

N03V3BT56

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Applications.....	2
Maximum ratings	2
Electrical characteristics.....	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Suggested solder pad layout.....	4
Packing information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6

N03V3BT56

70W 5-Line TVS For ESD Diode Array : 3.3V

Features

- 70Watts peak pulse power($t_p=8/20\mu s$).
- Low capacitance: 28pF (typ.).
- Protect up to 5 data lines.
- Low leakage current.
- Complies with following standards:
IEC 61000-4-2 (ESD) $\pm 30kV$ (Contact), $\pm 30kV$ (Air).
IEC 61000-4-5 (Lightning) 5A (8/20 μs).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. N03V3BT56-H.

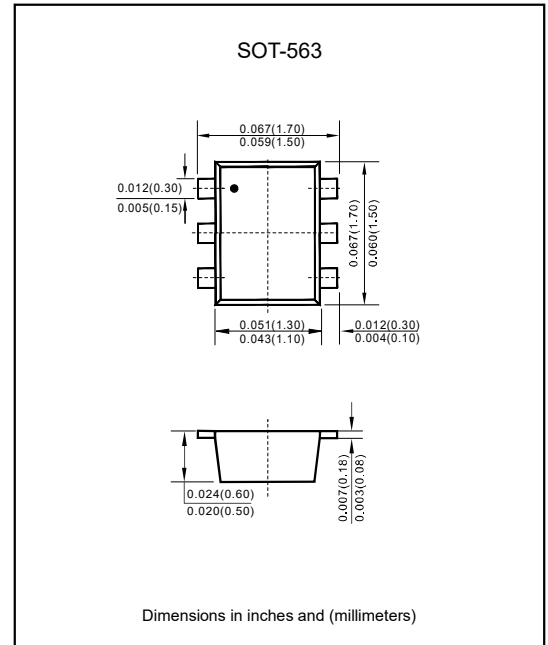
Applications

- Personal digital assistants (PDA's).
- Cellular handsets, accessories, notebooks and handhelds.
- Portable instrumentation.
- Digital cameras.

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}	70	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	5	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 range	T_{STG}	-55 to +150	$^\circ C$

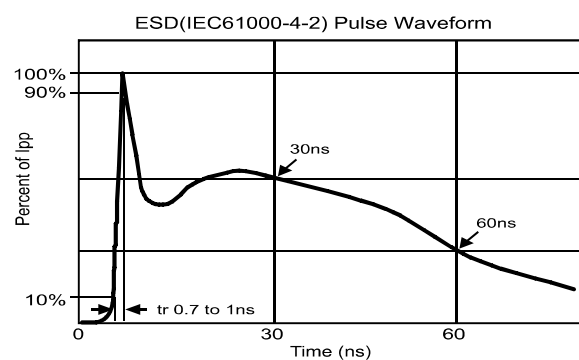
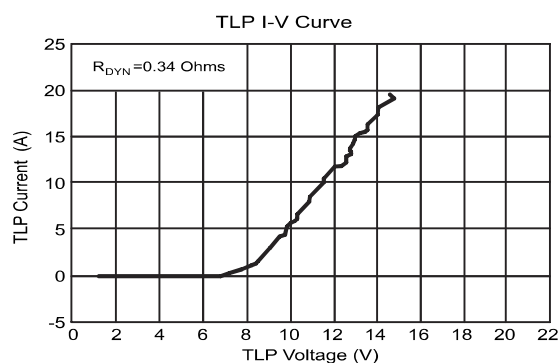
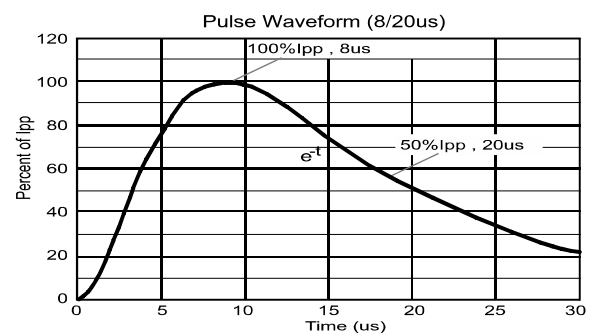
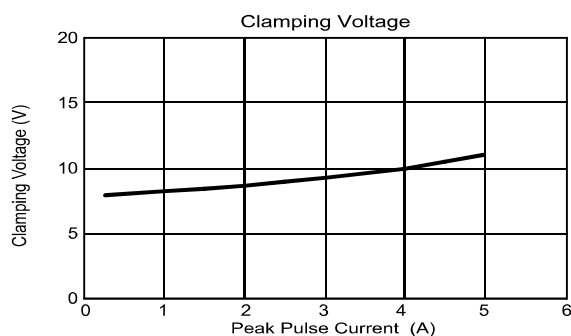
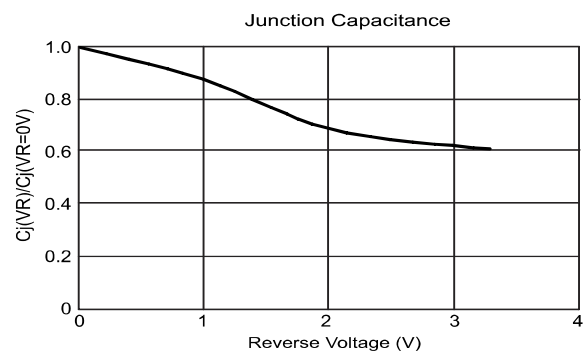
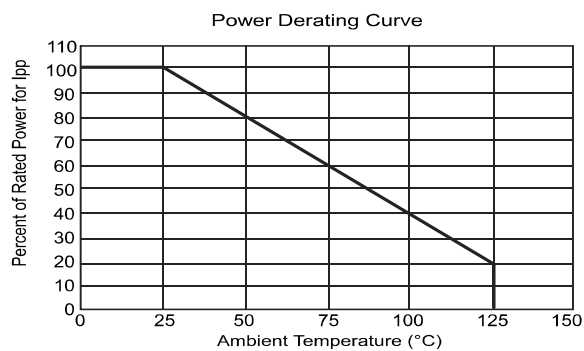
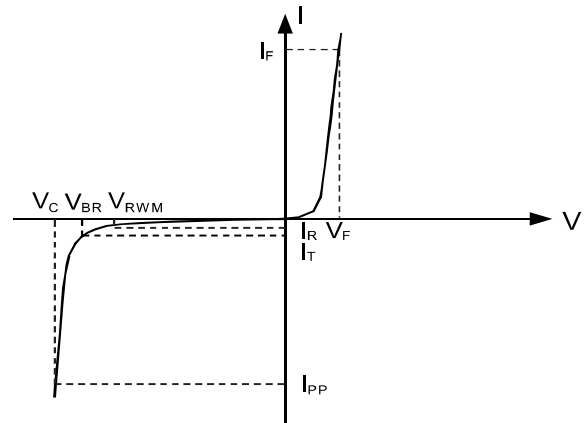
Electrical characteristics (At $T_A=25^\circ C$ unless otherwise noted)

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Units
Reverse stand-off voltage		V_{RWM}			3.3	V
Reverse breakdown voltage	$I_T=1mA$	V_{BR}	4.2			V
Reverse leakage current	$V_{RWM}=3.3V$	I_R			0.2	μA
Forward voltage	$I_F=10mA$	V_F	0.5		1	V
Surge clamping voltage	$I_{PP}=5A, t_p=8/20\mu s$	V_C			14	V
ESD Clamping voltage (TLP)	$I_{TLP}=4A, t_p=0.2/100ns$	V_C		9.5		V
	$I_{TLP}=16A, t_p=0.2/100ns$			13.6		
Dynamic resistance	TLP=0.2/100ns	R_{DYN}		0.34		Ω
Junction capacitance	$V_R=0V, f=1.0MHz$, between I/O pins and GND	C_J		28		pF

N03V3BT56

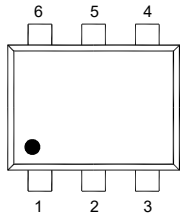
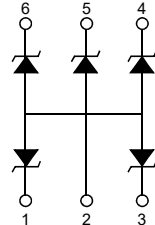
Rating and characteristic curves

Symbol	Parameter
I_{PP}	Reverse peak pulse current
V_C	Clamping voltage @ I_{PP}
V_{RWM}	Working peak reverse voltage
I_R	Reverse leakage current @ V_{RWM}
V_{BR}	Breakdown voltage @ I_T
I_T	Test current
I_F	Forward current
V_F	Forward voltage @ I_F

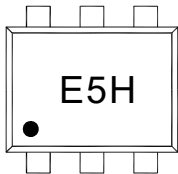


N03V3BT56

Pinning information

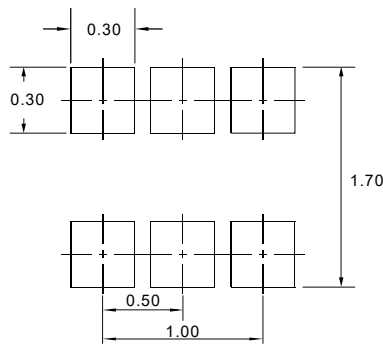
Pin	Simplified outline	Symbol
Pin 1 Cathode Pin 2 Anode Pin 3 Cathode Pin 4 Cathode Pin 5 Cathode Pin 6 Cathode		

Marking

Type number	Marking code
N03V3BT56	

Suggested solder pad layout

SOT-563

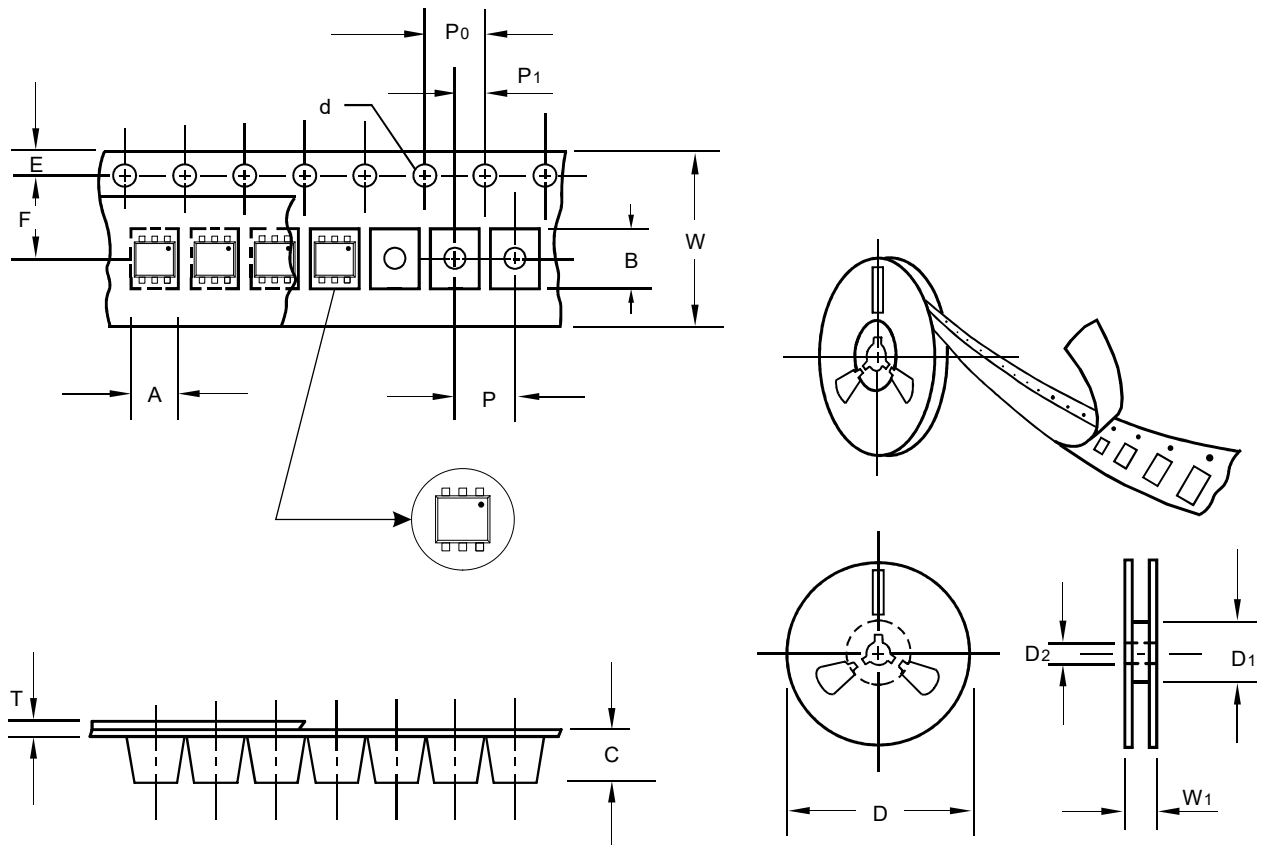


Dimensions in millimeters

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

N03V3BT56

Packing information



unit:mm

Item	Symbol	Tolerance	SOT-563
Carrier width	A	1.0	2.25
Carrier length	B	1.0	2.55
Carrier depth	C	1.0	1.20
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	50.00
Feed hole diameter	D ₂	1.0	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	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	12.30

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

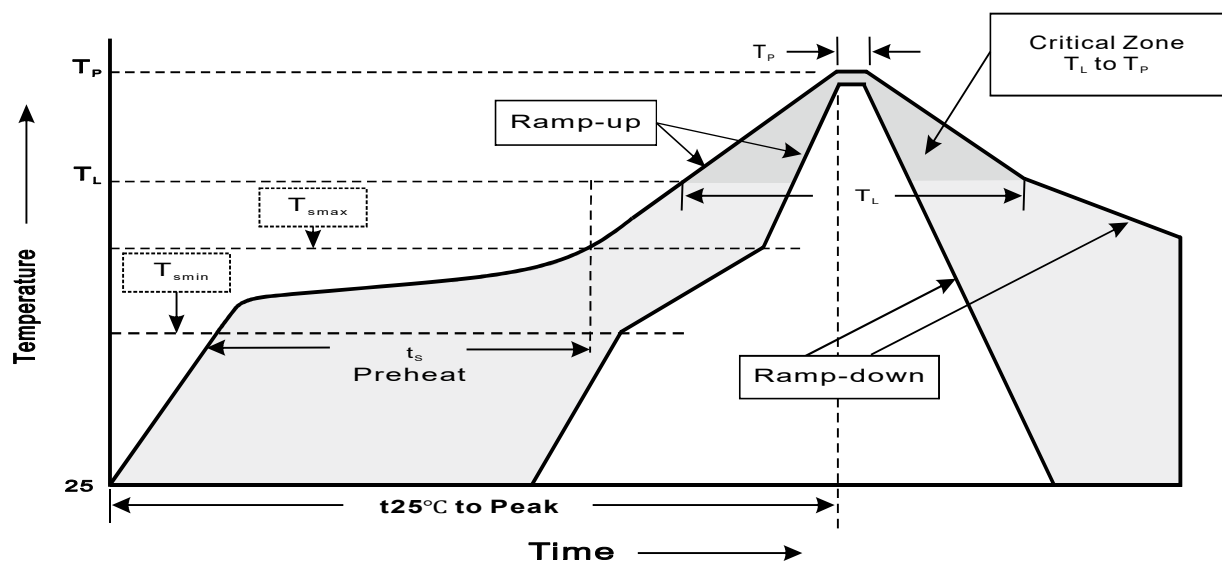
N03V3BT56

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-563	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°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