

LL03BT0603

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Surface Mount TVS Bi-directional For ESD - 3.3V

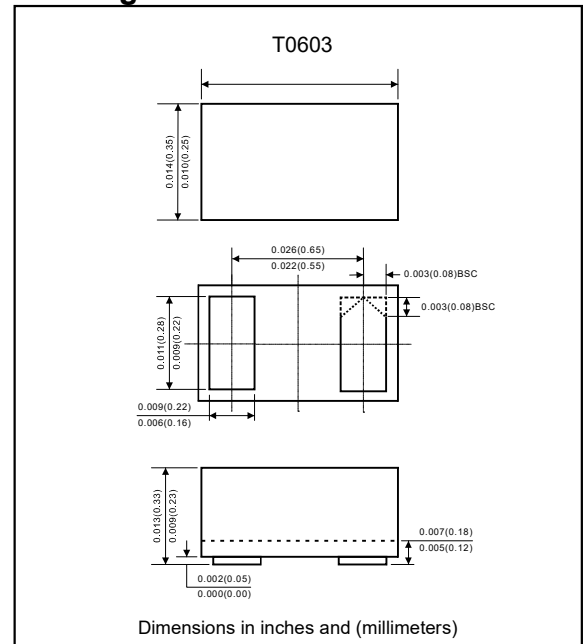
Features

- Protects one high-speed data line.
- Low capacitance : 0.6pF (Typical).
- Low clamping voltage.
- Transient protection for high-speed data lines.
- IEC 61000-4-2 (ESD) ± 30 KV (Air), ± 30 KV (Contact).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. LL03BT0603-H.

Mechanical data

- Molding compound flamm ability rating : UL 94V-0.
- Pb-Free, Halogen Free, RoHS/WEEE compliant.
- Case : Molded plastic, T0603
- Terminals : Solder plated, solder able per J-STD-002.
- Polarity : Indicated by cathode band.
- Mounting Position : Any.
- Weight : Approximated 0.109 gram.

Package outline

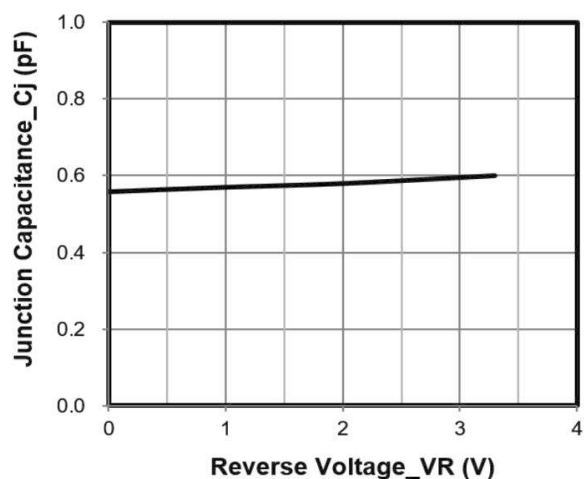
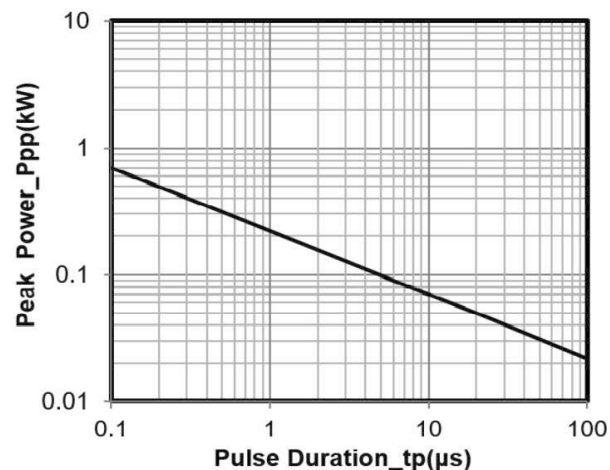
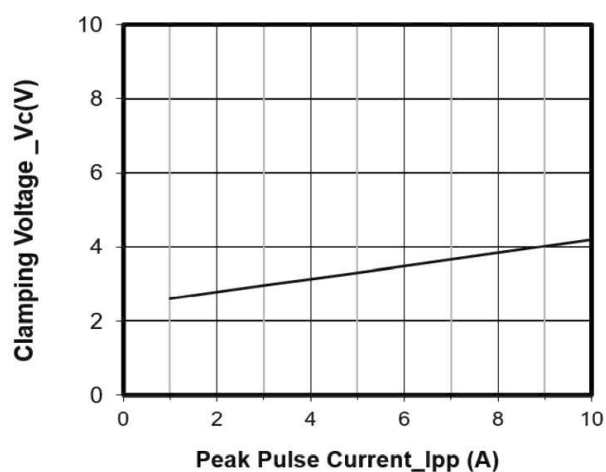
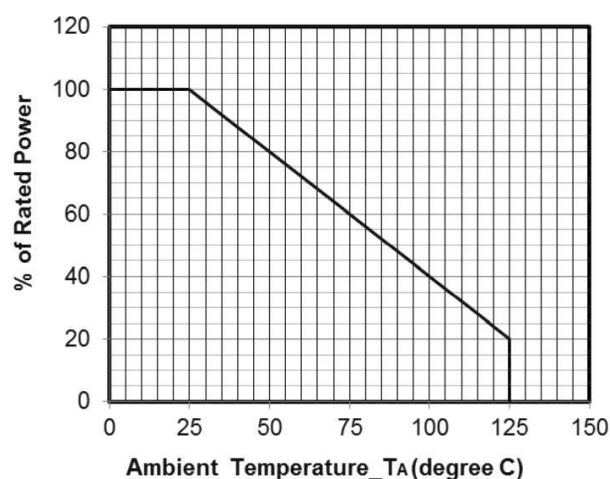
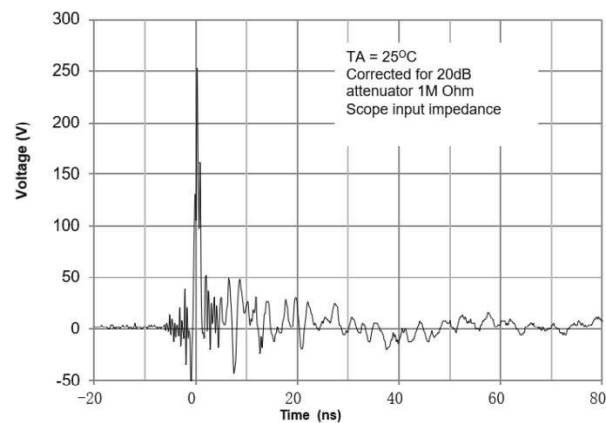
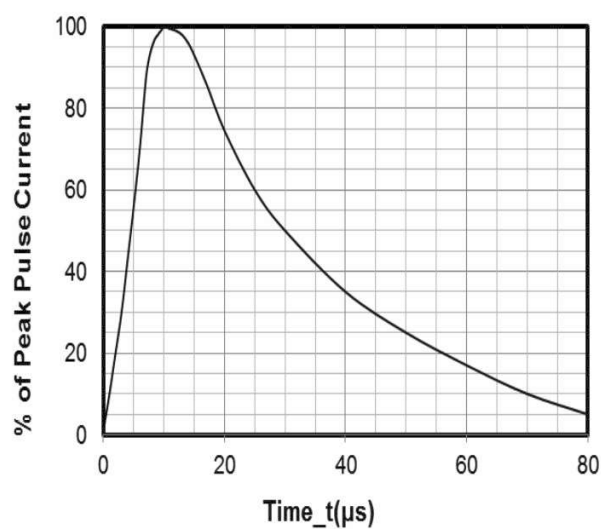


Absolute maximum ratings (At $T_A = 25^\circ\text{C}$, RH=45% ~ 75%, unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$)	P_{PK}	40	W
Peak pulse current ($t_p=8/20\mu\text{s}$)	I_{PP}	10	A
ESD per IEC 61000-4-2 (Air discharge)	ESD	± 30	KV
ESD per IEC 61000-4-2 (Contact discharge)		± 30	KV
Operating junction temperature range	T_{OPT}	-55 ~ 125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 ~ 150	$^\circ\text{C}$

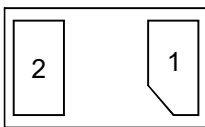
Electrical characteristics (At $T_A = 25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Nominal reverse working voltage	V_{RWM}				3.3	V
Punch-through voltage	V_{PT}	$I_T=2\mu\text{A}$	3.5			V
Reverse leakage current	I_R	$V_{RWM}=3.3\text{V}$			0.2	μA
Clamping voltage-1	V_{c1}	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$		3.5		V
Clamping voltage-2	V_{c2}	$I_{PP}=10\text{A}$, $t_p=8/20\mu\text{s}$		4.5		V
Parasitic capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$		0.6		pF

LL03BT0603**Ratings and V-I characteristics curves** ($T_A=25^\circ\text{C}$, Unless otherwise noted)**Junction Capacitance vs. Reverse Voltage****Peak Pulse Power vs. Pulse Time****Clamping Voltage vs. Peak Pulse Current****Power Derating Curve****ESD Clamping Voltage****8 kV Contact per IEC61000-4-2**

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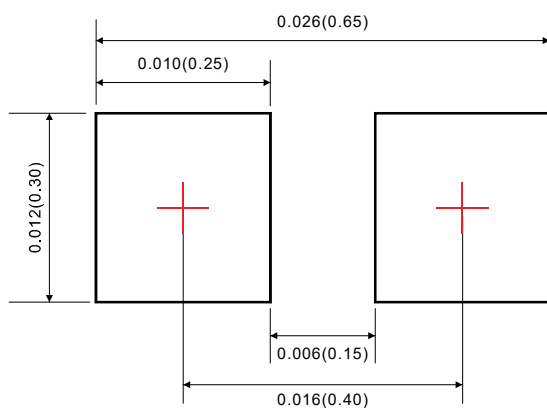
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking



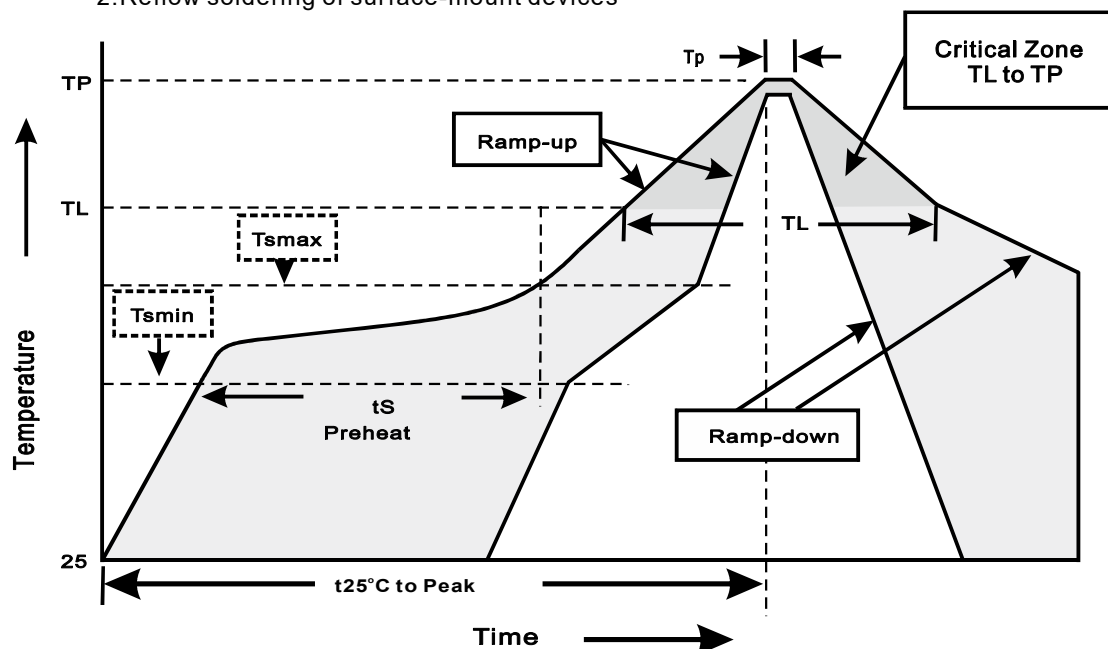
Suggested solder pad layout



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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°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