

LL18BT0603A

List

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

LL18BT0603A

18V Ultra Low Capacitance Bi-Directional ESD Protection

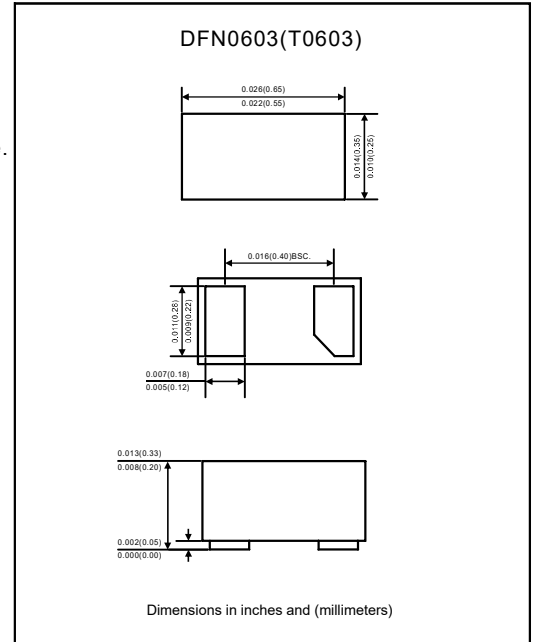
Features

- Cable discharge event (CDE).
- Array of surge rated diodes with internal TVS diode.
- Protects four I/O lines.
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge.
- Transient protection for high-speed data lines
IEC61000 -4-2 (ESD) $\pm 15\text{kV}$ (Air), $\pm 13\text{kV}$ (Contact).
- IEC 61000-4-5 (ESD) 6.0A (8/20 μs) (Lightning).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.LL18BT0603A-H

Mechanical data

- Epoxy: UL94-V0 rated Flame retardant.
- Case : Molded plastic, DFN0603 (T0603)
- Mounting Position : Any

Package outline



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

Parameter	Symbol	Value	Units
Peak Pulse Current (8/20 μs)	I_{PP}	6	A
Peak Pulse Power (8/20 μs)	P_{PK}	30	W
ESD per IEC61000-4-2(Air)	V_{ESD}	± 15	kV
ESD per IEC61000-4-2(Contact)		± 13	
Operating Temperature	T_{OPT}	-55~125	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~150	$^\circ\text{C}$

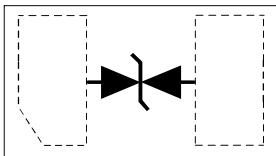
Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Units
Nominal Reverse Working Voltage		V_{RWM}			18.0	V
Reverse Leakage Current	$V_{RWM}=18\text{V}, T=25^\circ\text{C}$	I_R			0.1	μA
Reverse Breakdown Voltage	$I_T=10\mu\text{A}$	V_{BR}	20.0	23.0		kV
Test Current for Reverse Breakdown	$I_{PP}=6\text{A}, t_p=8/20\mu\text{s}$	V_C		4.8		V
	$I_{PP}=8.0\text{A}, t_p=100\text{ns}$ (Note1)			4.7		
	$I_{PP}=16.0\text{A}, t_p=100\text{ns}$ (Note1)			6.4		
Inverse dynamic resistance	$I_{PP}=12.0\text{A}, t_p=100\text{ns}$ (Note1)	R_{dyn}		0.21		Ω
Parasitic Capacitance	$V_R=0\text{V}, f=1\text{MHz}$	C_{ESD}		0.20		pF

Notes : 1. Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

LL18BT0603A

Pinning information

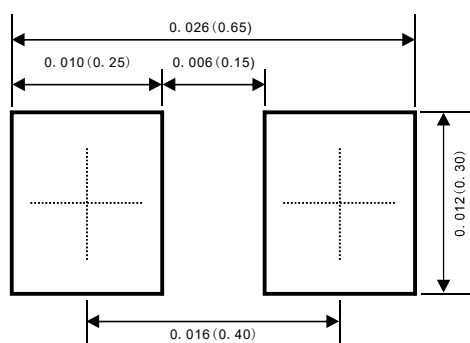
Type Number	Simplified outline	Circuit Diagram
LL18BT0603A		

Marking

Type number	Marking code
LL18BT0603A	CX

*Note: (1) "C" is part number. (2) "X" is the internal code.

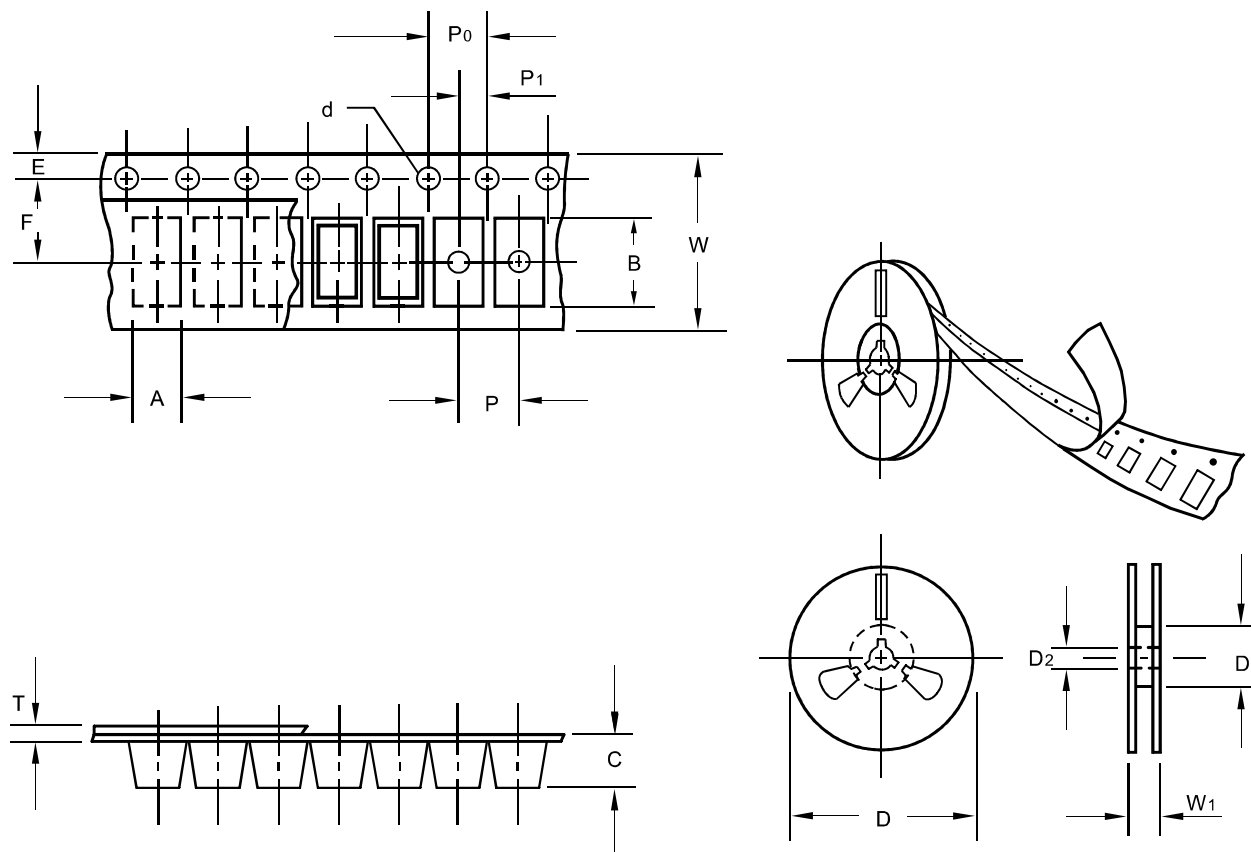
Suggested solder pad layout



Dimensions in inches and (millimeters)

LL18BT0603A

Packing information



unit:mm

Item	Symbol	Tolerance	T0603
Carrier width	A	0.1	0.37
Carrier length	B	0.1	0.67
Carrier depth	C	0.1	0.32
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	60.00
Feed hole diameter	D2	0.2	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	2.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.18
Tape width	W	0.3	8.00
Reel width	W1	1.0	10.50

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

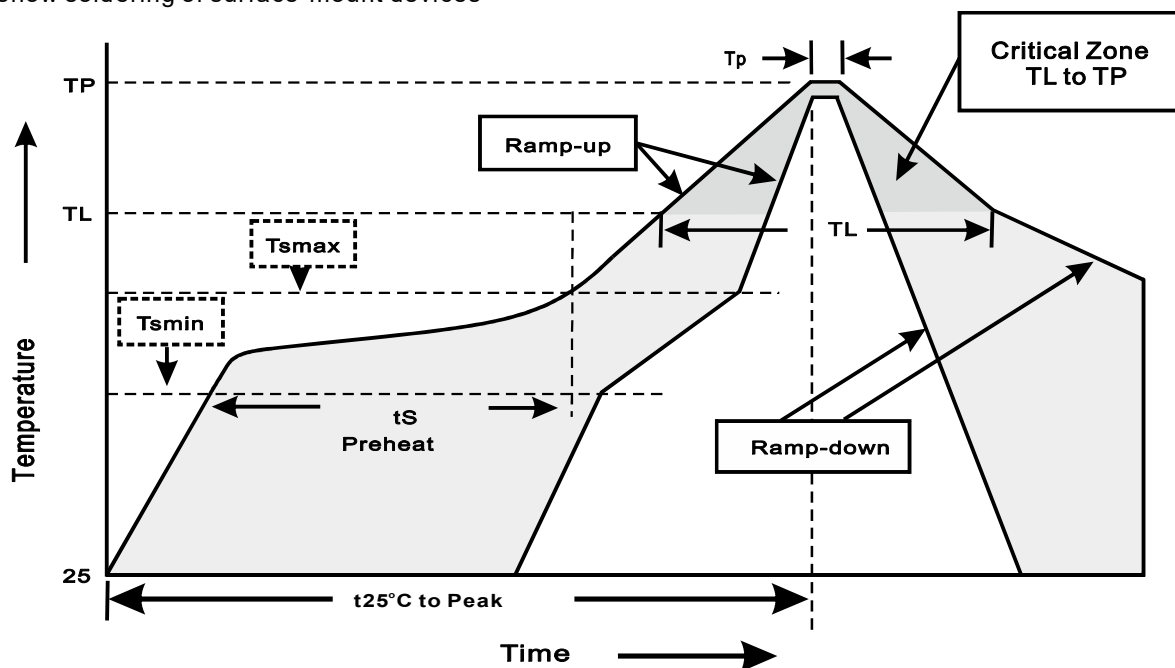
LL18BT0603A

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)	APPROX. GROSS WEIGHT (kg)
T0603	7"	10,000	4.0	100,000	183*123*183	178	382*257*387	800,000	2.6

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 _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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