

N12BT0603

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N12BT0603

Transient Voltage Suppressor For ESD Protection 12V

Features

- Protects one data or power line.
- Complies with following standards:
IEC 61000-4-2(ESD) immunity test:
IEC 61000-4-2(ESD) $\pm 30\text{kV}$ (Air).
IEC 61000-4-2(ESD) $\pm 30\text{kV}$ (Contact).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. N12BT0603-H.

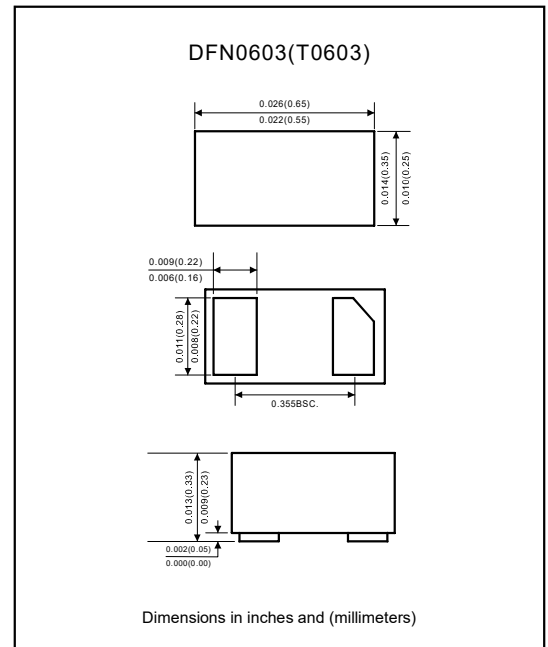
Applications

- Cellular handsets and accessories.
- Personal digital assistants.
- Notebooks and handhelds.
- Portable instrumentation.
- Digital cameras.
- Peripherals.
- Audio players.

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)

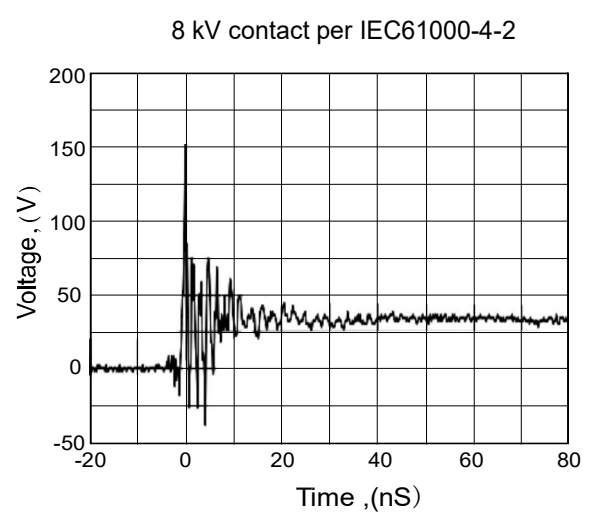
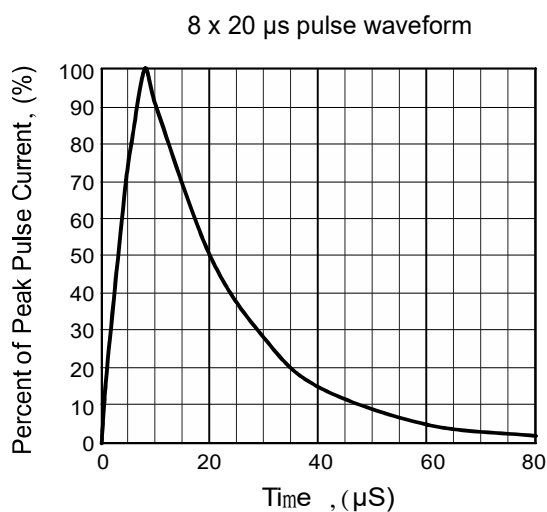
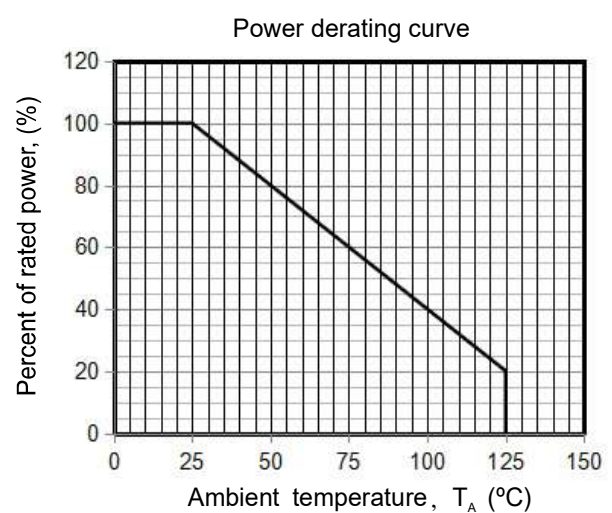
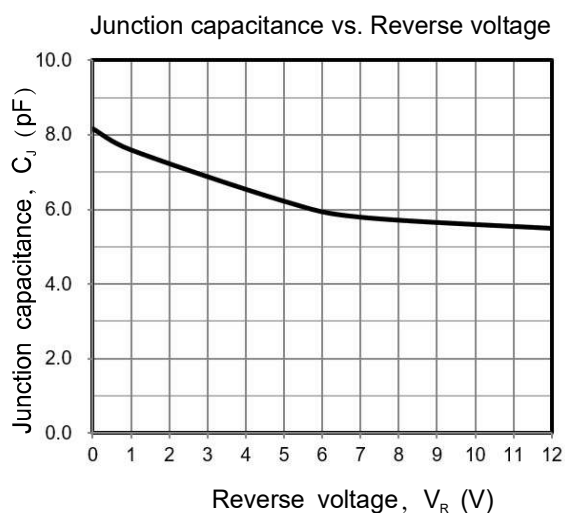
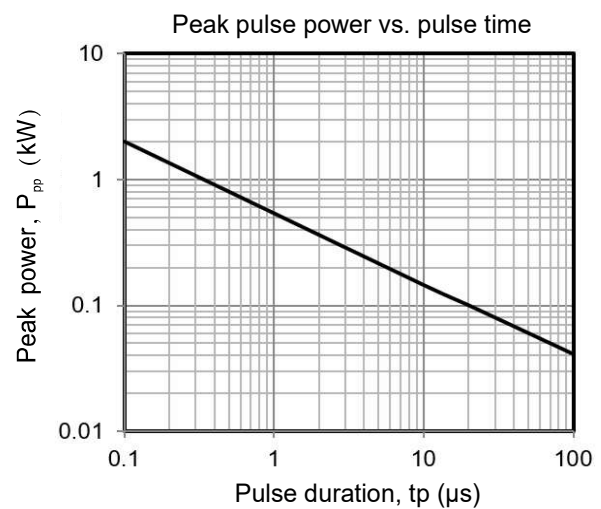
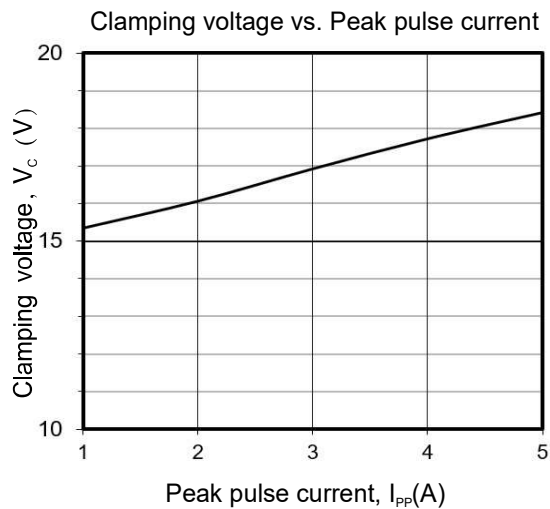
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 μs)	P_{PK}	100	W
Peak Pulse Current (8/20 μs)	I_{PP}	5	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC61000-4-2 (Contact)		± 30	
Operating Temperature range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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}			12	V
Reverse Leakage Current	$V_{RWM}=12\text{V}$	I_R			0.2	μA
Reverse Breakdown Voltage	$I_T=1\text{mA}$	V_{BR}	13.3			V
Clamping Voltage	$I_{PP}=1\text{A}$ (8 / 20 μs pulse)	V_C			16	V
	$I_{PP}=5\text{A}$ (8 / 20 μs pulse)				20	
Junction Capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$	C_J		8	10	pF

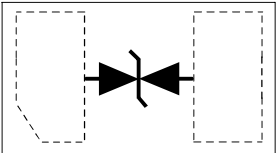
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Rating and characteristic curves



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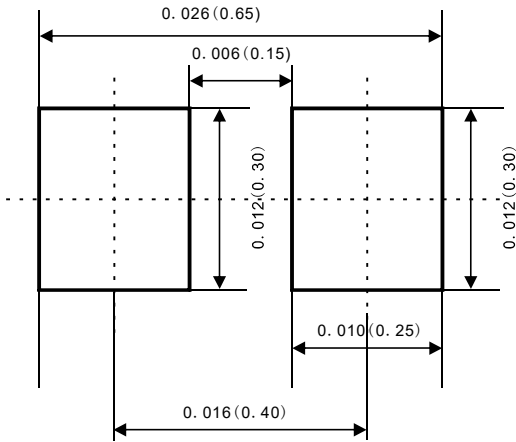
Pinning information

Type Number	Simplified outline	Circuit Diagram
N12BT0603		

Marking

Type number	Marking code
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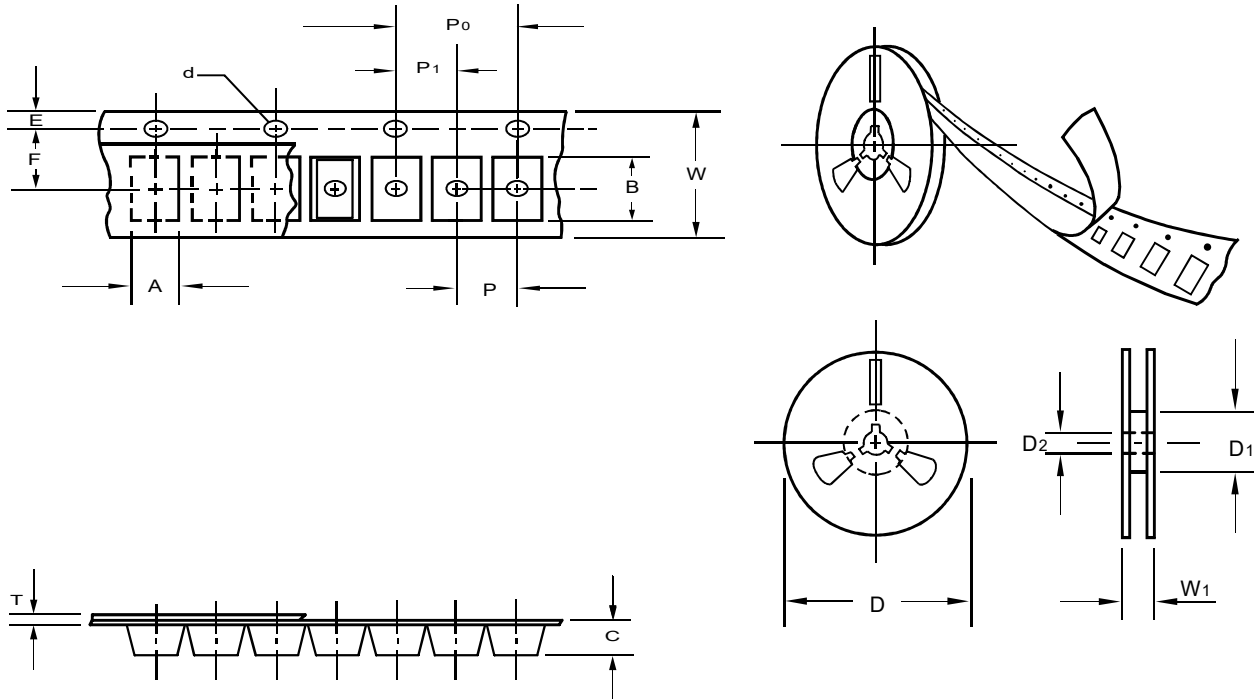
Suggested solder pad layout



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	D ₁	min	-
7" Reel outside diameter	D	2.0	178.0
7" Reel inner diameter	D ₁	min	60.0
Feed hole diameter	D ₂	0.5	13.5
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 pitch	P ₀	0.1	4.0
Embossment center	P ₁	0.1	2.0
Overall tape thickness	T	0.1	0.2
Tape width	W	0.3	8.0
Reel width	W ₁	1.0	12.0

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

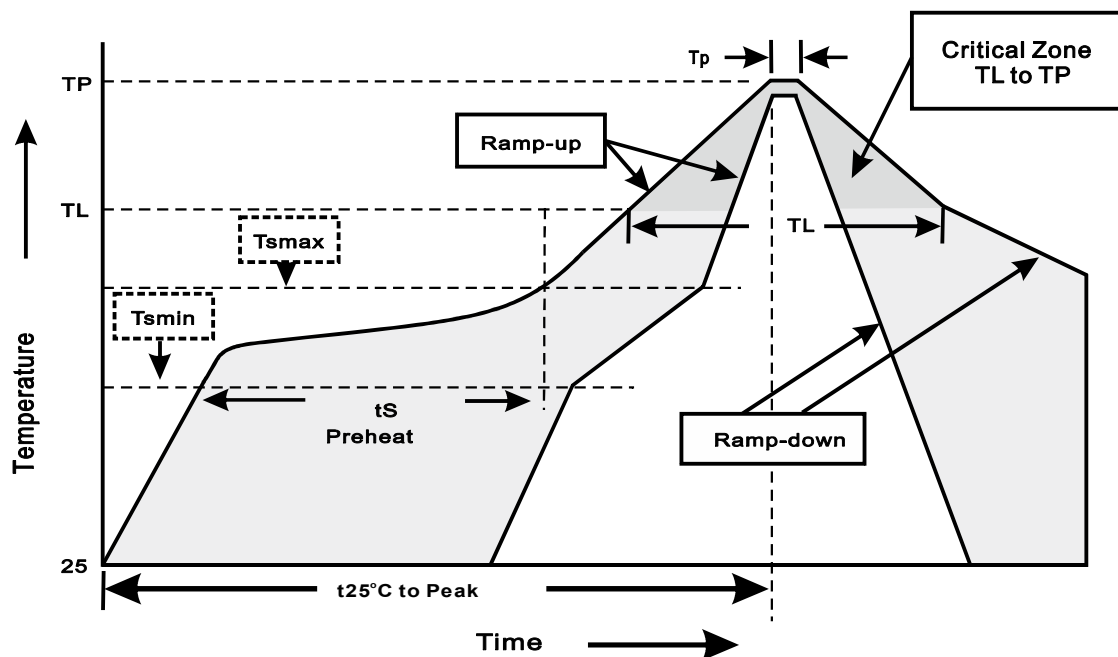
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
DFN0603 (T0603)	7"	10,000	4.0	100,000	183*123*183	178	382*257*387	800,000

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)	$<3^\circ\text{C/sec}$
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	$<3^\circ\text{C/sec}$
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	$<6^\circ\text{C/sec}$
Time 25°C to Peak Temperature	$<6\text{ minutes}$