

STN06 1050B300

TVS Diode ESD suppressor



Product features

- Protects one bi-directional I/O line
- Low clamping voltage
- Low operating voltage: 5.0 V
- Low leakage current
- Ultra-low capacitance
- Meets moisture sensitivity level (MSL) 3
- Molding compound flammability rating: UL 94V-0
- Termination finish: Ni/Pd/Au

Applications

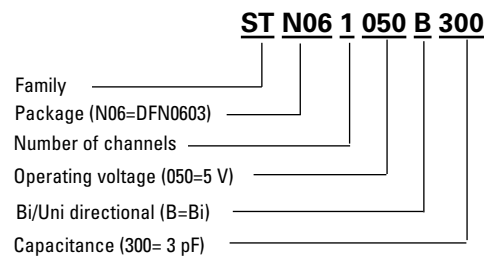
- USB ports
- Display port
- Wireless communications
- Digital visual interface (DVI)
- Cellular handsets & accessories

Environmental compliance and general specifications

- IEC61000-4-2 (ESD)
 - ± 30 kV (air)
 - ± 30 kV (contact)
- IEC61000-4-5 (Lightning) 3.5 A (8/20 μs)



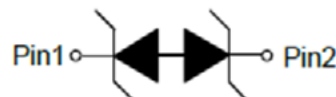
Ordering part number



Pin out/functional diagram



DFN0603-2L



Absolute maximum ratings

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

STN061050B300

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	41	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/-30	kV
ESD per IEC 61000-4-2 (Contact)		+/-30	
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)

STN061050B300

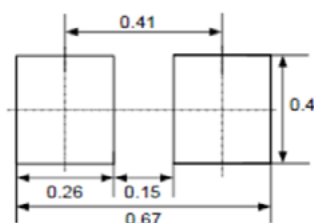
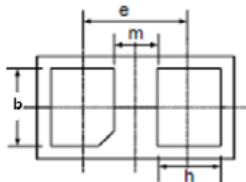
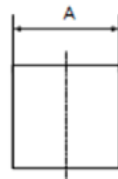
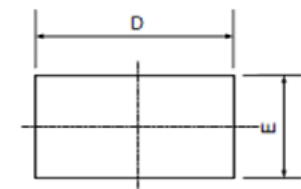
Parameter	Test condition	Minimum	Typical	Maximum	Symbol (Units)
Reverse working voltage	-	-	-	5.0	V_{RWM} (V)
Reverse breakdown voltage	$I_T = 1$ mA	5.3	-	-	V_{BR} (V)
Reverse leakage current	$V_{RWM} = 3.3$ V	-	-	0.1	I_R (μA)
Holding voltage	$t_p = 8/20$ μs	5.3	-	-	V_H (V)
Clamping voltage	$I_{PP} = 16$ A, $t_p = 100$ ns	-	15	-	V_C (V)*
	$V_{ESD} = 8$ kV	-	15	-	V_C (V)**
	$I_{PP} = 1$ A, $t_p = 8/20$ μs	-	-	8.5	V_C (V)***
	$I_{PP} = 7$ A, $t_p = 8/20$ μs	-	-	12	V_C (V)***
Dynamic resistance	$t_p = 100$ ns	-	0.35	-	R_{DYN} (Ω)*
Junction capacitance	$V_{RWM} = 0$ V, $f = 1$ MHz	-	3.0	4.0	C_J (pF)
	$V_{RWM} = 2.5$ V, $f = 1$ MHz	-	2.4	3.0	C_J (pF)

*TLP parameter: $Z_0 = 50$ Ω, $t_P = 100$ ns, $t_r = 2$ ns, averaging window from 60 ns to 80 ns. RDYN is calculated from 4 A to 16 A.

** Contact discharge mode, according to IEC61000-4-2.

*** Non-repetitive current pulse, according to IEC61000-4-5.

Mechanical parameters, pad layout- mm



Land Pattern

Dimension	Minimum	Maximum
A	0.28	0.32
D	0.55	0.65
E	0.25	0.35
b	0.20	0.30
e	0.350	
m	0.165	
h	0.14	0.24

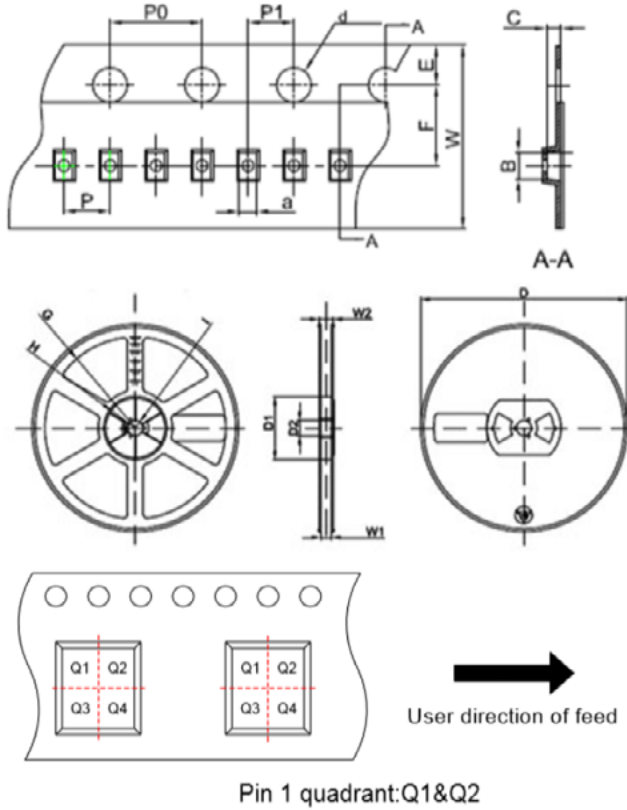
Part marking



Packaging information- mm/inches

Drawing not to scale.

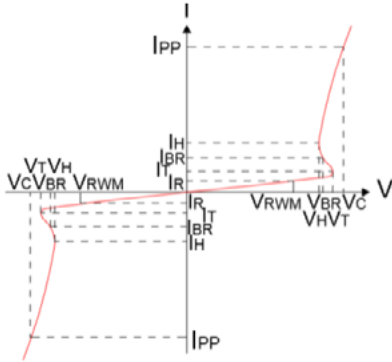
Supplied in tape and reel packaging, 10,000 parts per 7" diameter reel (EIA-481 compliant)



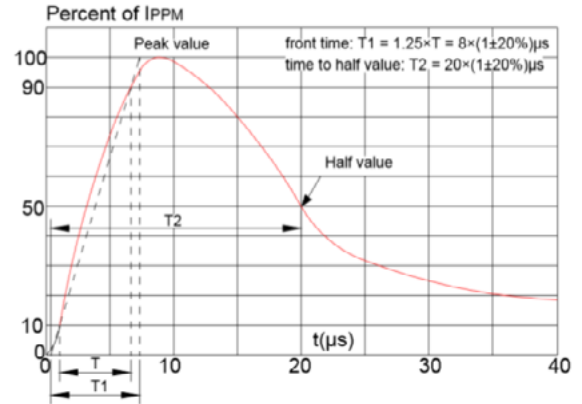
Symbol	Millimeters	Inches
	Typ.	Typ.
a	0.41	0.016
B	0.70	0.028
C	0.38	0.015
d	Φ1.50	Φ0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	2.00	0.079
P1	2.00	0.079
W	8.00	0.315
D	Φ178	Φ7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.00	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

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

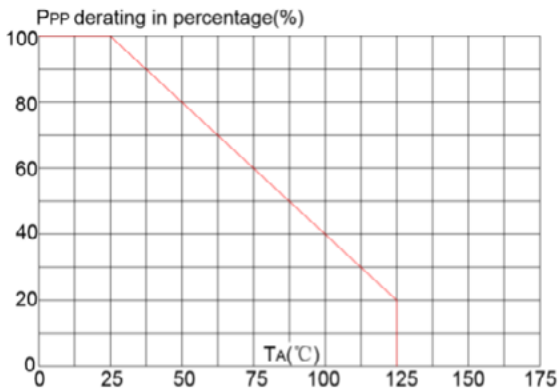
V- I curve characteristics (Bi-directional)



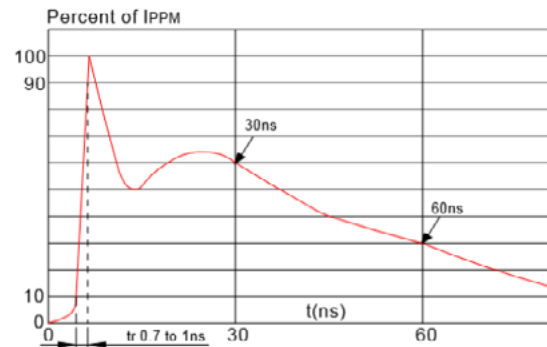
Pulse waveform (8/20 μs)



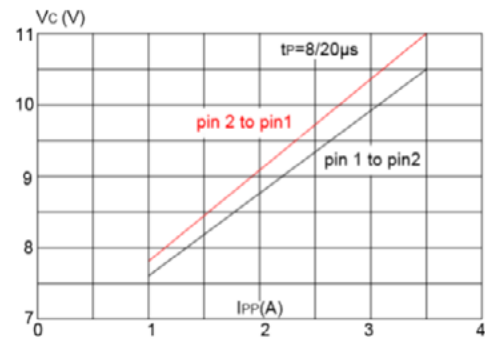
Pulse derating curve



ESD waveform



Clamping voltage vs. peak pulse current



TLP Measurement

