

ESD Protection Diode : TELD06205030B

DFN0603 package Low capacitance type



■ Features

1. RoHS compliant and halogen-free
2. Working voltage: 5V
3. Low capacitance: 3.0pF
4. Low clamping voltage
5. Low leakage current
6. IEC 61000-4-2 (ESD) $\pm 30\text{KV}$ (air), $\pm 25\text{KV}$ (contact)



■ Recommended Applications

1. Computers and peripherals
2. High speed data lines
3. Cellular handsets and accessories
4. Portable Instrumentation
5. Audio and video equipment

■ Mechanical Data

1. Case: DFN0603(EIA 0201), molded plastic meets UL flammability rating 94V-0
2. Terminals : Au plated, Solderable per MIL-STD-750,method 2026
3. Meets MSL level 1, per J-STD-020

■ Part Number Code

T	E	L	D	0	6	2	0	5	0	3	0	B
1	2	3	4	5	6	7	8	9	10	11	12	13
↓		↓		↓		↓		↓		↓		↓
Product Series		Type code		Package		Reverse Stand off Voltage(V_{RWM})		Junction Capacitance(C_j)		Type Code		
TE	THINKING ESD Transient Voltage Suppression Diodes	D	Standard Capacitance >10pF	SD32	SOD-323, 2pins	05	5V	0R5	0.5pF	U	Uni-directional	
		L	Low Capacitance >1pF, ≤10pF	D102	DFN1006, 2pins			030	3.0pF	B	Bi-directional,	
		U	Ultra-low Capacitance ≤1pF	D062	DFN0603, 2pins			100	10pF			

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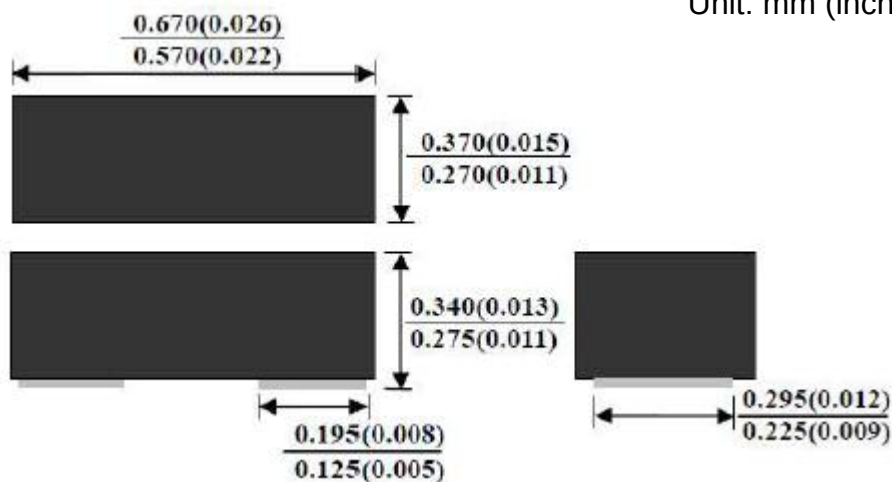
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■ Structures and Dimensions

DFN0603 (0201)

Unit: mm (inch)



■ Schematic & PIN Configuration



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■ Maximum Rating (Rating at 25°C ambient temperature unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power (tp= 8/20μs waveform)	P _{PPM}	50	W
Peak Pulse Current (tp= 8/20μs waveform)	I _{PP}	3.5	A
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V _{ESD}	±30 ±25	KV
Operating junction temperature	T _J	-55~+125	°C
Storage temperature range	T _{STG}	-55~+150	°C

■ Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V _{RWM}	-			5	V
Breakdown Voltage	V _{BR}	I _R =1mA	5.6		9.0	V
Reverse Leakage Current	I _R	V _{RWM} =5V			0.01	μ A
Clamping Voltage	V _c	I _{pp} =1A, tp= 8/20μs I _{pp} =3A, tp= 8/20μs			12 17	V
Junction Capacitance	C _j	Between I/O Pin and GND V _R =0V , f=1MHz		3	10	pF

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■ Rate and Characteristic Curve ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 Power derating Curve

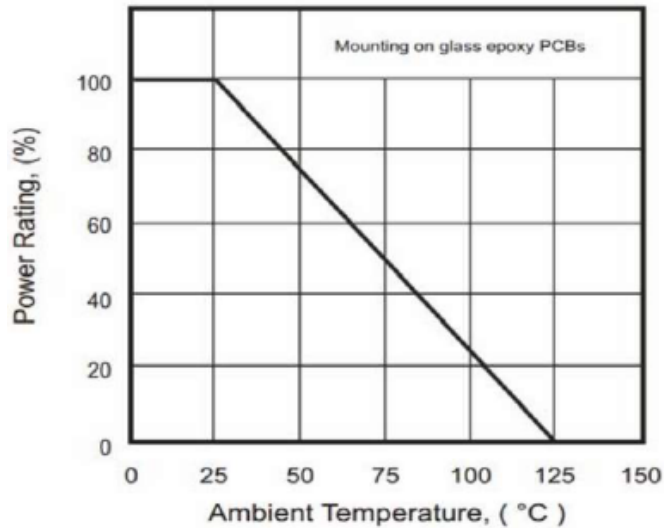


Figure 2

8/20 μ s peak pulse current waveform

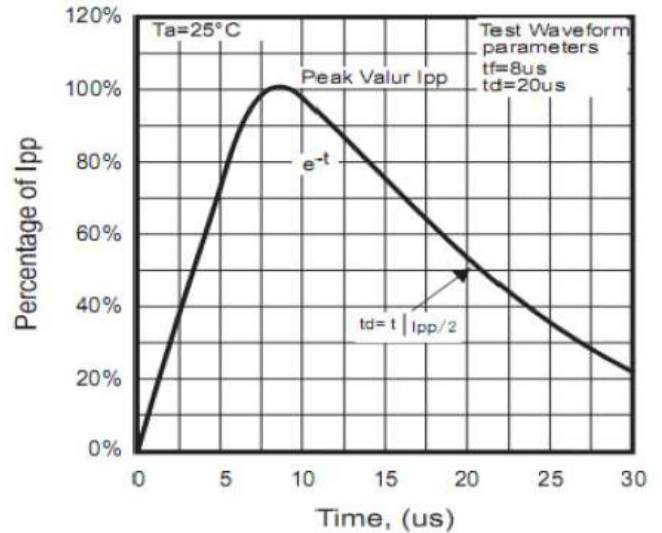


Figure 3 V_c vs I_{pp}

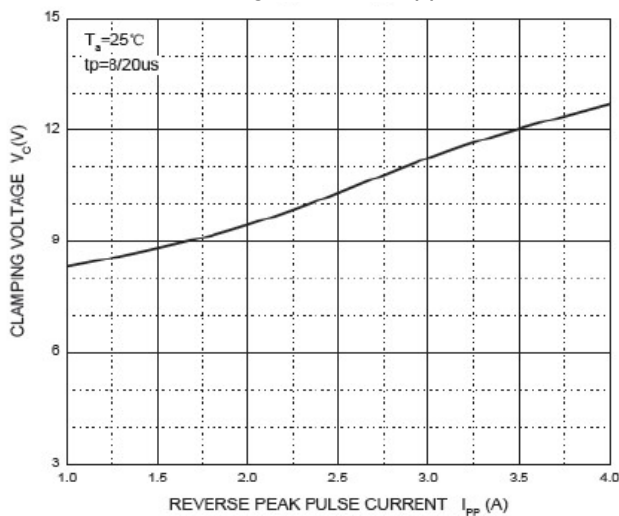


Figure 4 Capacitance vs. Reverse voltage

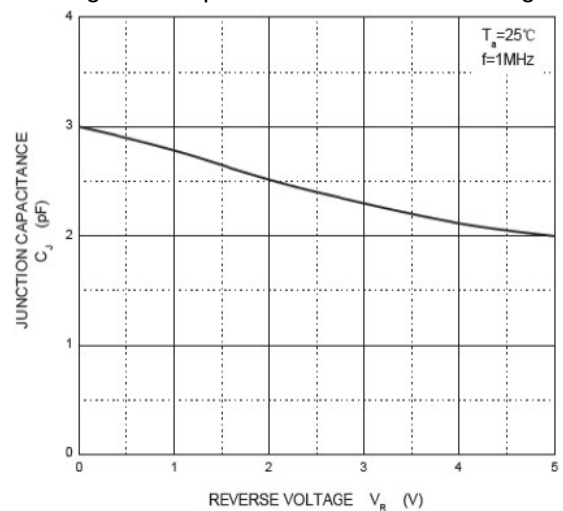
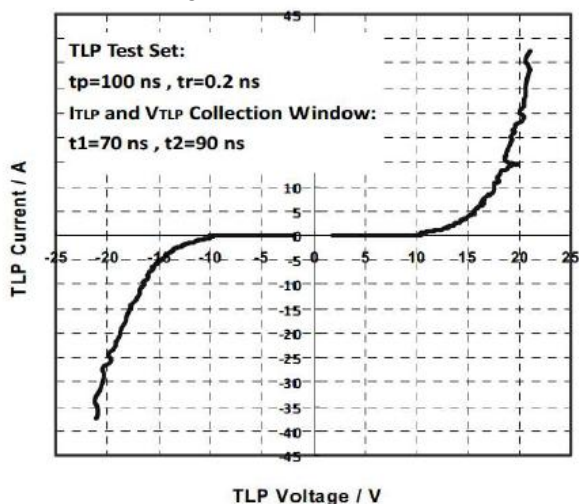


Figure 5 TLP V-I Curve

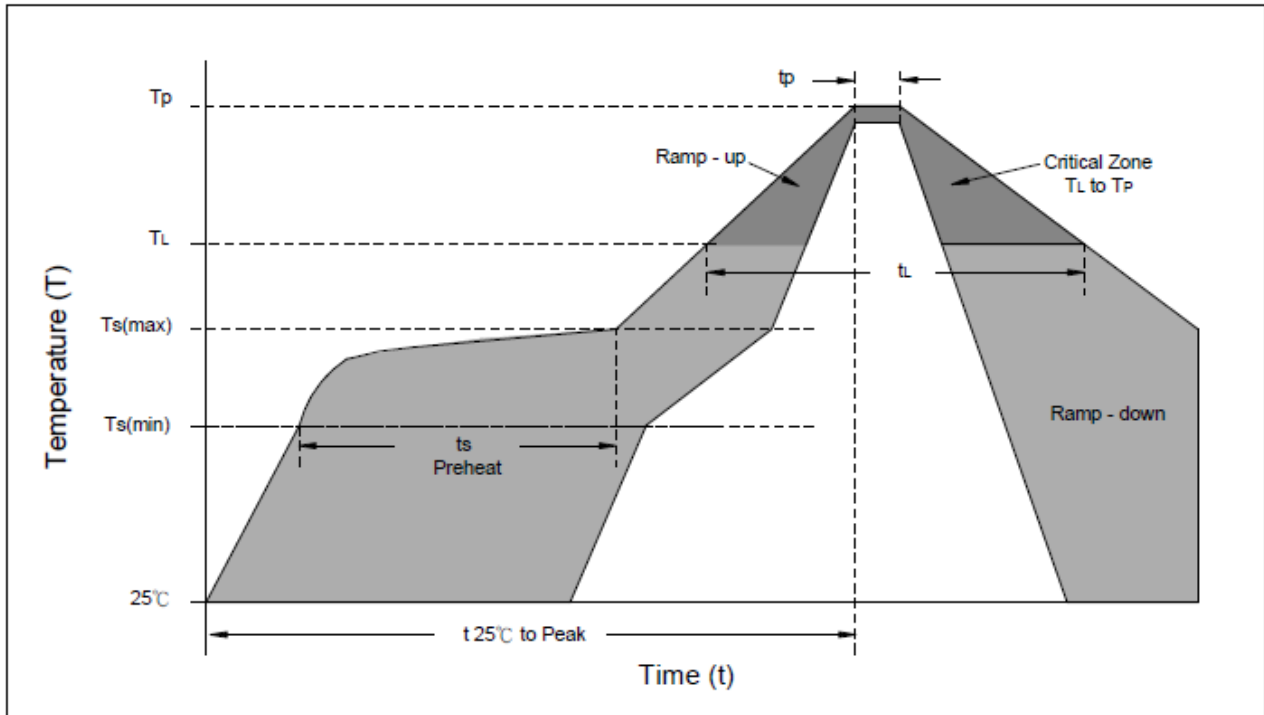


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■ Soldering Recommendation



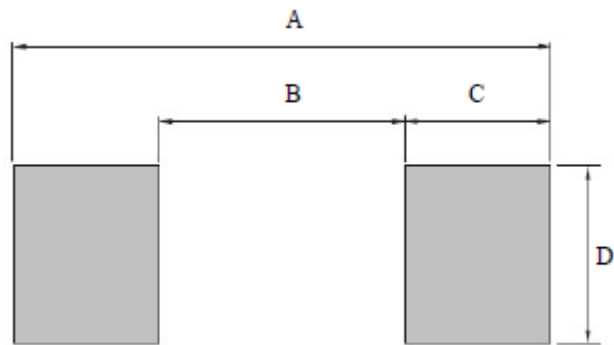
Reflow Condition	Lead-free assembly
Preheat -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150°C 200°C 60 – 180 seconds
Average ramp up rate -Temperature Liquidus (TL) to peak	3°C/second max
Ts(max) to TL -Ramp-up Rate	3°C/second max.
Reflow -Temperature Liquidus (TL) -Time (tL)	217°C 60 – 150 seconds
Peak Temperature (TP)	260°C
Time within 5°C of actual peak Temperature(tp)	20 – 40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to peak Temperature(TP)	8 minutes max.
Do not exceed	260°C

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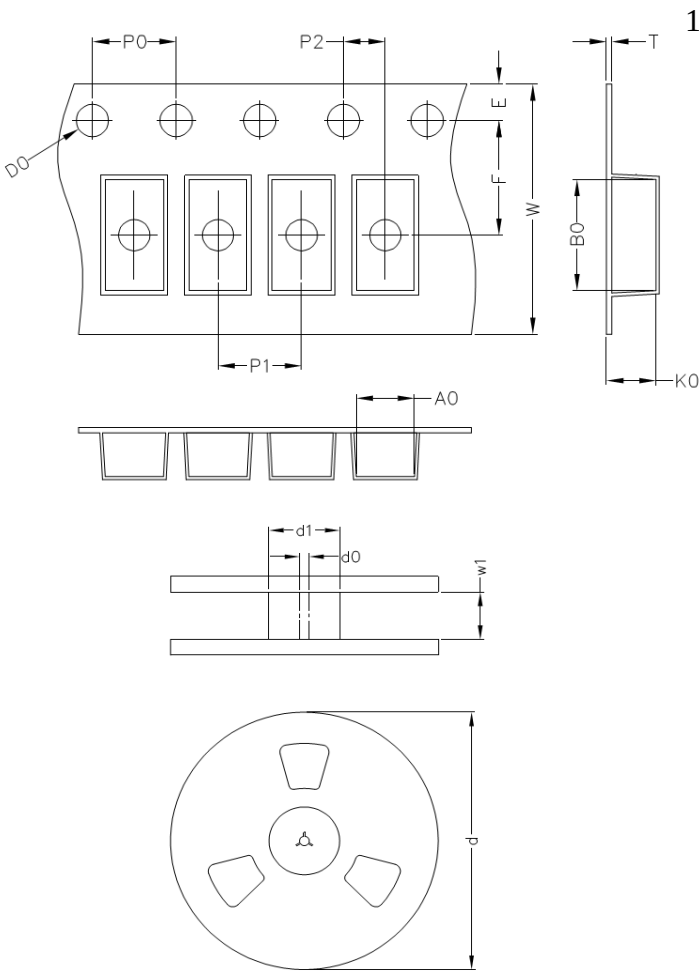
■ Recommended Soldering Pad Dimensions



Unit: mm

Package Type	A	B	C	D
DFN0603	0.64	0.20	0.22	0.36

■ Packaging



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Symbol	DFN0603 (Unit: mm)
A0	0.37 ± 0.05
B0	0.67 ± 0.05
K0	0.50 ± 0.05
D0	1.50 ± 0.10
E	1.75 ± 0.10
F	3.50 ± 0.10
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.10
T	0.18 ± 0.05
W	8.00 ± 0.20
d (7'')	178.00 ± 2.00
d1	MIN. 54.00
d0	13.00 ± 0.20
w1	MAX. 13.50

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■ Quantity

Package Type	Marking Code	Reel Size (inch)	Reel (Kpcs)
DFN0603	I	7	10

■ Warehouse Storage Conditions of product

- Storage condition:
 - 1.Storage Temperature: -10℃~+40℃
 - 2.Relative Humidity: $\leq 75\%RH$
 - 3.Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.