

N36BT0603

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Surface Mount TVS Bi-directional For ESD - 36V

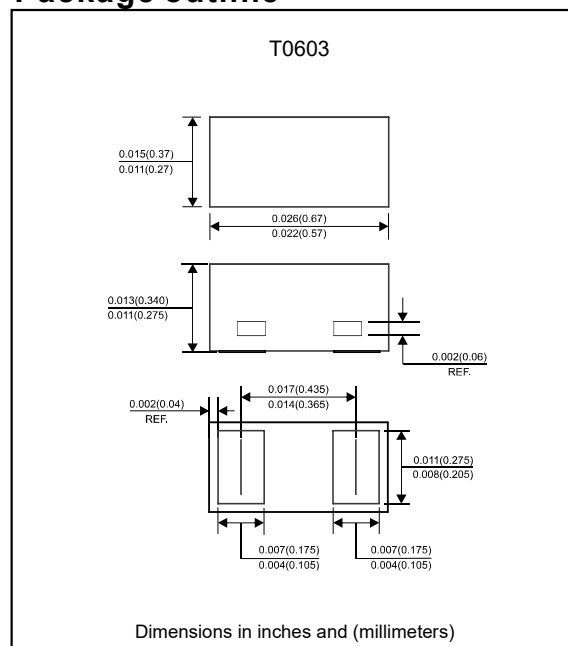
Features

- Bi-directional ESD protection.
- IEC 61000-4-5 (Surge); $I_{PP}=2A$.
- IEC 61000-4-2 (ESD); $\pm 25KV$ (Contact).
- Low clamping voltage.
- Low leakage current.
- Lead-free parts meet RoHs requirements.
- Suffix "-H" indicates Halogen free parts, ex. N36BT0603-H.

Mechanical data

- Case : Molded plastic, T0603
- Terminals: Gold plated, solder able per MIL-STD-750, method 2026.
- Polarity : Indicated by cathode band.
- Mounting Position : Any.
- Weight : Approximated 0.0004 gram (approx).

Package outline



Absolute maximum ratings (At $T_A=25^{\circ}C$, RH=45% ~ 75%, unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Peak pulse power ($t_p=8/20\mu s$)	P_{PK}	130	W
Peak pulse current ($t_p=8/20\mu s$)	I_{PP}	2	A
ESD per IEC 61000-4-2 (Air discharge)	ESD	± 25	KV
ESD per IEC 61000-4-2 (Contact discharge)		± 25	KV
Operating junction temperature range	T_{OPT}	-55 ~ 125	$^{\circ}C$
Storage temperature range	T_{STG}	-55 ~ 150	$^{\circ}C$

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

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Nominal reverse working voltage	V_{RWM}				36	V
Punch-through voltage	V_{PT}	$I_T=2mA$	40			V
Reverse leakage current	I_R	$V_{RWM}=36V$		10	50	nA
Clamping voltage-1	V_{c1}	$I_{PP}=1A$, $t_p=8/20\mu s$		50	55	V
Clamping voltage-2	V_{c2}	$I_{PP}=2A$, $t_p=8/20\mu s$		58	65	V
Parasitic capacitance	C_J	$V_R=0V$, $f=1MHz$		7.5	12	pF

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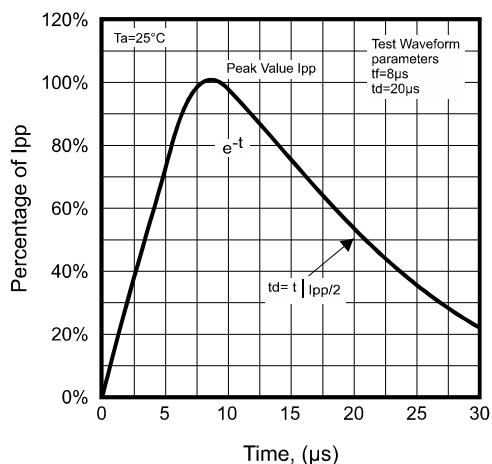
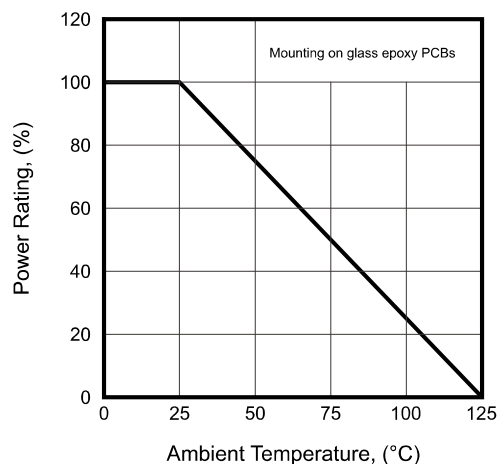
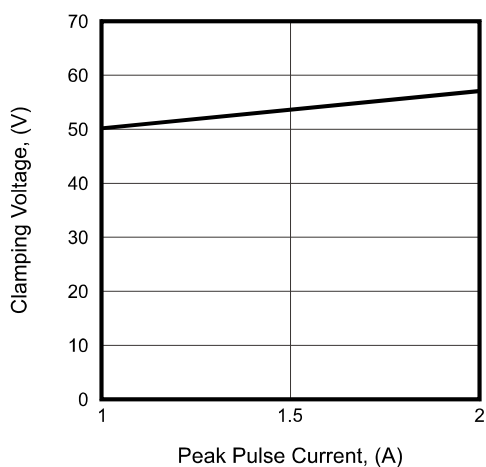
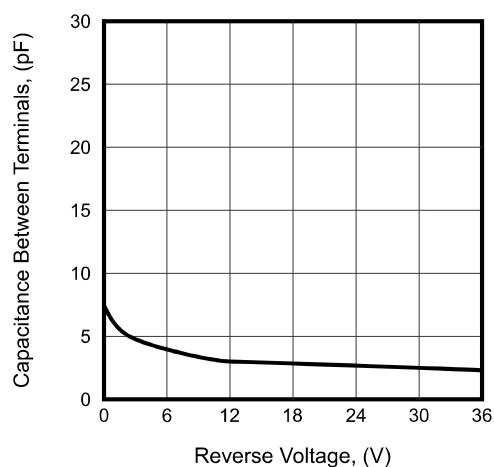
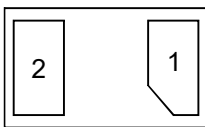
Ratings and V-I characteristics curves ($T_A=25^\circ\text{C}$, Unless otherwise noted)Fig.1 - 8/20 μs Peak Pulse Current
Waveform Acc. IEC 61000-4-5

Fig.2 - Power Rating Derating Curve

Fig.3 - Typical Clamping Voltage vs.
Peak Pulse CurrentFig.4 - Typical Capacitance Between
Terminals Characteristics

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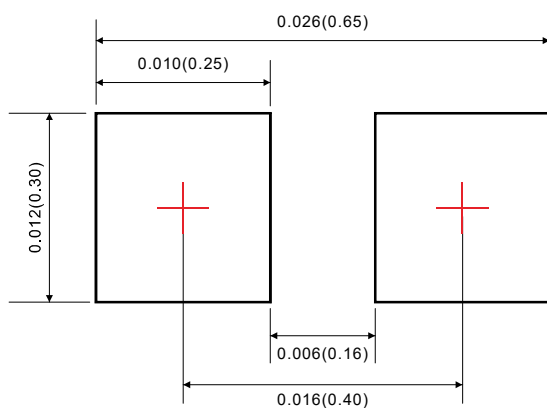
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

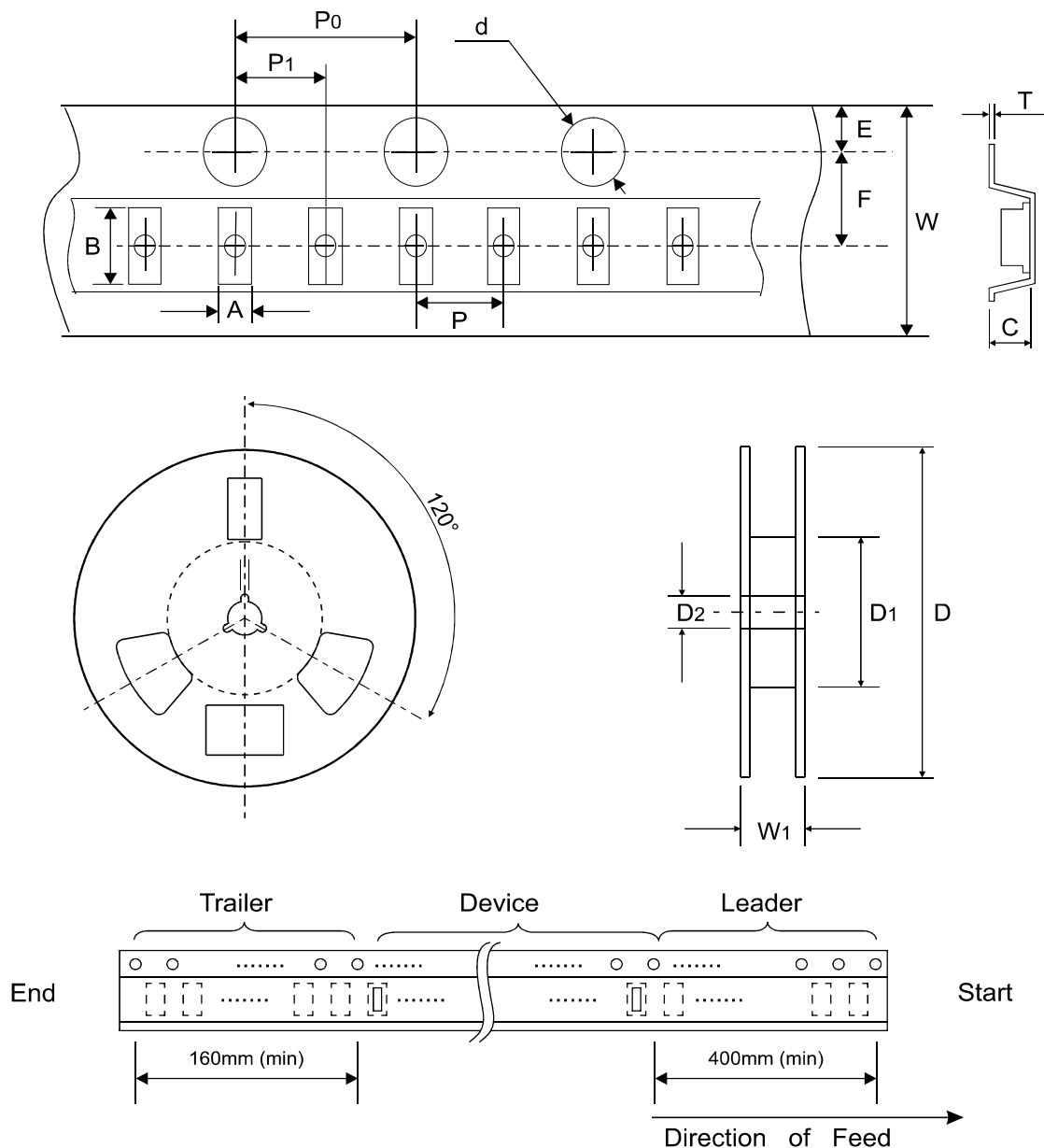


Suggested solder pad layout



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Packing information



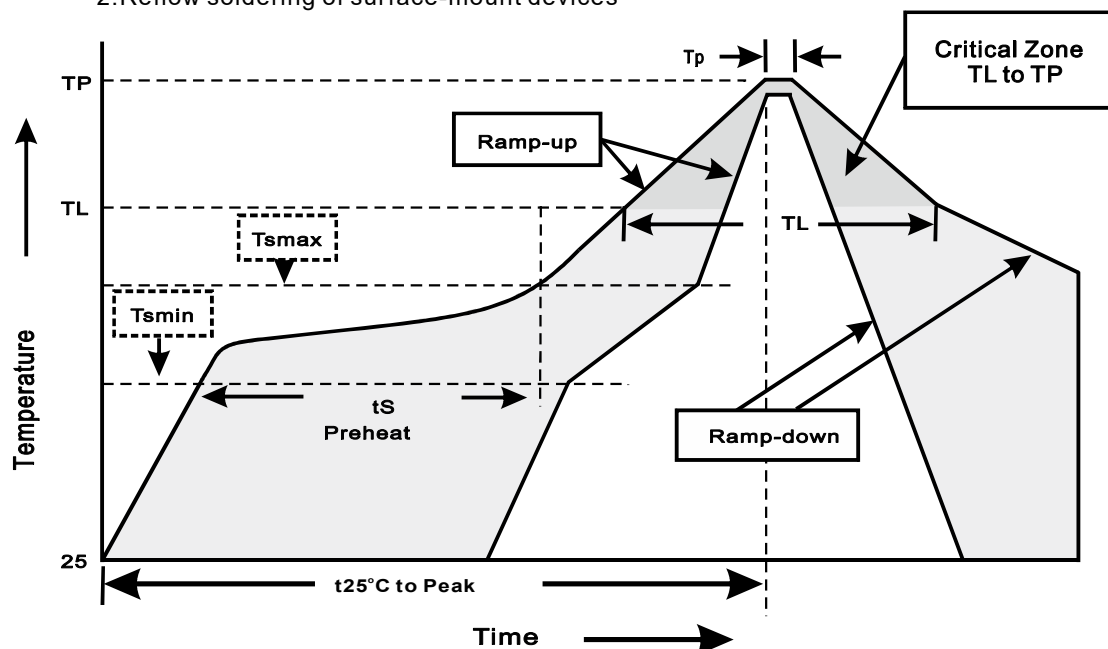
	SYMBOL	A	B	C	d	D	D1	D2
T0603	(mm)	0.44 ± 0.03	0.74 ± 0.03	0.40 ± 0.03	$1.50 + 0.10 - 0.00$	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.017 ± 0.001	0.029 ± 0.001	0.016 ± 0.001	$0.059 + 0.004 - 0.000$	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

	SYMBOL	E	F	P	P0	P1	T	W	W1
T0603	(mm)	1.75 ± 0.10	3.50 ± 0.05	2.00 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.03	$8.00 + 0.30 - 0.10$	$12.00 + 0.50 - 0.00$
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.079 ± 0.002	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	$0.315 + 0.012 - 0.004$	$0.472 + 0.020 - 0.000$

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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)	$<3^\circ\text{C}/\text{sec}$
Preheat -Temperature Min(T_{min}) -Temperature Max(T_{max}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{max} to T_L -Ramp-upRate	$<3^\circ\text{C}/\text{sec}$
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	$<6^\circ\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$