

N055AT56

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100W 5-Channel TVS For ESD Protection Array : 5.0V

Features

- 100Watts peak pulse power ($t_p=8/20\mu s$).
- Protect up to 5 lines.
- Low clamping voltage.
- Excellent surge protection (100W at 8/20 μs).
- Meets MSL: level 3 per J-STD-020.
- Protects one data or power line to:
 - IEC 61000-4-2 (ESD) $\pm 30kV$ (Contact), $\pm 30kV$ (Air).
 - IEC 61000-4-5 (Lightning) 8A (8/20 μs).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. N055AT56-H.

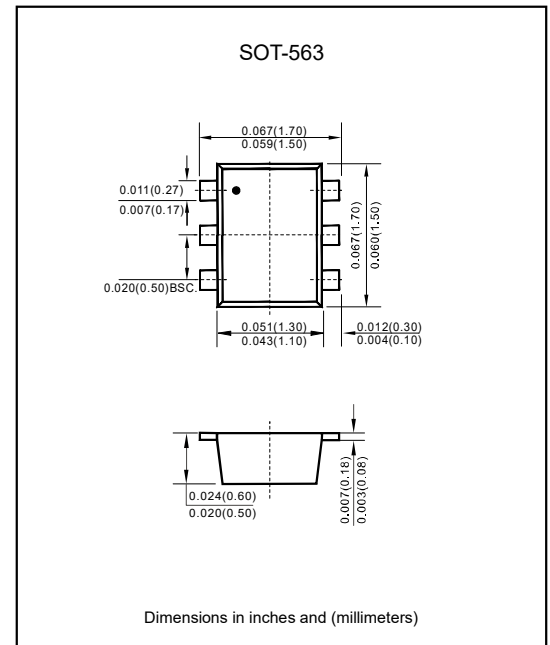
Applications

- Cellular handsets and accessories.
- Microprocessor based equipment.
- Set-top box.
- Desktops PC, laptops and servers.
- Printers, peripherals and audio players.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant.
- Case : Molded plastic, SOT-563.
- Mounting Position : Any.

Package outline



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

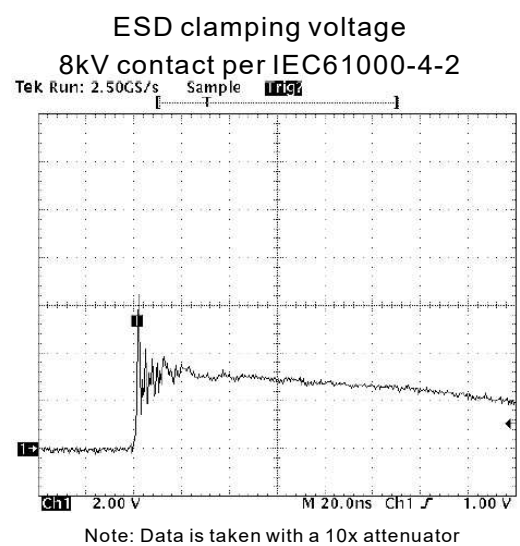
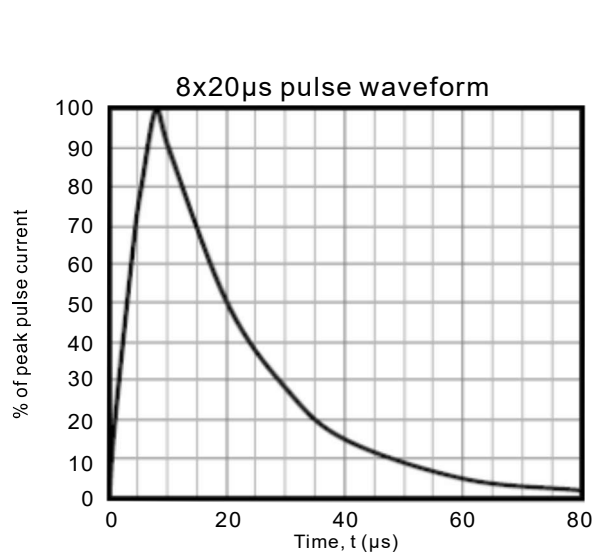
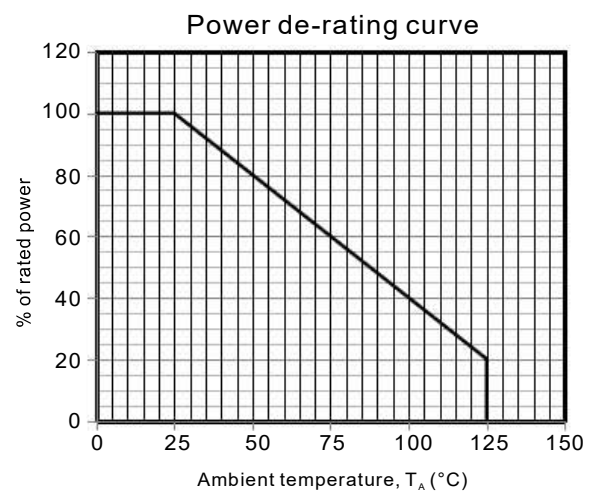
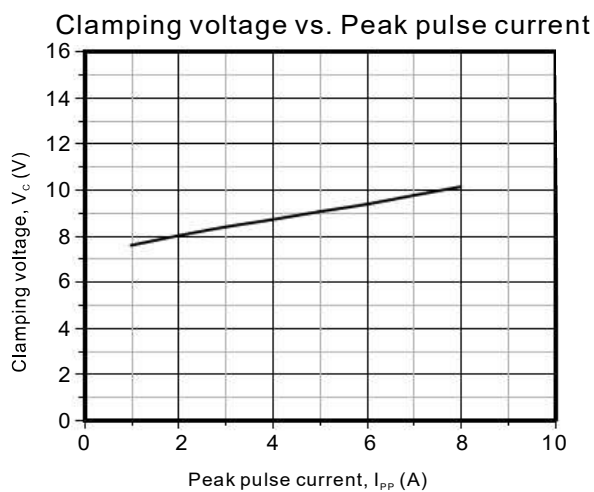
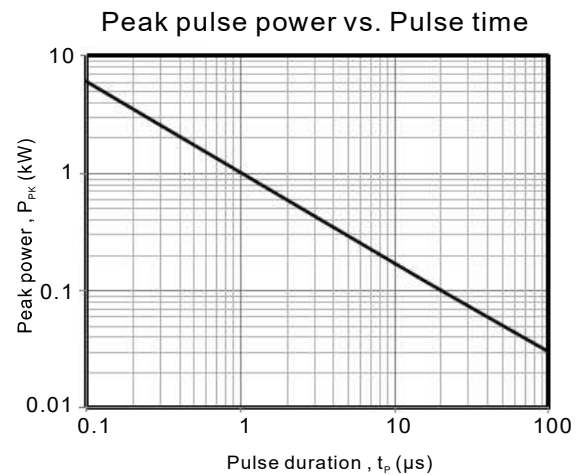
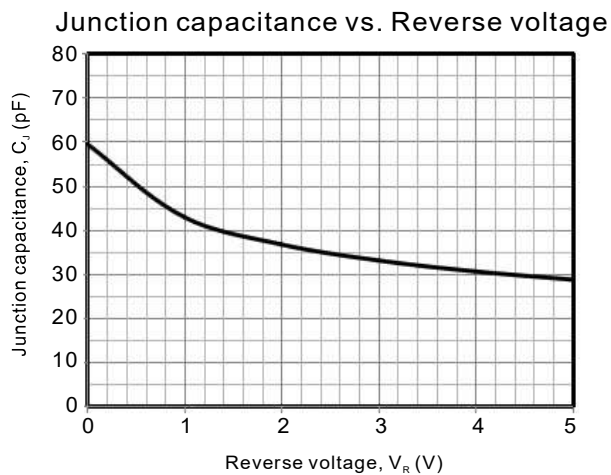
Parameter	Symbol	Ratings	Units
Peak pulse power ($t_p=8/20\mu s$)	P_{PP}	100	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	8	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Operating temperature	T_J	+150	$^\circ C$
Storage temperature	T_{STG}	-55 to +150	$^\circ C$

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}			5	V
Reverse breakdown voltage	$I_T=1mA$	V_{BR}	6		8.5	V
Reverse leakage current	$V_R=5V$	I_R			0.2	μA
Clamping voltage	$I_{PP}=1A$	V_C			8	V
Clamping voltage	$I_{PP}=8A$				12	
Junction capacitance	$V_R=0V, f=1.0MHz$	C_J		55		pF

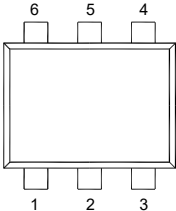
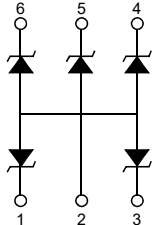
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Rating and characteristic curves



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Pinning information

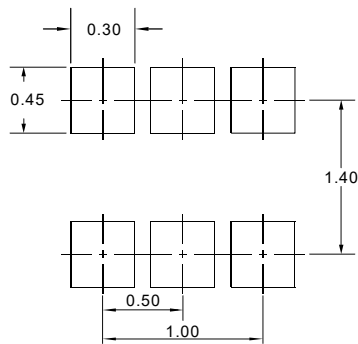
Pin	Simplified outline	Symbol
Pin 1 Cathode Pin 2 Anode Pin 3 Cathode Pin 4 Cathode Pin 5 Cathode Pin 6 Cathode		

Marking

Type number	Marking code
N055AT56	U5S6

Suggested solder pad layout

SOT-563



Dimensions in millimeters

- Note :
- 1. Controlling dimension : in millimeters.
 - 2. General tolerance : $\pm 0.05\text{mm}$.
 - 3. The pad layout is for reference purposes only.

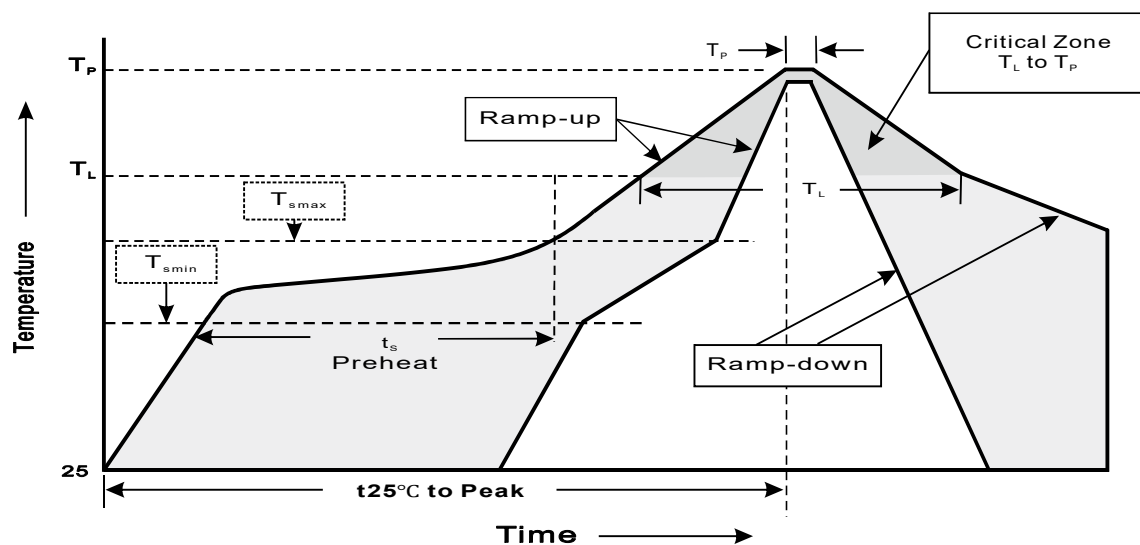
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Reel packing

DEVICE NUMBER	PACKAGE	REEL SIZE	REEL (PCS)	REEL DIA, (m/m)
N055AT56	SOT-563	7"	3,000	178

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-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 within 5°C of actual peak Temperature(T_P)	10 ~ 30sec
Ramp-down rate	< 6°C/sec
Time 25°C to peak temperature	< 6 minutes

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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 $T_J = 150^\circ\text{C}$ 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 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031