N054BT8 Thru N244BT8

List

N054BT8 Thru N244BT8

4-Line SMD TVS for ESD Protection 5.0V - 24V

Features

- 350 Watts peak pulse power.(tp = 8/20us)
- Protects four I/O lines (bidirectional).
- Working voltage : 5V, 8V, 12, 15V, 18V, 24V.
- Low leakage current.
- IEC 61000-4-2 ,±30 KV(Air), ±30 KV(Contact)
- IEC 61000-4-5 (EFT) 40A (5/50ns)
- Suffix "-H" indicates Halogen-free parts, ex. N054BT8-H.

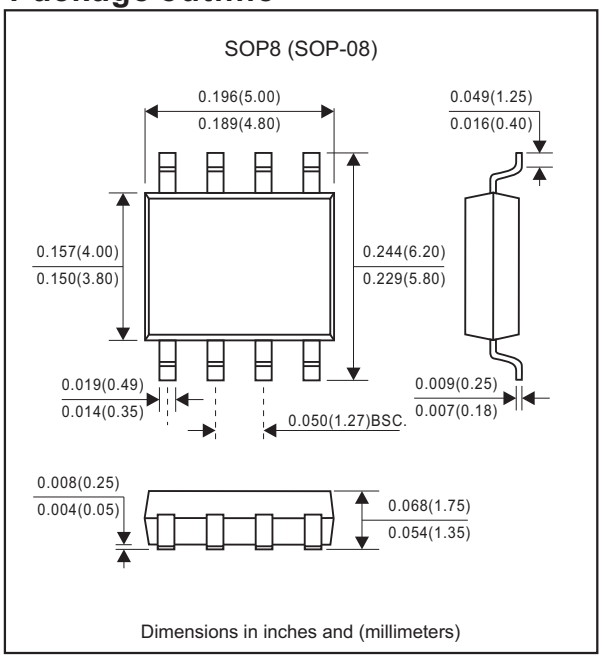
Applications

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

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOP8 (SOP-08)
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Weight: Approximated 0.18 gram

Package outline



Maximum ratings (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power (tp=8/20μs)	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	℃
Storage temperature	T_{STG}	-55 to +150	℃
Lead soldering temperature	T_L	260 (10sec.)	℃

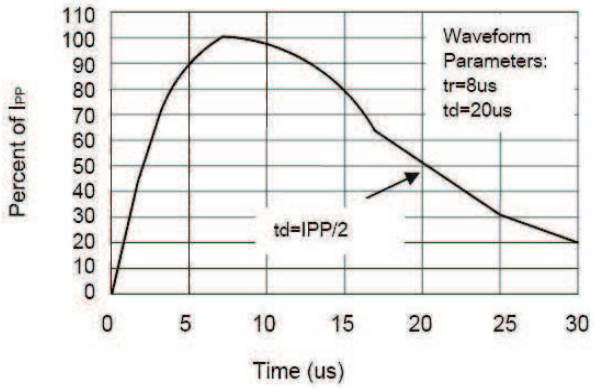
Electrical Characteristics (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	Value						Unit
		N054BT8	N084BT8	N124BT8	N154BT8	N184BT8	N244BT8	
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	9.2	13.3	16.7	20.4	26.7	V
Clamping voltage (@I_{PP}=1A)	V_C	10	13	18	24	29	35	V
Maximum peak pulse current (8/20μs)	I_{PPM}	22	15	10	7	6	5	A
Maximum clamping voltage (@I_{PPM})	V_{CM}	16	20	25	30	35	42	V
Junction capacitance	C_T	90	75	50	40	30	25	pF

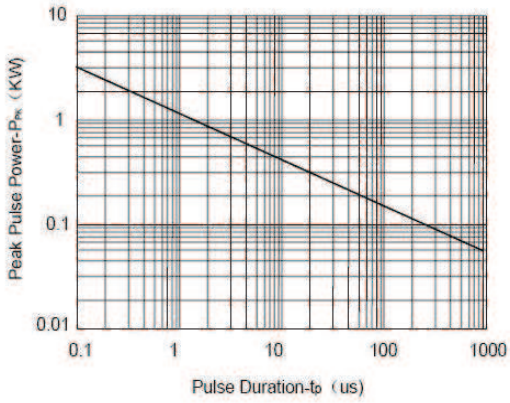
Note:

1. Non-repetitive current pulse 8/20 us exponential decay waveform according to IEC61000-4-5.

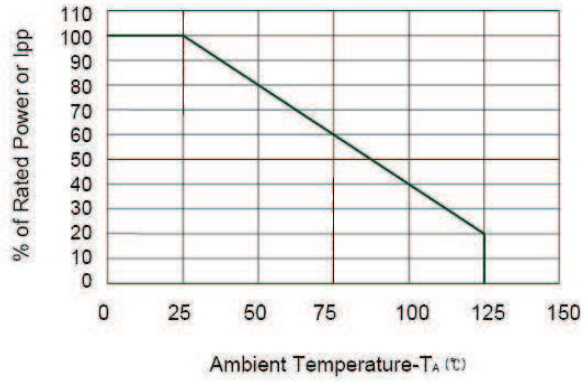
Rating and characteristic curves (N054BT8 Thru N244BT8)



Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

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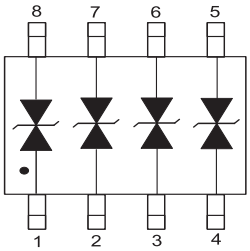
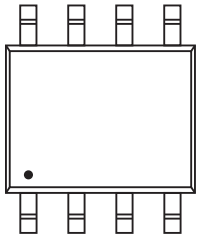
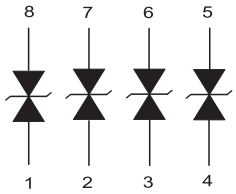
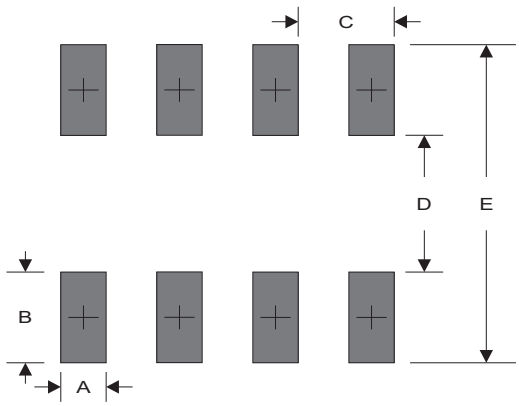
Pinning information

Pin Configuration	Simplified outline	Circuit Diagram
		

Marking

Type Number	Marking code
N054BT8	TS0504LU
N084BT8	TS0804LU
N124BT8	TS1204LU
N154BT8	TS1504LU
N184BT8	TS1804LU
N244BT8	TS2404LU

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C	D	E
SOP8(SOP-08)	0.024 (0.60)	0.043 (1.10)	0.037(0.95)	0.098(2.50)	0.055(1.40)

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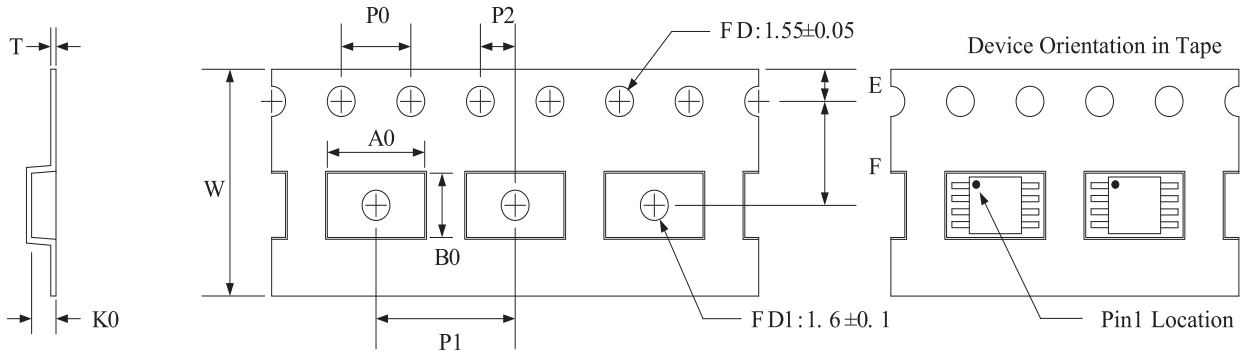
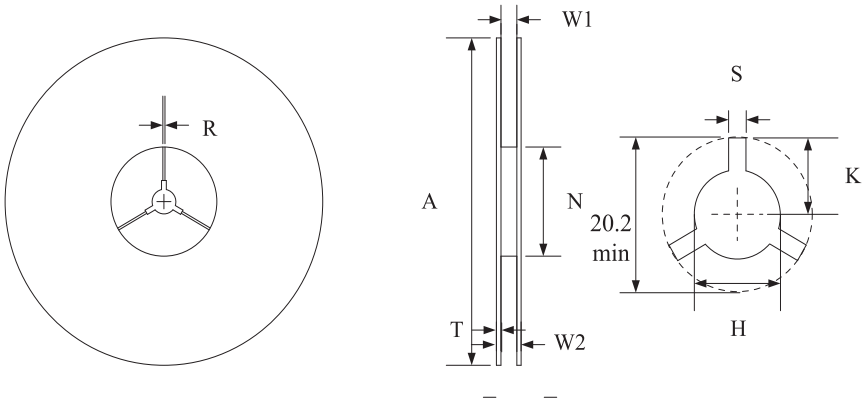
Packing information



Symbol	W	A0	B0	K0	E	F	P1	P0	P2	T
Dimensions (mm)	12.00±0.3	6.40±0.1	5.2±0.1	2.10±0.1	1.75±0.1	5.50±0.1	8.00±0.1	4.0±0.1	2.0±0.1	0.3±0.05



Symbol	Reel Size	A	N	W2	W1	H	T	S	K	R
Dimensions (mm)	Φ330	330.0±2.0	100.0±2.0	18.4 max	12.4+2.0 -0.0	13.0+0.5 -0.2	2.0±0.2	1.5 min	10.1 min	2.5 min

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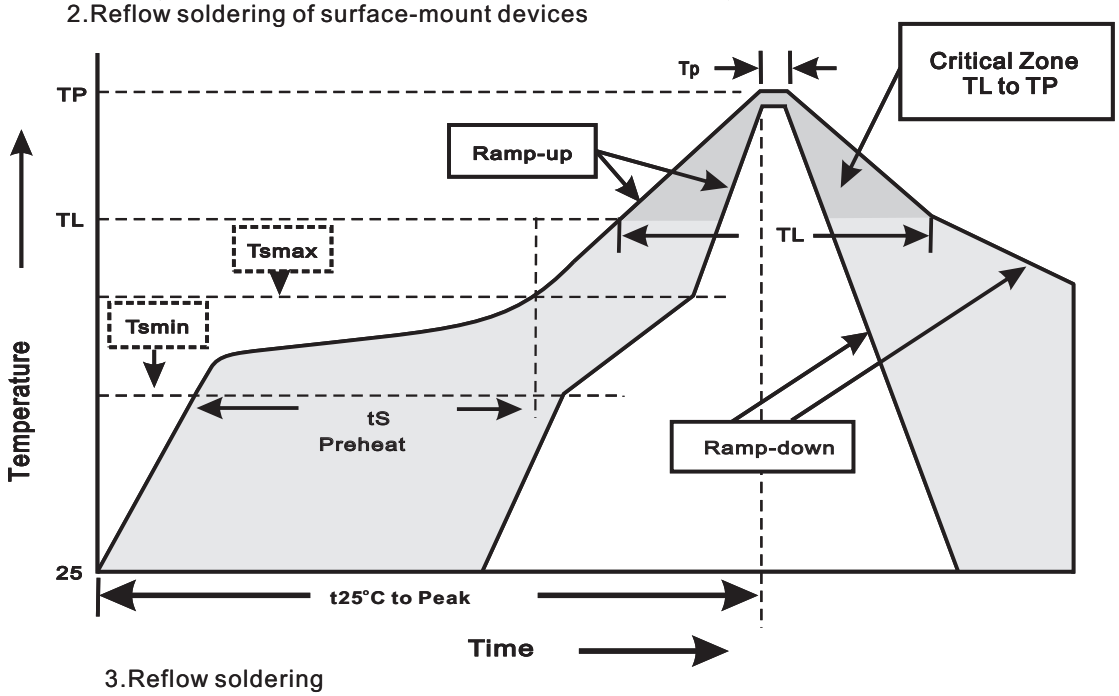
Reel packing

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)
SOP8(SOP-08)	13"	4,000	8.0	8,000	355*340*50	330	385*300*370	50,000

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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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