

LL24BT0603A

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LL24BT0603A

Ultra Low Capacitance Bi-Directional TVS For ESD Protection : 24V

Features

- Low junction capacitance.
- Low clamping voltage.
- Low leakage current.
- Complies with following standards:
IEC 61000-4-2(ESD) ± 25 (Air), ± 15 (Contact).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.LL24BT0603A-H.

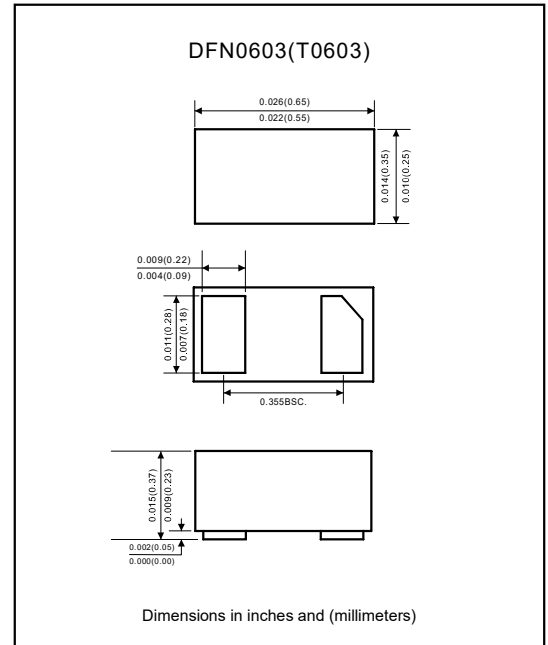
Applications

- Cellular handsets and accessories.
- Personal digital assistants (PDS's) and portable instrumentation.
- Notebooks, handhelds, digital cameras, and audio players.
- Peripherals and industrial equipment.

Mechanical data

- Epoxy: UL94-V0 rated Flame retardant.
- Case: Molded plastic, DFN0603 (T0603).
- Moisture Sensitivity: Level 3, per J-STD-020.
- Terminals: Solder plated, solder able per J-STD-020.

Package outline



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

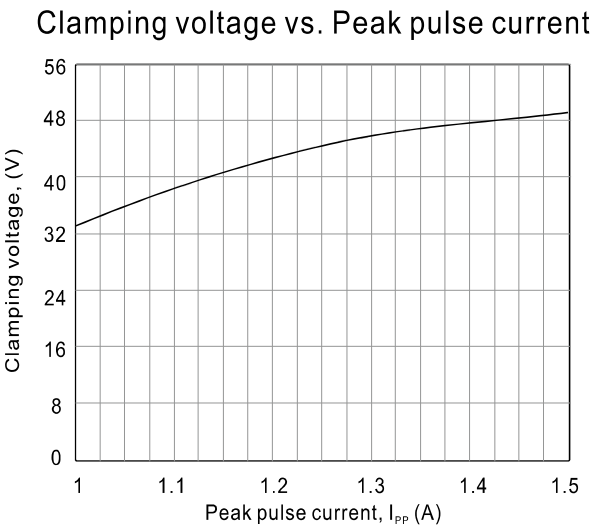
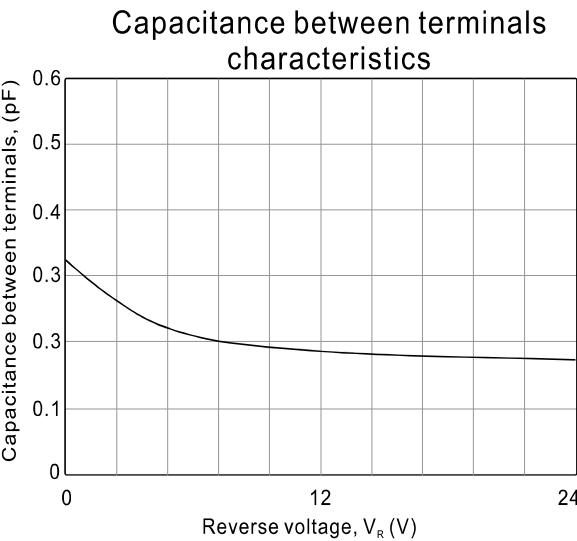
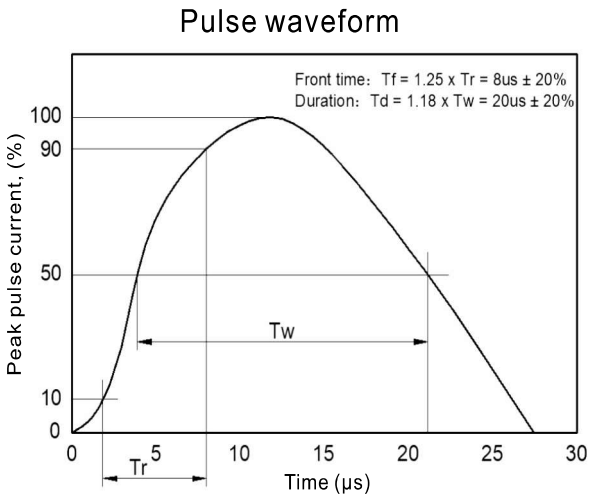
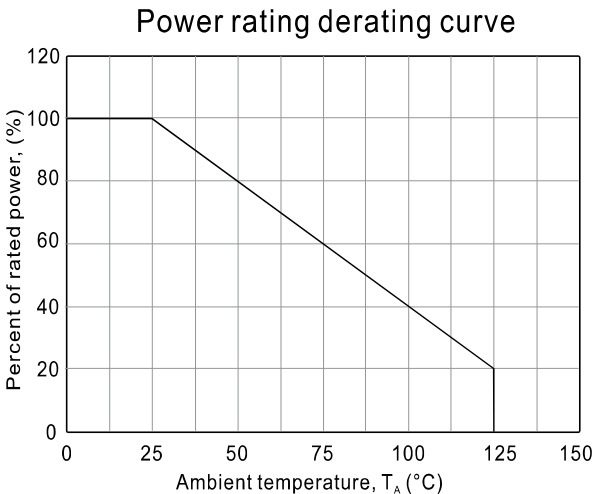
Parameter	Symbol	Ratings	Units
Peak Pulse Power (8/20 μs)	P_{PK}	80	W
Peak Pulse Current (8/20 μs)	I_{PP}	1.5	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 25	KV
ESD per IEC61000-4-2 (Contact)		± 15	
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Test Condition	Symbol	Min	Typ	Max	Units
Reverse working voltage		V_{RWM}			24	V
Reverse leakage current	$V_{RWM}=24\text{V}$	I_R			0.5	μA
Reverse breakdown voltage	$I_R=1\text{mA}$	V_{BR}	26.5		30	V
Clamping voltage (IEC91000-4-5)	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$	V_C			40	V
Clamping voltage (TLP)	$I_{PP}=1.5\text{A}$, $t_p=8/20\mu\text{s}$				53	
Junction capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$	C_J		0.3	0.5	pF

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Rating and characteristic curves



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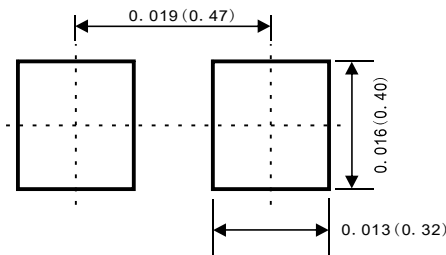
Pinning information

Pin	Simplified outline	Symbols
Bi-directional	 Top view  Bottom view	

Marking

Type number	Marking code
LL24BT0603A	24U

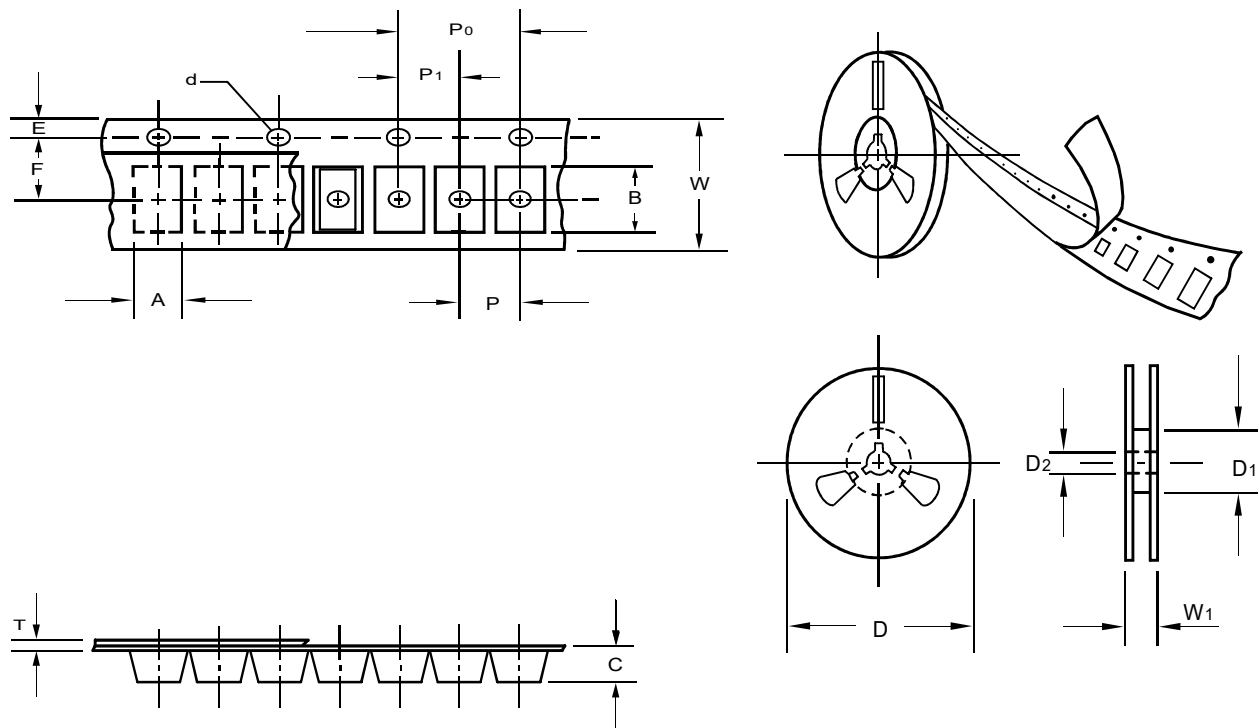
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	DFN0603 (T0603)
Carrier width	A	0.1	0.41
Carrier length	B	0.1	0.71
Carrier depth	C	0.1	0.38
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.0
7" Reel inner diameter	D1	min	53.40
Feed hole diameter	D2	1.0	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.5
Punch hole pitch	P	0.1	2.0
Sprocket hole pitch	P0	0.1	4.0
Embossment center	P1	0.1	2.0
Overall tape thickness	T	0.1	0.2
Tape width	W	0.3	8.0
Reel width	W1	1.0	12.3

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

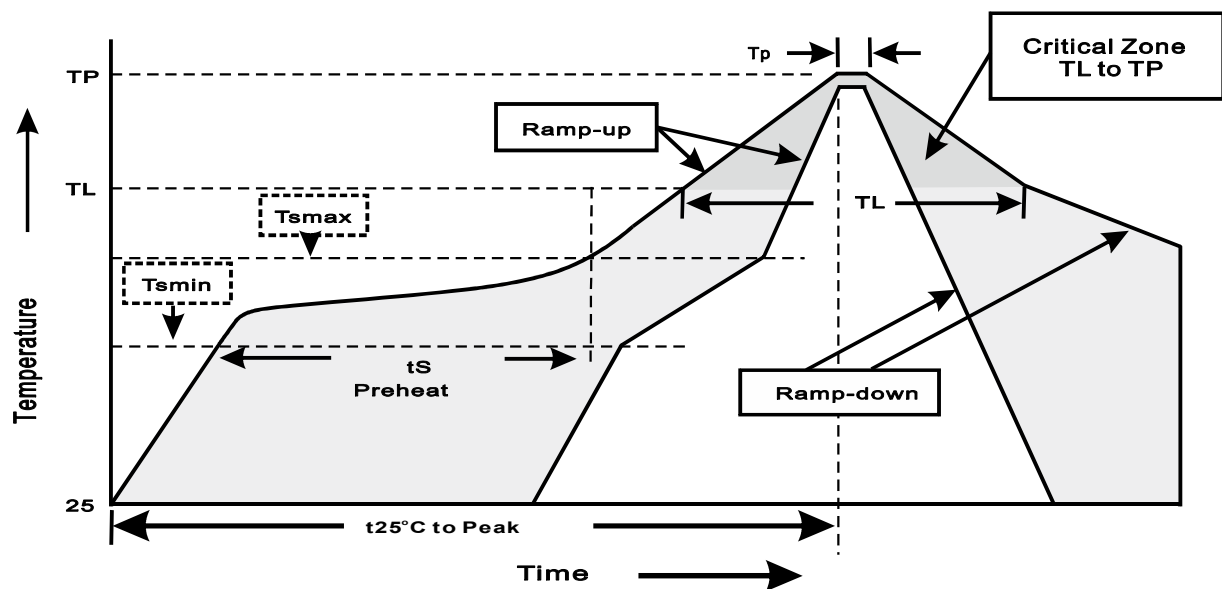
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)
DFN0603 (T0603)	7"	15,000	4.0	150,000	183*123*183	178	382*257*387

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 _{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°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