

STN06 1050BL40

TVS Diode ESD suppressor



Product features

- Compact package 0.6 mm × 0.3 mm
- Low clamping voltage
- Low capacitance for high speed data lines
- High ESD withstand in low capacitance construction
- Meets moisture sensitivity level (MSL) 3
- Molding compound flammability rating: UL 94V-0
- Termination finish: Ni/Pd/Au

Applications

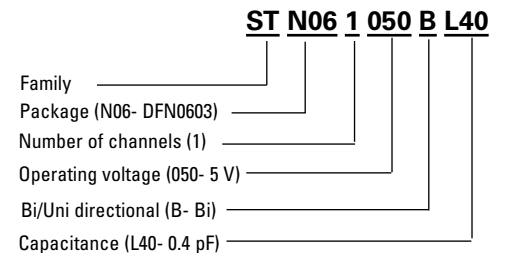
- Cellular handsets and accessories
- Personal digital assistants (PDAs)
- Notebooks, desktops, and servers
- Portable instrumentation
- Communication systems
- Microprocessor based equipment

Environmental compliance and general specifications

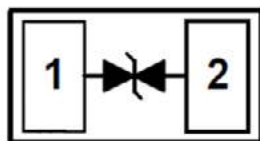
- IEC61000-4-2 (ESD)
 - ±20 kV (air)
 - ±18 kV (contact)
- IEC61000-4-5 (Lightning) 5 A (8/20 μs)



Ordering part number



Pin out/functional diagram



DFN0603-2L
(Bottom view)

Absolute maximum ratings

(+25 °C, RH=45%-75%, unless otherwise noted)

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Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μ s waveform	P _{pp}	100	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	+/-20	kV
ESD per IEC 61000-4-2 (Contact)		+/-18	
Lead soldering temperature	T _L	+260 (10 seconds)	°C
Operating junction temperature range	T _J	-55 to +125	°C
Storage temperature range	T _{STG}	-55 to +150	°C

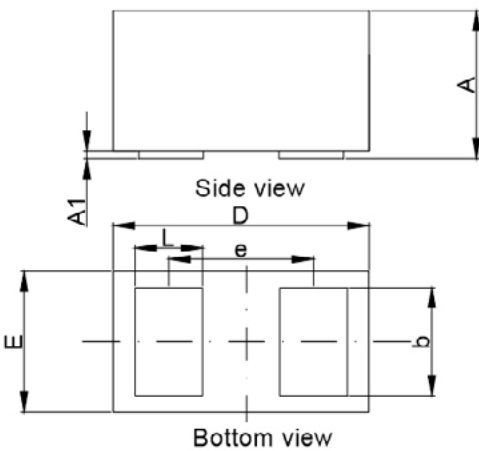
Electrical characteristics

(+25 °C)

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Parameter	Test condition	Minimum	Typical	Maximum	Symbol (Units)
Reverse working voltage	-	-	-	5.0	V _{RWM} (V)
Reverse breakdown voltage	I _T = 1 mA	6.0	-	10.0	V _{BR} (V)
Reverse leakage current	V _{RWM} = 5 V	-	-	1	I _R (μ A)
Peak pulse current	t _p = 8/20 μ s	-	-	5	I _{PP} (A)
Clamping voltage	I _{PP} = 1 A, t _p = 8/20 μ s	-	12	15	V _C (V)
	I _{PP} = 5 A, t _p = 8/20 μ s	-	20	23	V _C (V)
Junction capacitance	V _{RWM} = 0 V, f = 1 MHz	-	0.4	0.6	C _J (pF)

Mechanical parameters, pad layout- mm

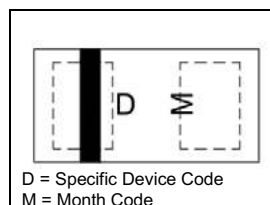


Land pattern

Millimeter

Dimension	Minimum	Typical	Maximum
A	0.27	-	0.33
A1	0.00	-	0.025
b	0.21	-	0.29
D	0.56	-	0.66
E	0.28	-	0.35
e	-	0.355	-
L	0.14	-	0.22

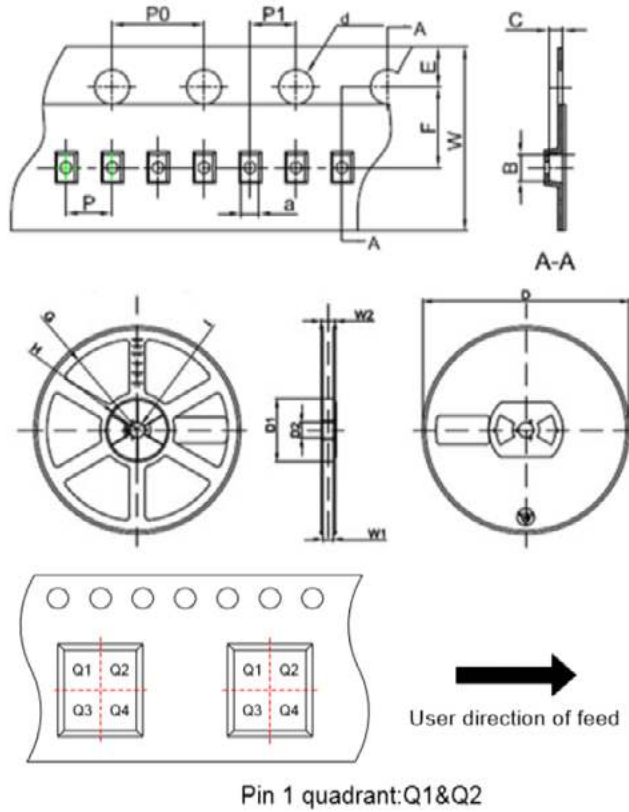
Part marking



Packaging information mm/inches

Drawing not to scale.

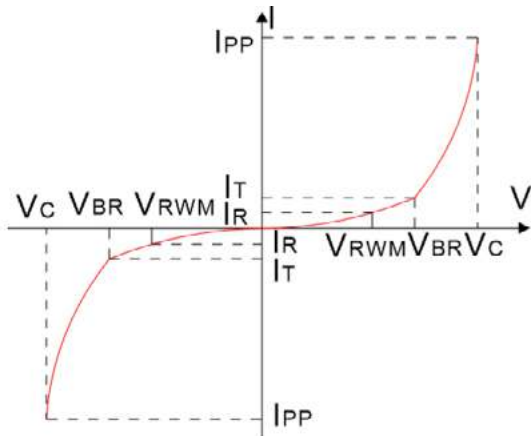
Supplied in tape and reel packaging, 10,000 parts per 7" EIA-481 diameter reel



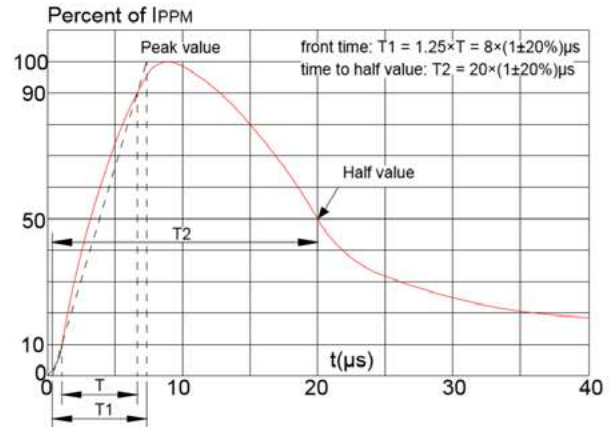
Symbol	Millimeters	Inches
	Typ.	Typ.
a	0.41	0.016
B	0.70	0.028
C	0.38	0.015
d	Φ1.50	Φ0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	2.00	0.079
P1	2.00	0.079
W	8.00	0.315
D	Φ178	Φ7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.00	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

Ratings and V-I characteristic curves (+25 °C unless otherwise noted)

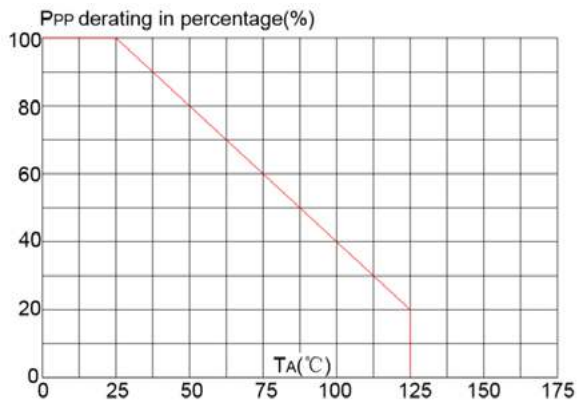
V- I curve characteristics (Bi-directional)



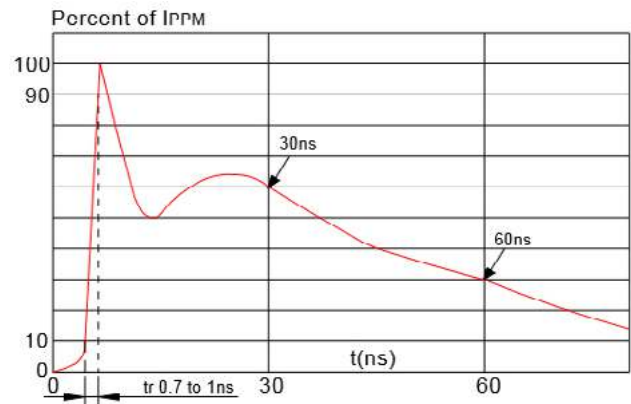
Pulse waveform (8/20 μ s)



Pulse derating curve



ESD waveform



Solder reflow profile

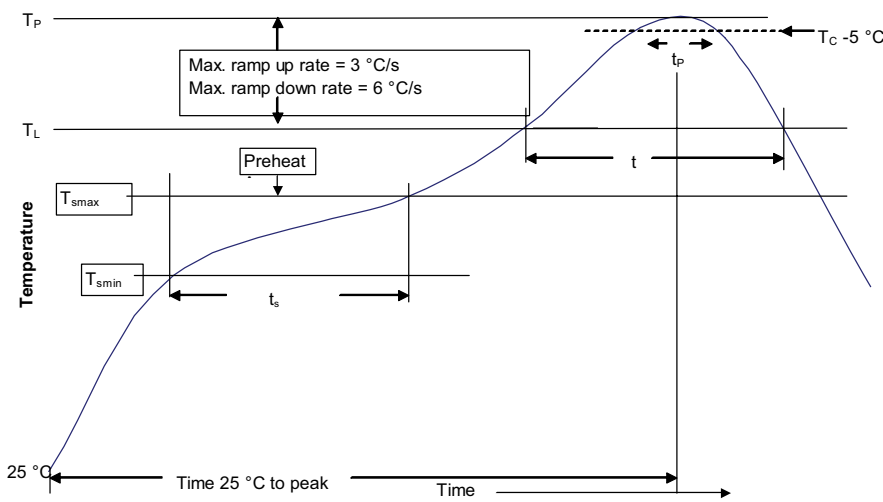


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T_{smin})	100 °C	150 °C
• Temperature max. (T_{smax})	150 °C	200 °C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_P	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L)	183 °C	217 °C
Time (t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature (T_P)*	Table 1	Table 2
Time (t_p)* within 5 °C of the specified classification temperature (T_C)	20 seconds*	30 seconds*
Ramp-down rate (T_P to T_L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

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