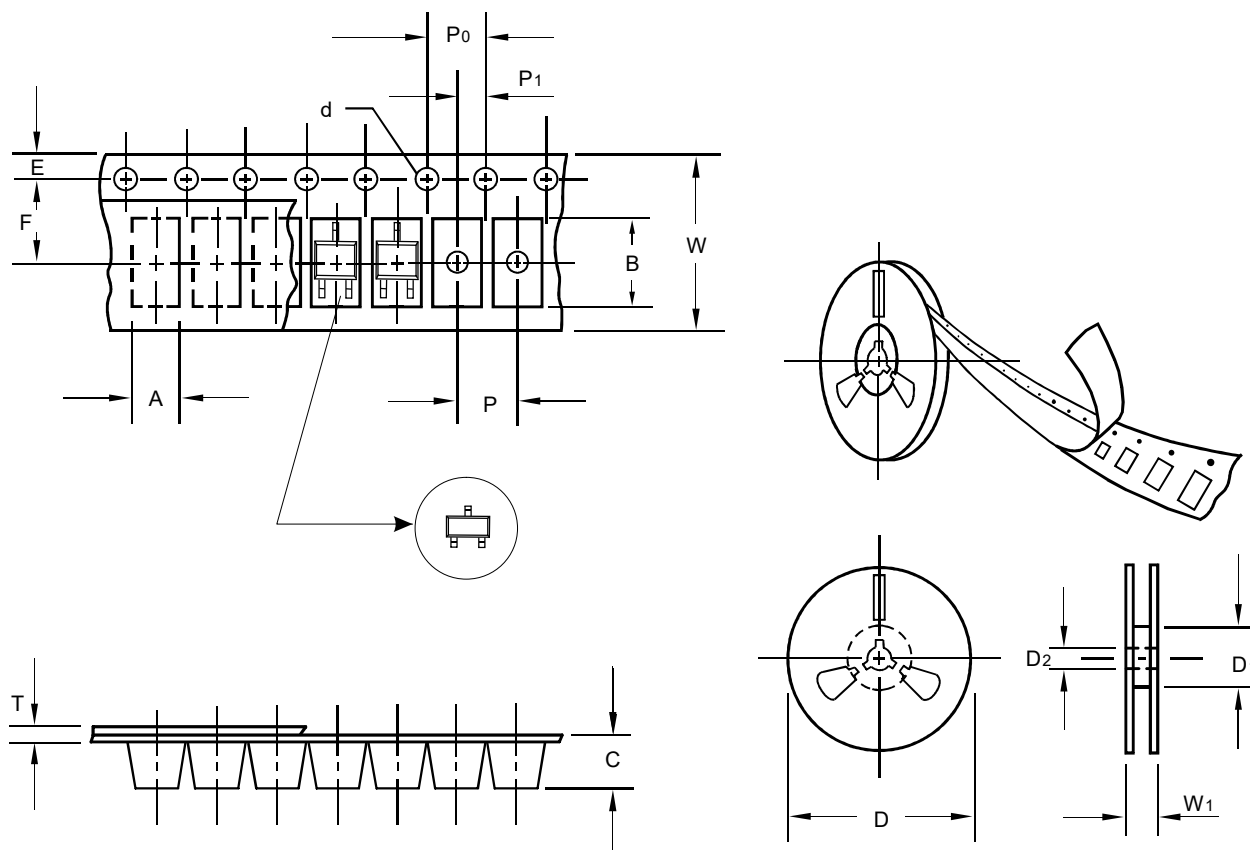
SOT-23



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	3.0	8.00
Reel width	W1	3.0	11.40

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

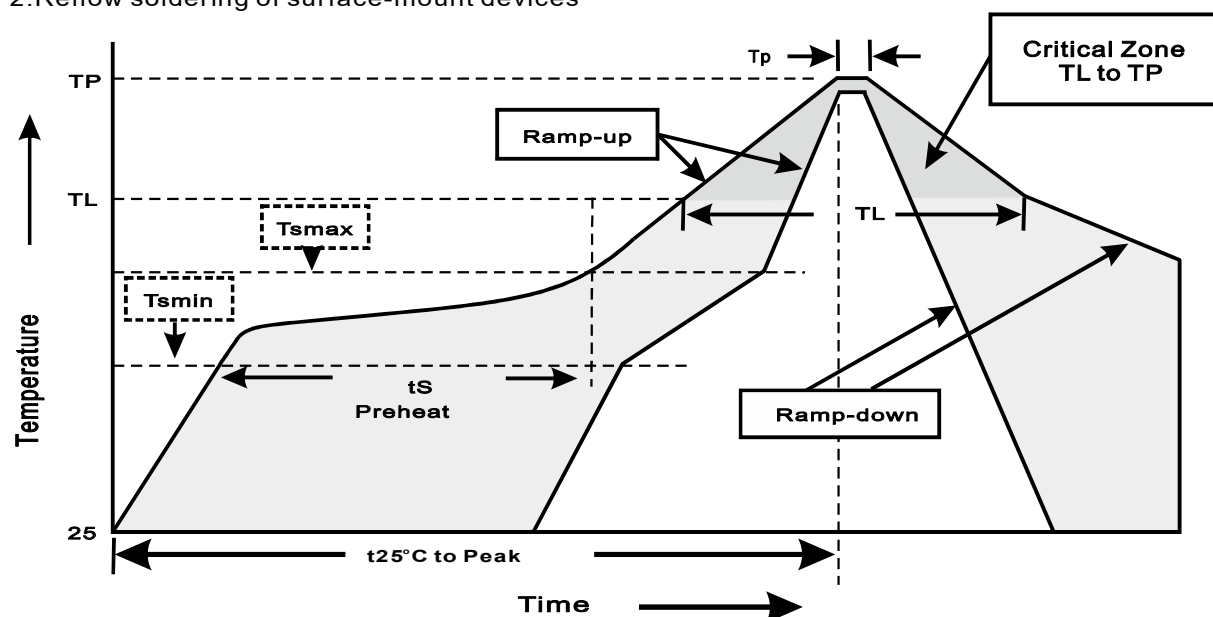
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Reel packing

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)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{min}) -Temperature Max(T_{max}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{max} 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	$<6\text{minutes}$