

N054AT26 Thru N244AT26

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4-Line SMD TVS For ESD Protection

Features

- 350W peak pulse power per ($t_p=8/20\mu s$).
- IEC 61000-4-2 (ESD) $\pm 30kV$ (Air).
 $\pm 30kV$ (Contact).
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- Protects four I/O lines.
- Working voltage : 5V, 8V, 12V, 15V, 18V, 24V.
- Low leakage current.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. N054AT26-H.

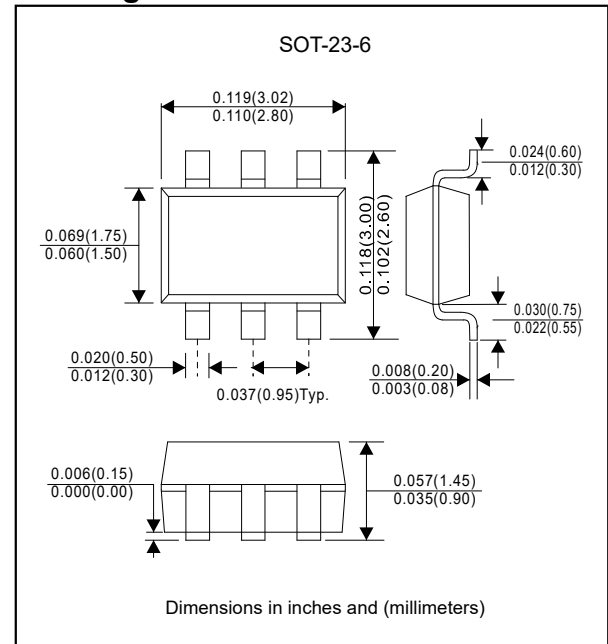
Applications

- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Notebooks, desktops, and servers.
- Portable instrumentation.
- Networking and telecom.
- Serial and parallel ports.
- Peripherals.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23-6
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.013 gram

Package outline



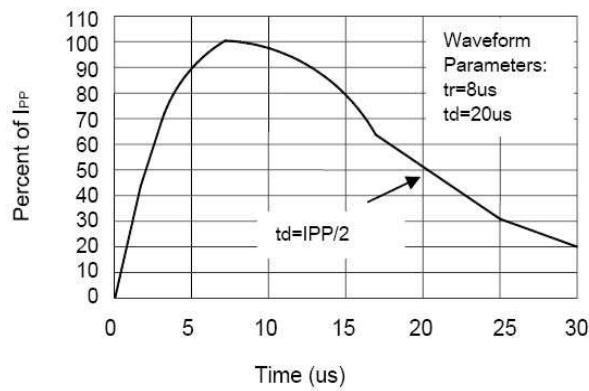
Maximum ratings (at $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	350	W
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Air)		± 30	
Operating temperature	T_{OPT}	+150	$^\circ C$
Storage temperature	T_{STG}	-55 to +150	$^\circ C$
Lead soldering temperature	T_L	260 (10sec.)	$^\circ C$

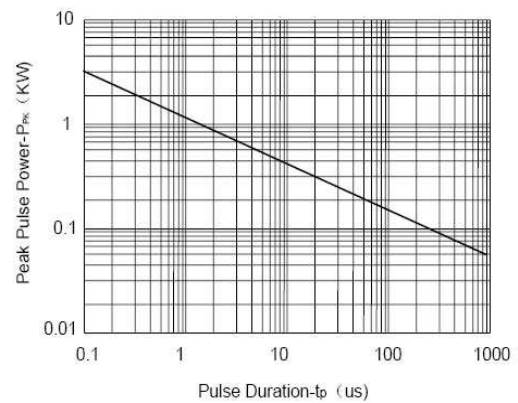
Electrical Characteristics (AT $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value						Unit
		N054AT26	N084AT26	N124AT26	N154AT26	N184AT26	N244AT26	
Reverse stand-off voltage	V_{RWM}	5	8	12	15	18	24	V
Reverse leakage current	I_R	0.1	0.1	0.1	0.1	0.1	0.1	μA
Minimum Reverse Breakdown voltage (@ $I_T=1mA$)	$V_{BR(Min)}$	6.0	9.2	13.3	17.0	19.3	26.7	V
Clamping voltage (@ $I_{PP}=1A$)	V_C	10	13	18	24	29	35	V
Maximum peak pulse current (10/1000 μs)	I_{PPM}	19	15	10	7	6	5	A
Maximum clamping voltage (@ I_{PPM})	V_{CM}	24	20	25	30	35	42	V
Junction capacitance	C_T	150	100	80	50	30	30	pF

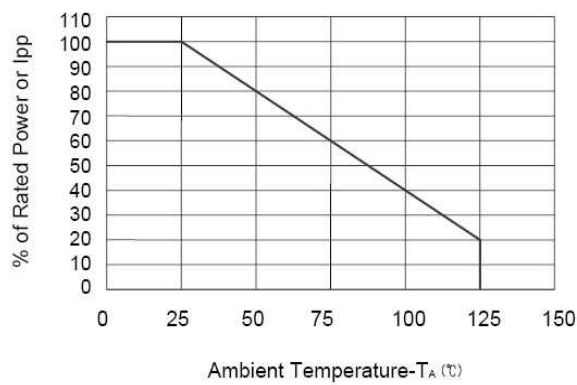
Rating and characteristic curves (N05AT26 Thru N244AT26)



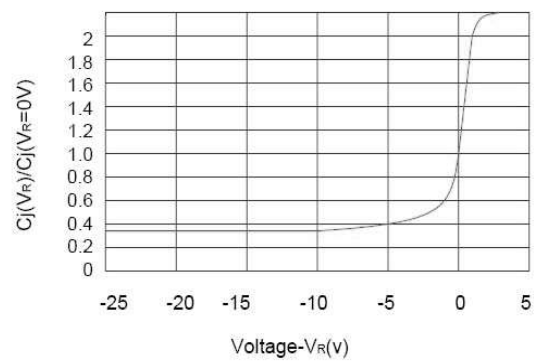
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Junction Capacitance vs. Reverse Voltage

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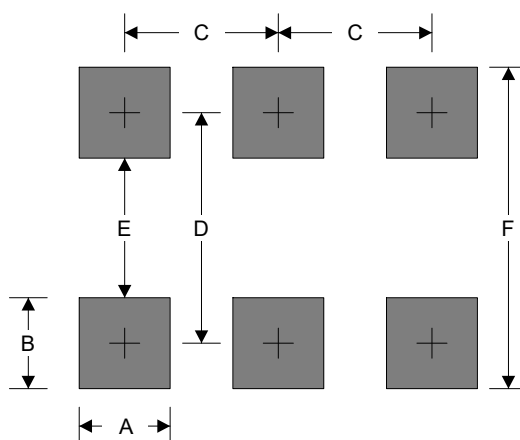
Pinning information

Pin Configuration	Simplified outline	Circuit Diagram
1, 3, 4, 6 I/O 2, 5 GND		

Marking

Type Number	Marking Code
N054AT26	514L
N084AT26	A14L
N124AT26	B14L
N154AT26	C14L
N184AT26	D14L
N244AT26	E14L

Suggested solder pad layout

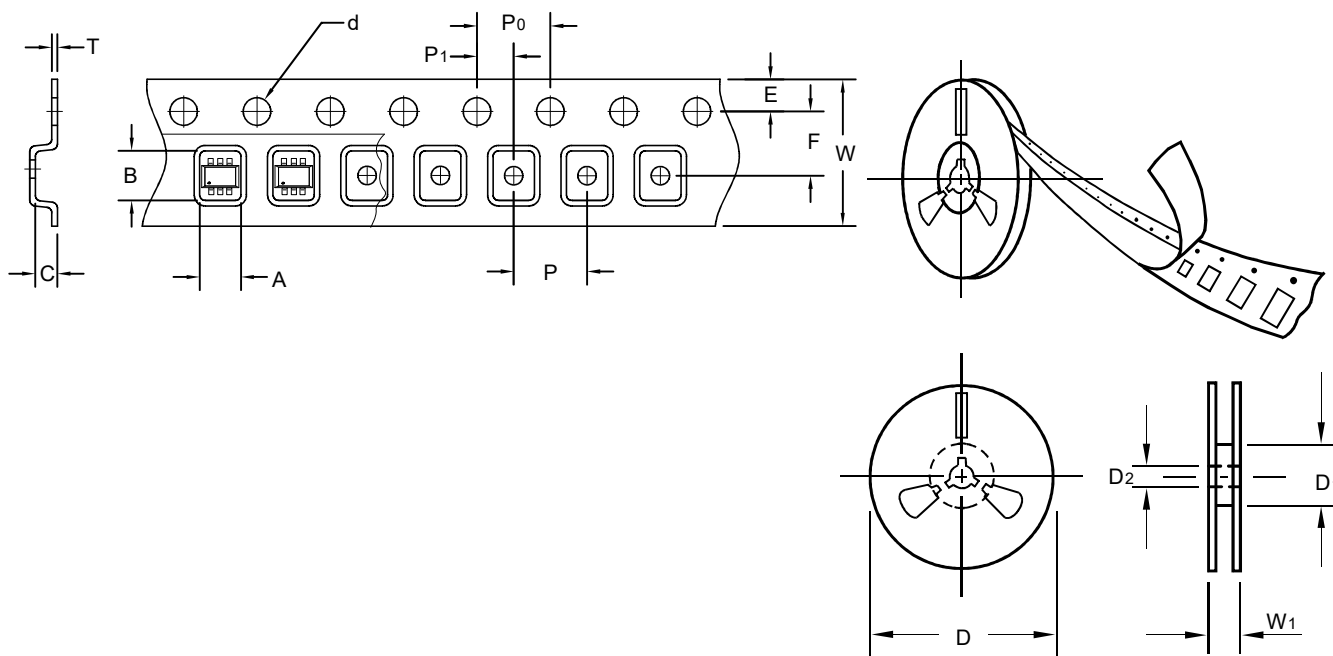


Dimensions in inches and (millimeters)

PACKAGE	A	B	C	D	E	F
SOT-23-6	0.024 (0.60)	0.043 (1.10)	0.037(0.95)	0.098(2.50)	0.055(1.40)	0.142(3.60)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23-6
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	D ₁	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	60.00
Feed hole diameter	D ₂	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	P ₀	0.1	4.00
Embossment center	P ₁	0.05	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.00
Reel width	W ₁	max	14.40

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

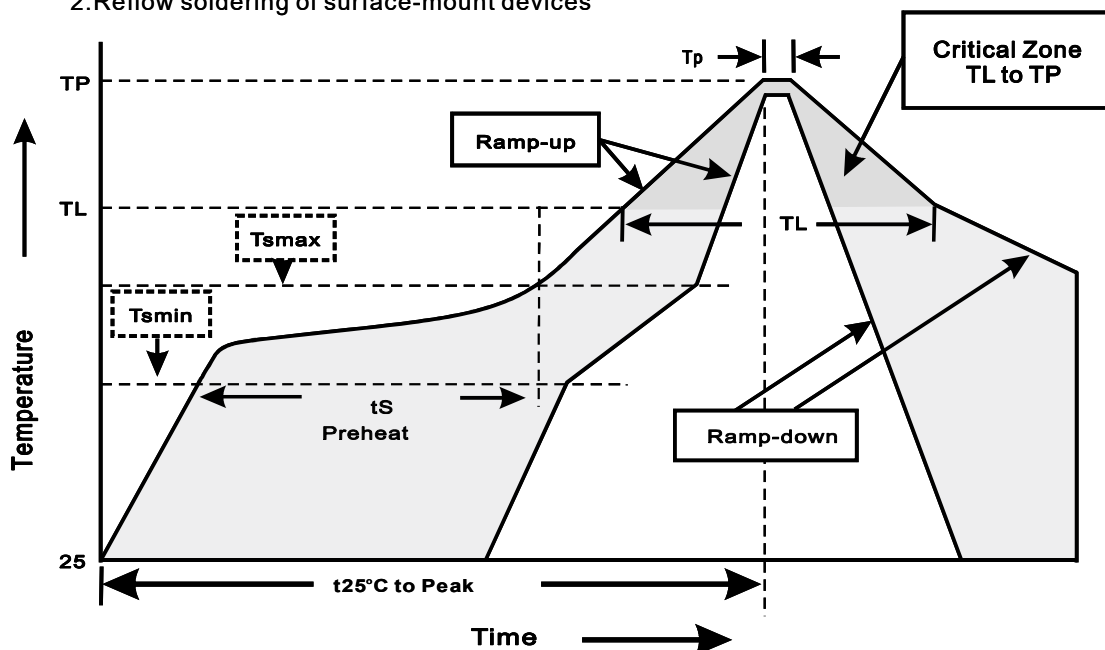
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Reel packing

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)	APPROX. GROSS WEIGHT (kg)
SOT-23-6	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.50

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

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_{BR} = V_{BR} \text{ Min} * 80\%$ at $T_J = 125^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	15P _{SIG} at $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to +125°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 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031