

N05BT0603C

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N05BT0603C

80W Bi-Directional TVS

For ESD Protection Diode : 5.0V

Features

- Protects one data or power line.
- Transient protection for high-speed data lines.
- Complies with following standards:
 - IEC 61000-4-2(ESD) ± 30 kV (Air).
 - IEC 61000-4-2(ESD) ± 30 kV (Contact).
 - IEC 61000-4-5(Lighting)8A (8/20 μ s).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.N05BT0603C-H.

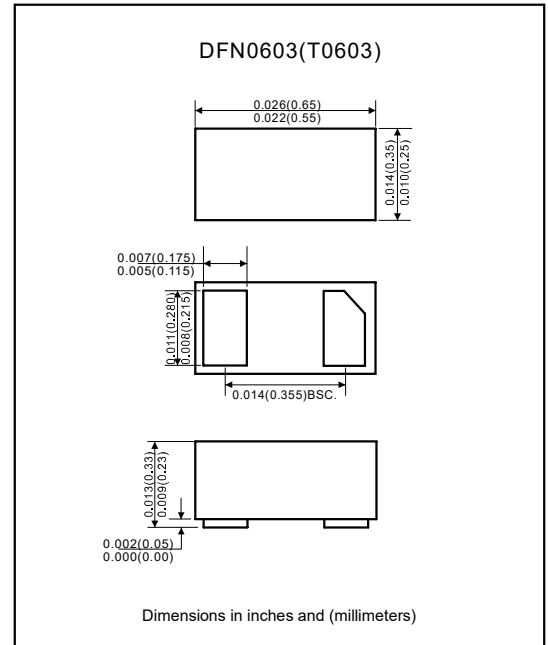
Applications

- Cellular handsets and accessories.
- Personal digital assistants.
- Notebooks and handhelds.
- Portable instrumentation.
- Digital cameras.
- Peripherals.
- Audio players.
- Keypads, side keys, USB2.0, LCD displays.

Mechanical data

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

Package outline



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

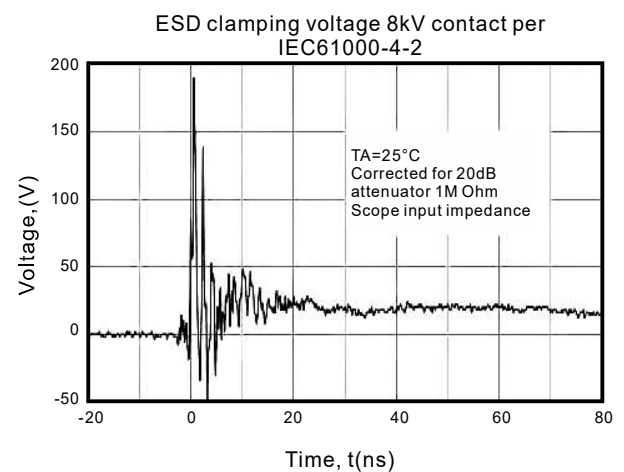
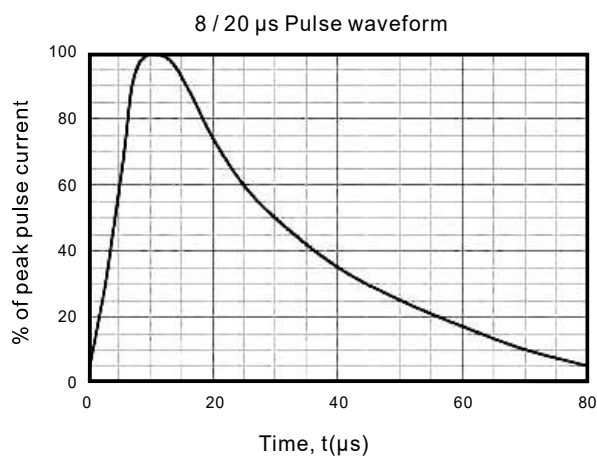
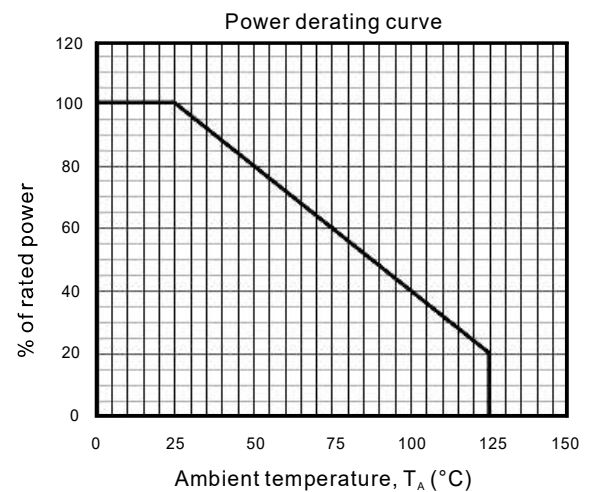
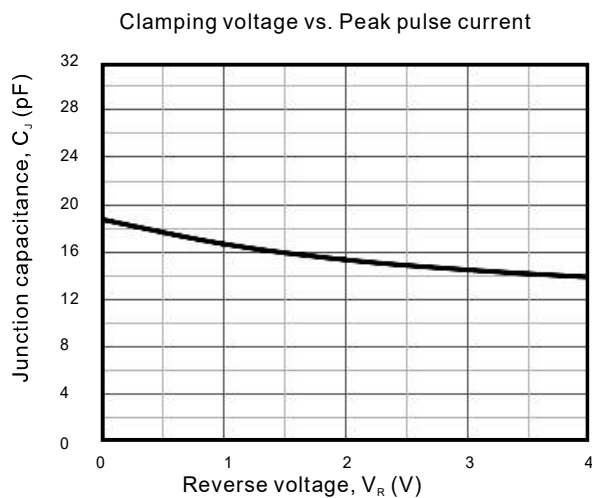
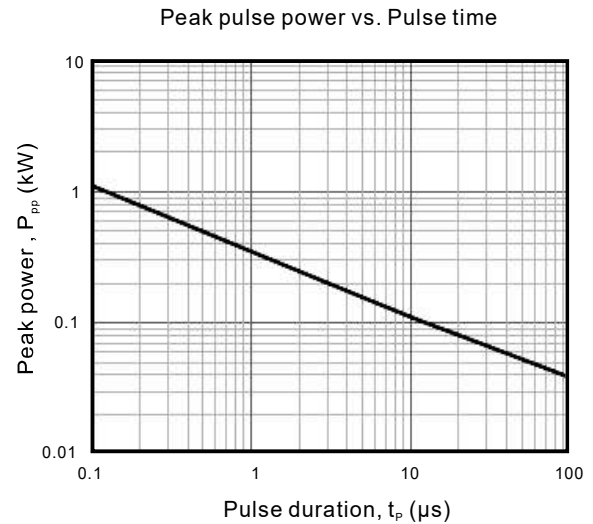
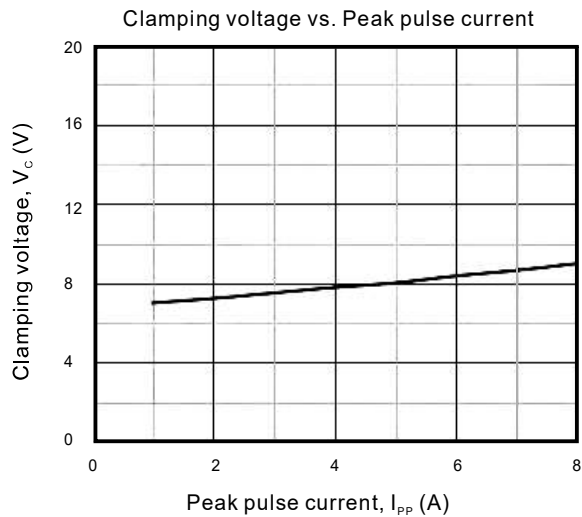
Parameter	Symbol	Value	Units
Peak pulse power (8/20 μ s)	P_{PK}	80	W
Peak pulse current (8/20 μ s)	I_{PP}	8	A
ESD per IEC61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC61000-4-2 (Contact)			
Operating temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

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}			5	V
Reverse leakage current	$V_{RWM} = 5\text{V}$	I_R			0.1	μA
Reverse breakdown voltage	$I_T = 1\text{mA}$	V_{BR}	6		9	V
Clamping voltage	$I_{PP} = 1\text{A}$ (8/20 μ s pulse)	V_C			8	V
	$I_{PP} = 8\text{A}$ (8/20 μ s pulse)				10	
Junction capacitance	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$	C_J			20	pF

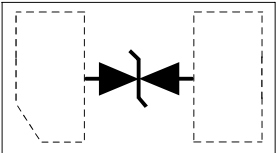
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Rating and characteristic curves



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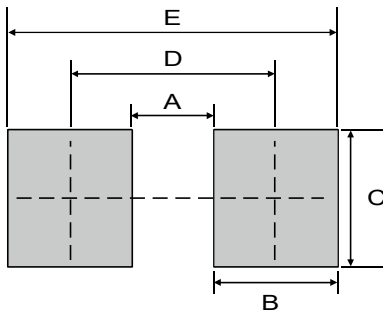
Pinning information

Pin	Simplified outline	Circuit Diagram
Bi-Directional		

Marking

Type number	Marking code
N05BT0603C	5A

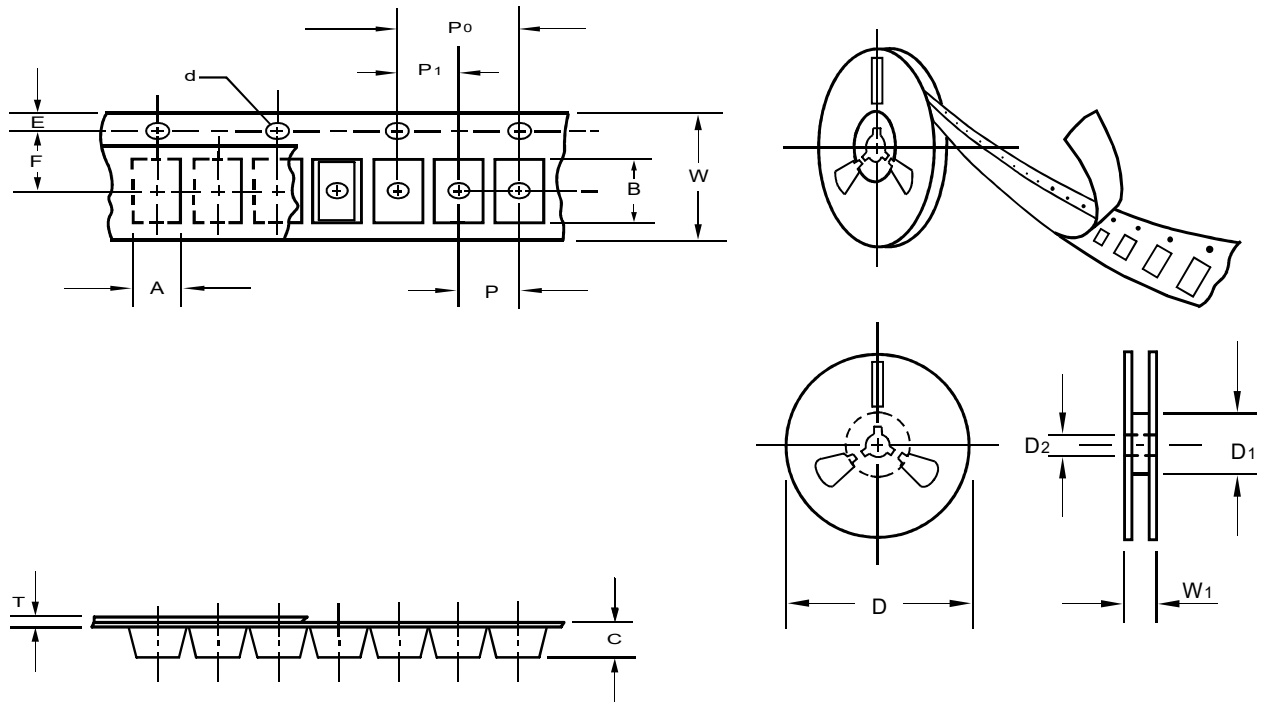
Suggested solder pad layout



Size	T0603	
	(mm)	(inch)
A	0.15	0.006
B	0.25	0.010
C	0.30	0.012
D	0.40	0.016
E	0.65	0.026

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Packing information



unit:mm

Item	Symbol	Tolerance	DFN0603 (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
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 hole 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.

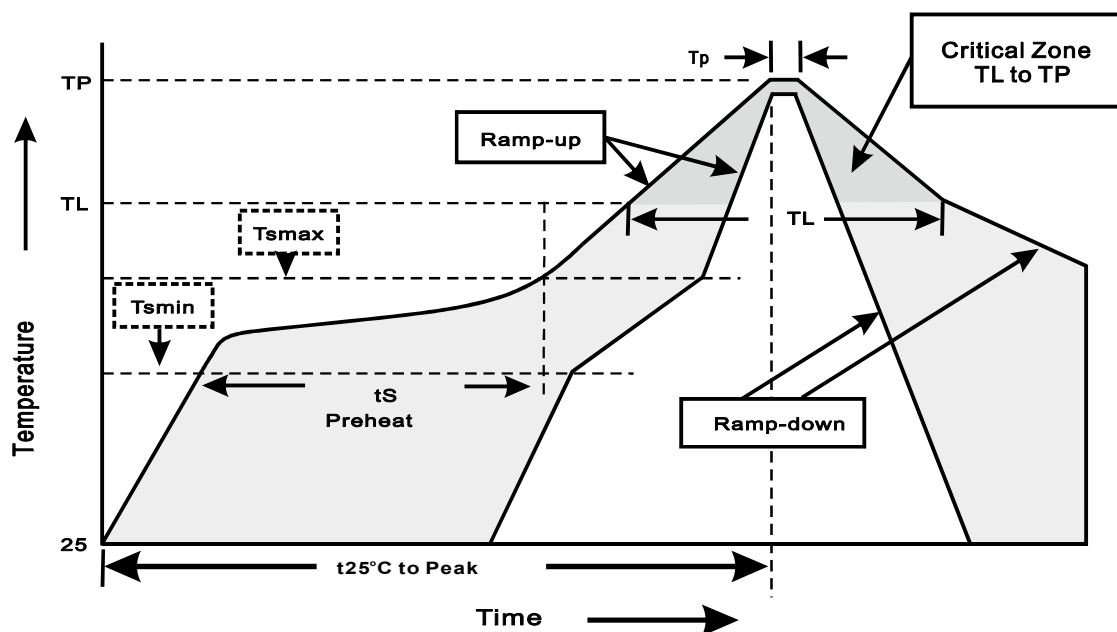
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Reel packing

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°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