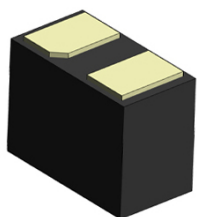


STN061050B351

TVS Diode ESD suppressor



Product features

- Protects one bi-directional I/O line
- DFN0603-2L package size
- Low clamping voltage
- Low operating voltage: 5.0 V
- Low leakage current
- Ultra-low capacitance
- Meets moisture sensitivity level (MSL) 1
- Molding compound flammability rating: UL 94V-0

Applications

- USB ports
- Display port
- Wireless communications
- Digital visual interface (DVI)
- Cellular handsets & accessories

Environmental compliance and general specifications

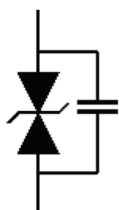
- IEC61000-4-2 (ESD)
 - ± 30 kV (air)
 - ± 30 kV (contact)



Ordering part number

	ST	N06	1	050	B	351
Family	_____	_____	_____	_____	_____	_____
Package (N06=DFN0603)	_____	_____	_____	_____	_____	_____
Number of channels	_____	_____	_____	_____	_____	_____
Operating voltage (050=5 V)	_____	_____	_____	_____	_____	_____
Bi/directional (B=Bi)	_____	_____	_____	_____	_____	_____
Capacitance (351= 35 pF)	_____	_____	_____	_____	_____	_____

Pin out/functional diagram



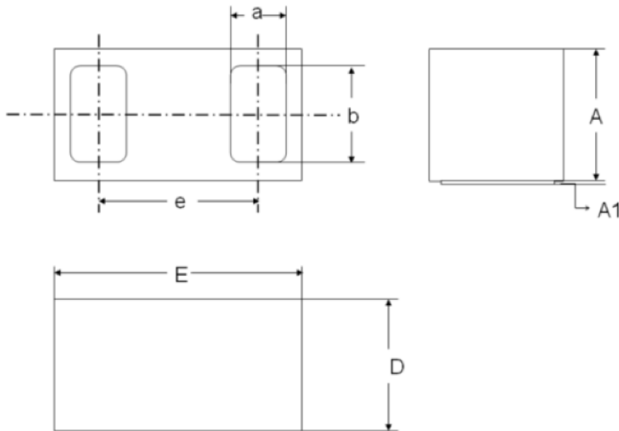
Electrical characteristics

(+25 °C)

STN061050B351

Parameter	Test condition	Minimum	Typical	Maximum	Symbol (Units)
Operating supply voltage		-	5	-	V_{dc}
Reverse stand-off voltage		-5	-	5	V_{RWM} (V)
Reverse breakdown voltage	$I_{BV} = 1 \text{ mA}$, $T = +25 \text{ °C}$	6.2	8	9.8	V_{BV} (V)
Reverse leakage current	$V_{RWM} = 5 \text{ V}$, $T = +25 \text{ °C}$	-	-	1	I_{Leak} (μA)
Peak pulse current	$t_p = 8/20 \text{ }\mu\text{s}$	-	19	-	I_{PP} (A)
Clamping voltage	$I_{TLP} = 1 \text{ A}$ (100 ns transmission line)	-	6.5	-	V_{TLP} (V)
	$I_{TLP} = 16 \text{ A}$ (100 ns transmission line)	-	8.4	-	V_{TLP} (V)
Channel input capacitance	$V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$	-	35	-	C_{IN} (pF)
ESD per IEC 61000-4-2 (Air)	-	-	± 30	-	V_{ESD} (kV)
ESD per IEC 61000-4-2 (Contact)	-	-	± 30	-	V_{ESD} (kV)
Lead soldering temperature	-	-	260 (20 to 40 seconds)	-	T_{SOL} °C
Operating temperature range	-	-55	-	+85	T_{OP} °C

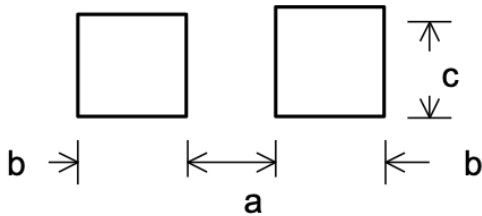
Mechanical parameters- mm



Dimension	Value
A	0.27 ± 0.05
A1	0.015 REF
a	0.15 ± 0.05
b	0.21 ± 0.05
e	0.35 REF
D	0.3 ± 0.05
E	0.6 ± 0.05

Part marking: (No marking)

Recommended pad layout

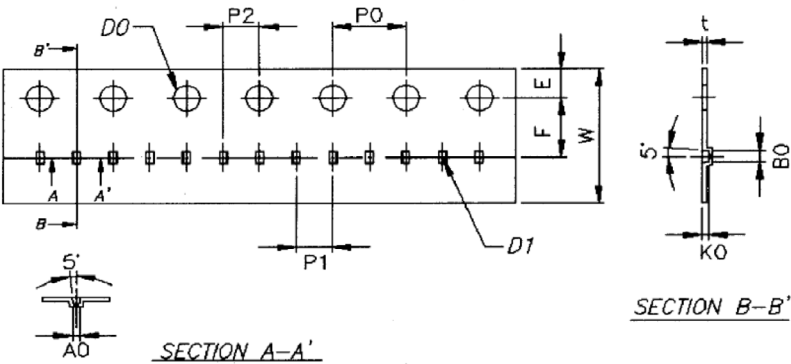


Dimension	Value
a	0.18 to 0.28
b	0.25 to 0.30
c	0.3 to 0.4

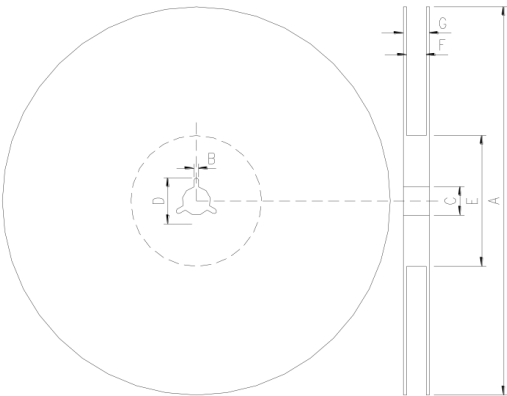
Print solder in a thickness of 80 to 100 μm

Packaging information- mm/inches

Drawing not to scale.
Supplied in tape and reel packaging, 15,000 parts per 7" diameter reel (EIA-481 compliant)



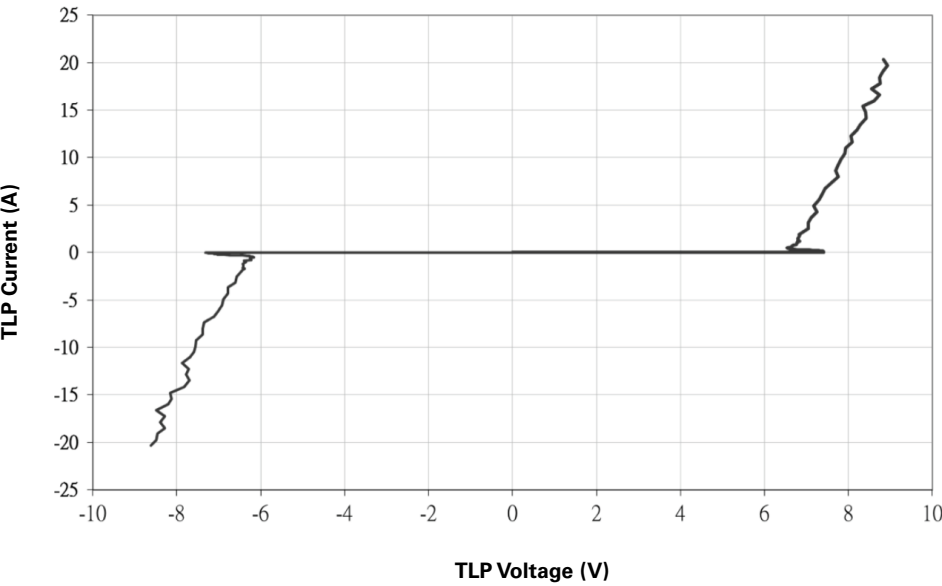
Dimension	Milimeter	Tolerance
W	8	±0.02
P1	2	±0.1
E	1.75	±0.1
F	3.5	±0.1
D0	1.5	0.1
D1	0.2	±0.1
P0	4	±0.1
P0 x 10	40	±0.2
P2	2	±0.05
A0	0.39	±0.03
B0	0.69	±0.04
K0	0.32	±0.05
t	0.20	±0.05



Dimension	Milimeter	Tolerance
A	178	±2.0
B	2	±0.5
C	13	±0.5
D	21	±0.8
E	62	±1.5
F	9	±0.5
G	13	±1.0

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

Typical characteristics



Solder reflow profile

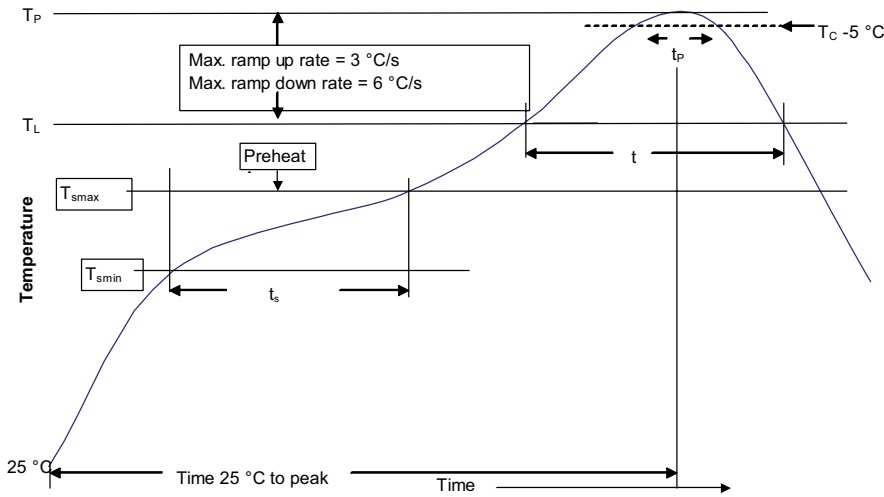


Table 1 - Standard SnPb solder (T_c)

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.

Manual solder

+330 °C, 6 seconds maximum, 30 W maximum soldering iron, generally manual/hand soldering is not recommended

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