

N242AT23A

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N242AT23A

270W Uni-Directional TVS For ESD Array Protection : 24.0V

Features

- 270Watts peak pulse power ($t_p=8/20\mu s$).
- Protect two I/O ports.
- Protects one data or power line to:
 - IEC 61000-4-2 $\pm 30kV$ (Contact), $\pm 30kV$ (Air).
 - IEC 61000-4-4 (EFT) 40A (5/50ns).
 - IEC 61000-4-5 (Lightning) 6A (8/20us).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. N242AT23A-H.

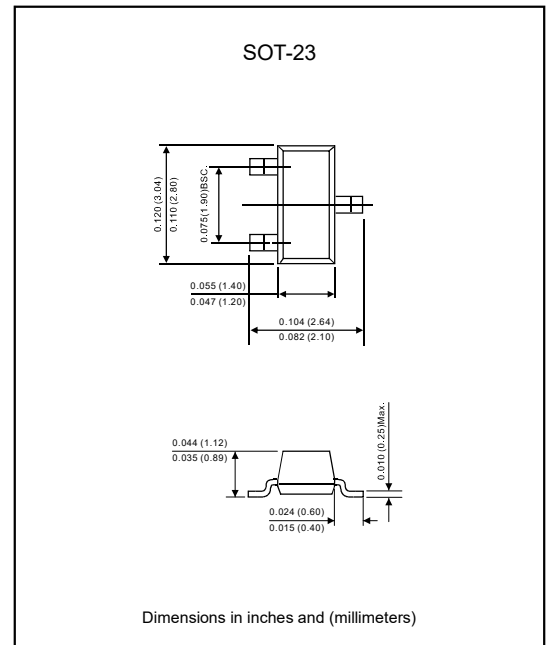
Applications

- Cellular handsets and accessories.
- RS-232, RS-422 & RS-485.
- Control and monitoring systems.
- Set-top box.
- Portable electronics.
- Other electronics equipments communication systems.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-23.
- Terminals : High temperature soldering guaranteed, 260°C/10 seconds at terminals.
- Mounting Position : Any.

Package outline



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

Parameter	Symbol	Ratings	Units
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	270	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	6	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Operating temperature	T_J	+125	$^\circ C$
Storage temperature	T_{STG}	-55 to +150	$^\circ C$

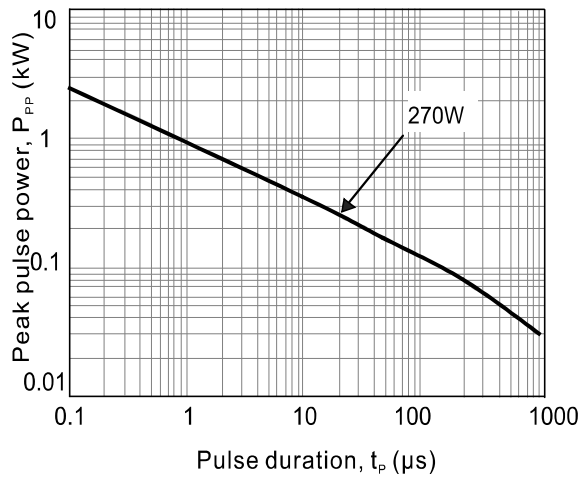
Electrical characteristics (At $T_A=25^\circ C$ unless otherwise noted)

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Units
Reverse stand-off voltage		V_{RWM}			24	V
Reverse breakdown voltage	$I_T=1mA$	V_{BR}	25	27.5		V
Reverse leakage current	$V_R=24V$	I_R			0.5	μA
Clamping voltage (IEC 61000-4-5)	$I_{PP}=6A$	V_C		45		V
Junction capacitance	$V_R=0V, f=1.0MHz$	C_J		25		pF

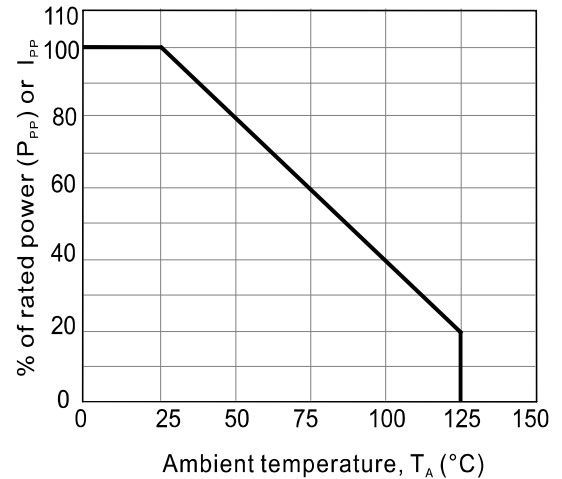
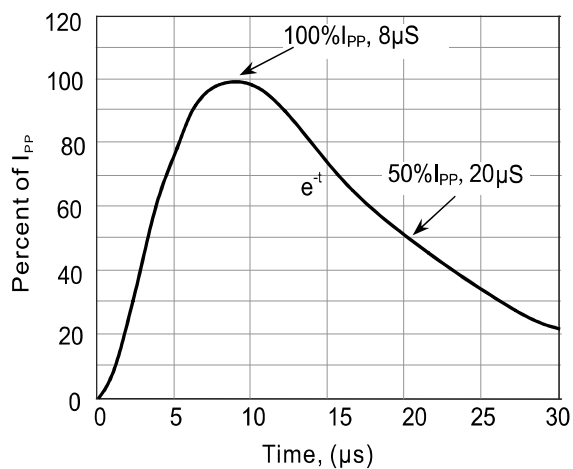
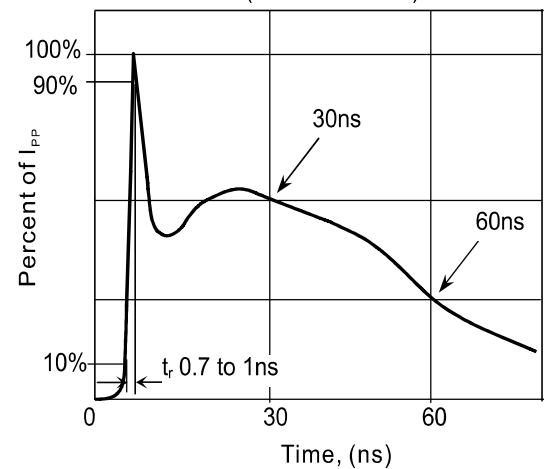
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Rating and characteristic curves

Peak pulse power rating curve

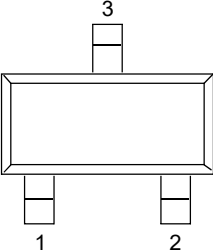
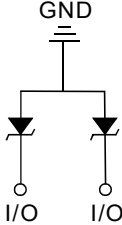


Pulse derating curve

Pulse waveform, 8/20 μ sPulse waveform, ESD
(IEC61000-4-2)

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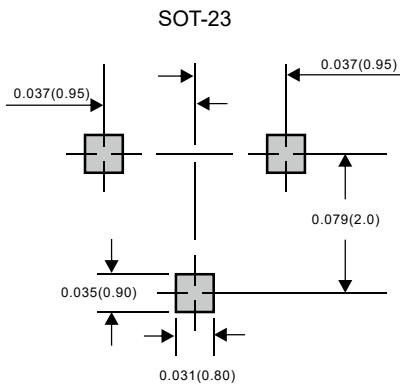
Pinning information

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

Marking

Type number	Marking code
N242AT23A	CM2

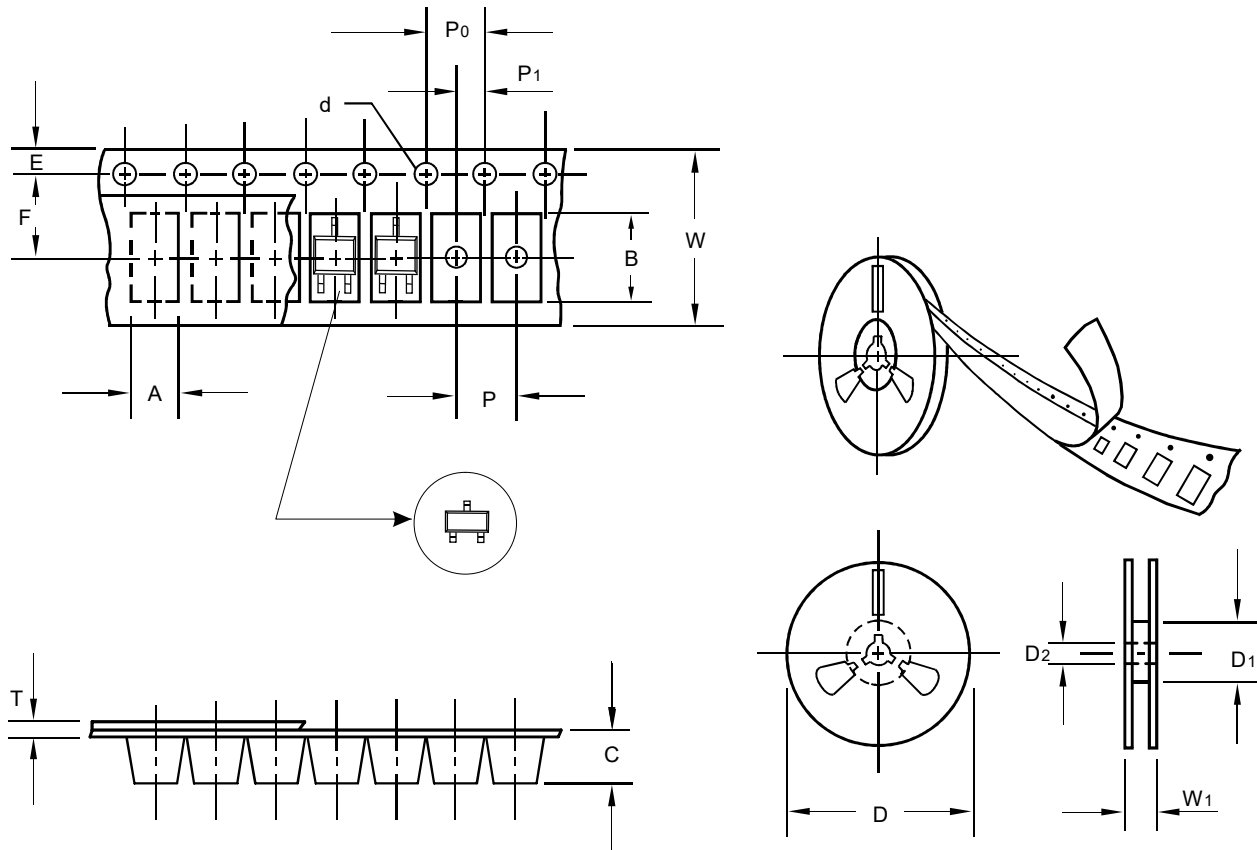
Suggested solder pad layout



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.

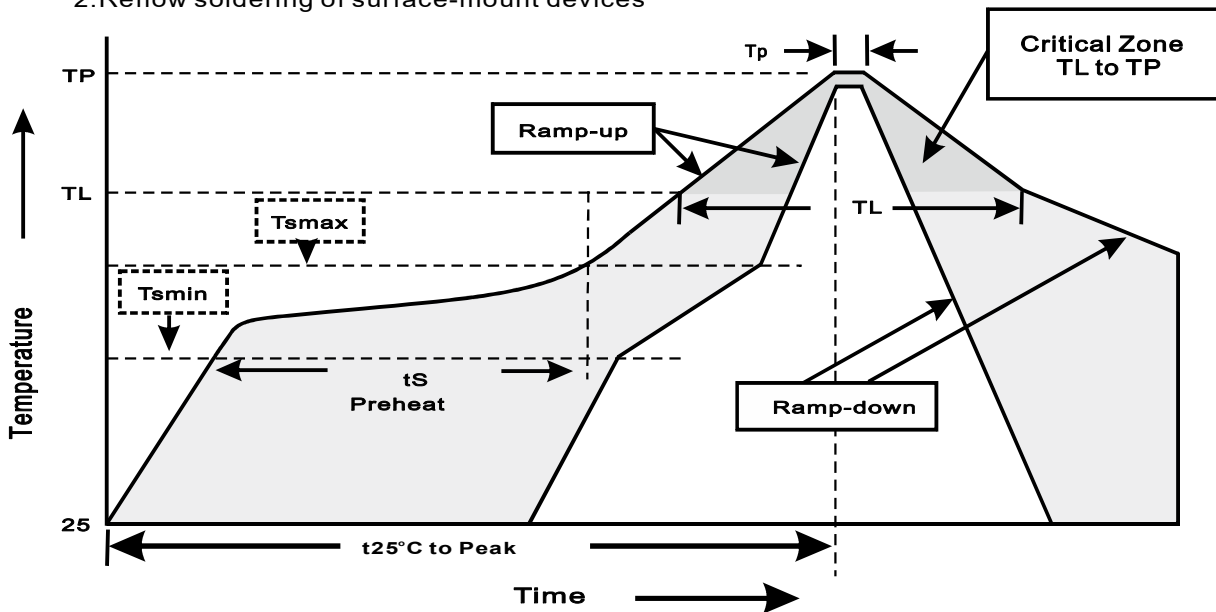
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	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	383*257*387	240,000

Suggested thermal profiles for soldering processes

- Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 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

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm5^{\circ}\text{C}$ for $10\pm2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_{\text{BR}} = V_{\text{BR Min}} * 80\%$ at $T_J=150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{\text{SIG}}$ at $T_A=121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at $T_A=85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031