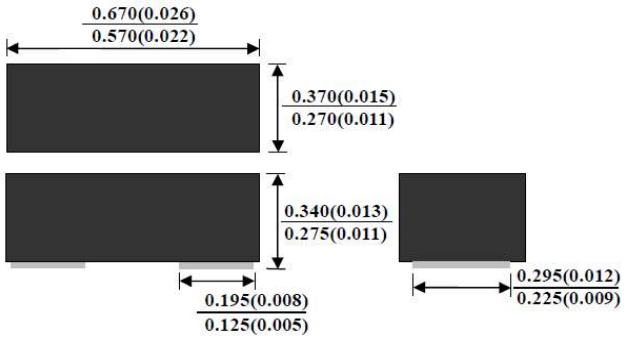
SE05L3BPDB

ESD PROTECTION DIODE

FEATURES

· Bi-directional ESD protection
· IEC61000-4-2 30kV(Air), 25kV(Contact)
· Ultra small SMD package:0201
· Operating voltage: 5V
· Suffix "H" indicates Halogen-free parts, ex. SE05L3BPDBH

DFN0603 (0201)



Dimensions in inchs and (millimeters)

APPLICATIONS

· USB 2.0 and USB 3.0
· HDMI 1.3/1.4 and HDMI 2.0
· LVDS Interfaces
· FM Antenna
· PCI Express

MECHANICAL DATA

Case : DFN0603(0201) standard package
Terminals : Au / Sn plated, Solderable per MIL-STD-750, method 2026

PIN CONFIGURATION

Maximum Ratings (Rating at 25°C ambient temperature unless otherwise specified)

Parameter		Symbol	Value	Units
IEC 61000-4-2 ESD Voltage[(1)]	Air Model Contact Model	V_{ESD}	±30 ±25	KV
Maximum Peak Pulse Current tp=8/20μs		I_{PP}	4.5	A
Operating Junction Temperature		T_j	-55 to +125	℃
Storage Temperature Range		T_{stg}	-55 to +150	℃

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Electrical Charateristics (T_a=25 ℃ unless otherwise specified)

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Reverse stand off voltage	-	V_{RWM}	-	-	5	V
Reverse breakdown voltage	I_T=1mA	$V_{(BR)}$	-	-	10	V
Reverse leakage current	V_{RWM}=5V	I_R	-	50	100	nA
Clamping voltage	Ipp=1A, tp=8/20 μs	V_C	-	-	11	V
	Ipp=3A, tp=8/20 μs		-	-	14	
Clamping Voltage(2)	Ipp=-5A, tlp=0.2/100 ns	V_C	-	-11	-	V
	Ipp=+5A, tlp=0.2/100 ns		-	11	-	
	Ipp=-30A, tlp=0.2/100 ns		-	-18	-	
	Ipp=+30A, tlp=0.2/100 ns		-	18	-	
Dynamic Resistance(2)(3)(4)	tp=100ns		-	0.31	-	Ohms
Junction capacitance	V_R=0V，f=1MHz	C_J	-	0.25	0.35	pF

Note:

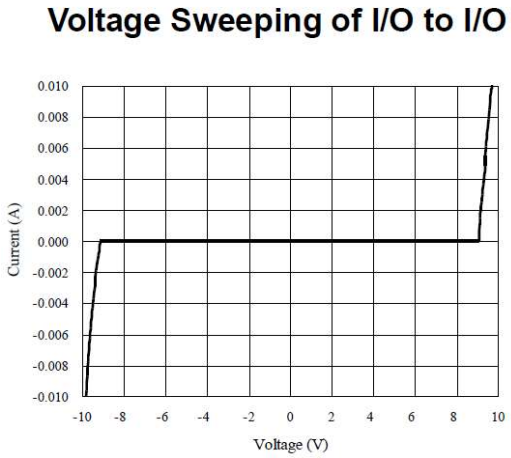
1-ESD gun return path connected to ESD ground reference plane.

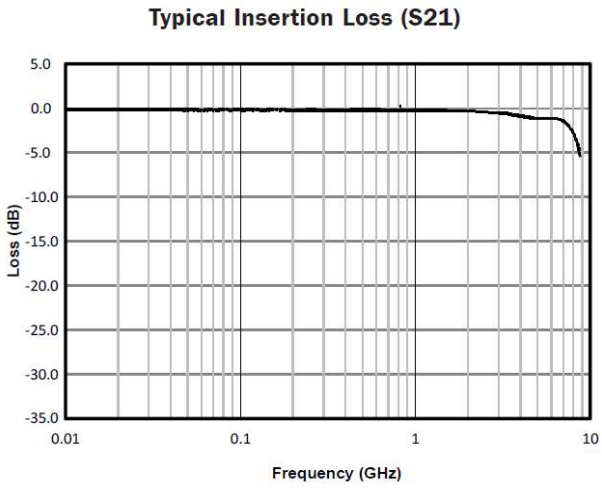
2-Transmission Line Pulse Test (TLP) Settings: tp= 100ns, tr= 0.2ns, I_{TLP} and V_{TLP} averaging window: t1 = 70ns to t2= 90ns.

3-Dynamic resistance calculated from I_{TLP}= -5A to I_{TLP}=-30A and I_{TLP}=+5A to I_{TLP}= +30A

4-Guaranteed by design. Not production tested

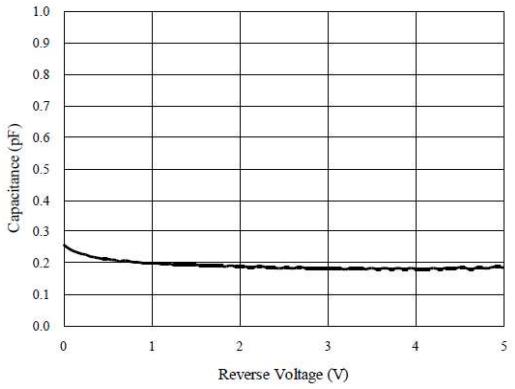
RATINGS AND CHARACTERISTIC CURVES



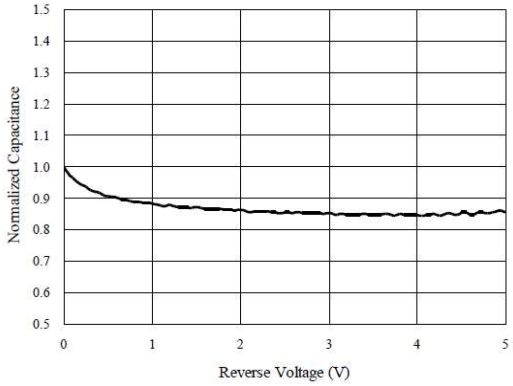


Capacitance *vs.* Voltage of I/O to GND (f = 1MHz)

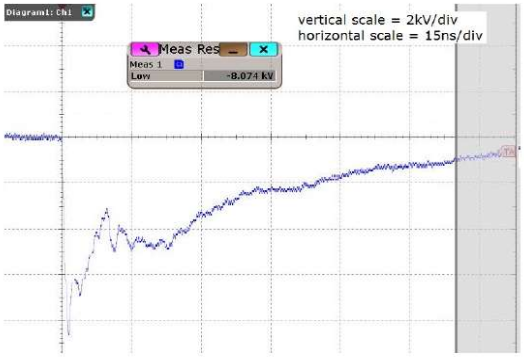
Capacitance *vs.* Reverse Voltage



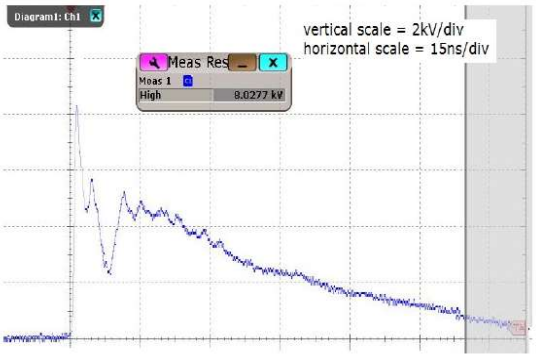
Normalized Capacitance *vs.* Reverse Voltage



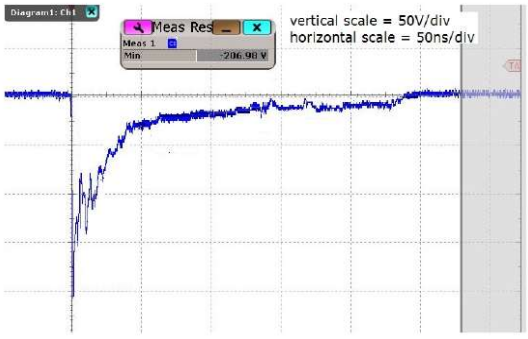
Unclamped -8 kV ESD pluse waveform
(IEC61000-4-2 network)



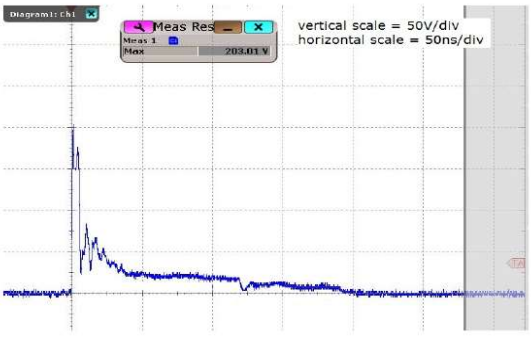
Unclamped +8 kV ESD pluse waveform
(IEC61000-4-2 network)

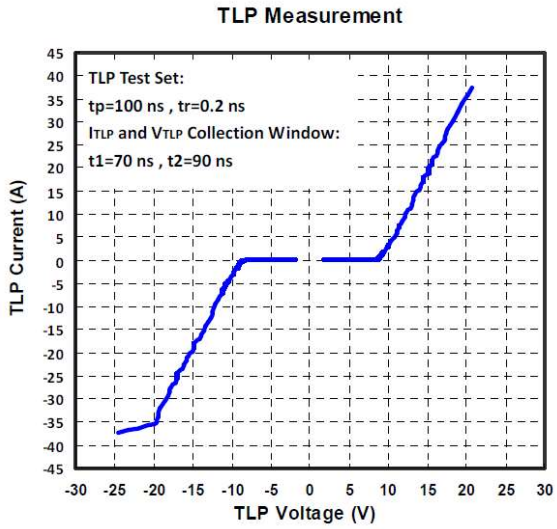


Unclamped -8 kV ESD pluse waveform
(IEC61000-4-2 network)



Unclamped +8 kV ESD pluse waveform
(IEC61000-4-2 network)




TLP Measurement
TLP Test Set:
tp=100 ns , tr=0.2 ns
ITLP and VTLP Collection Window:
t1=70 ns , t2=90 ns
TLP Current (A)
TLP Voltage (V)
45
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30

SE05Q1BPDB

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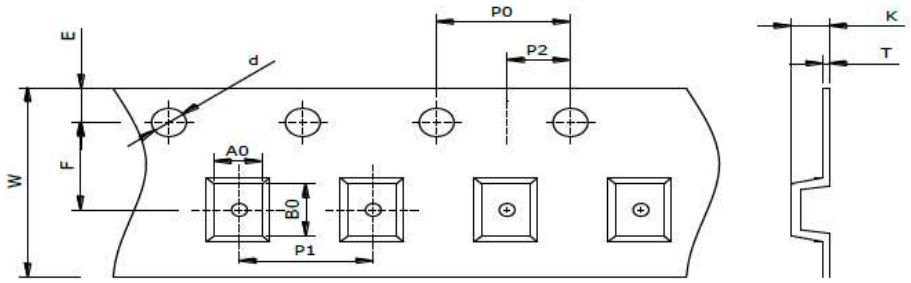
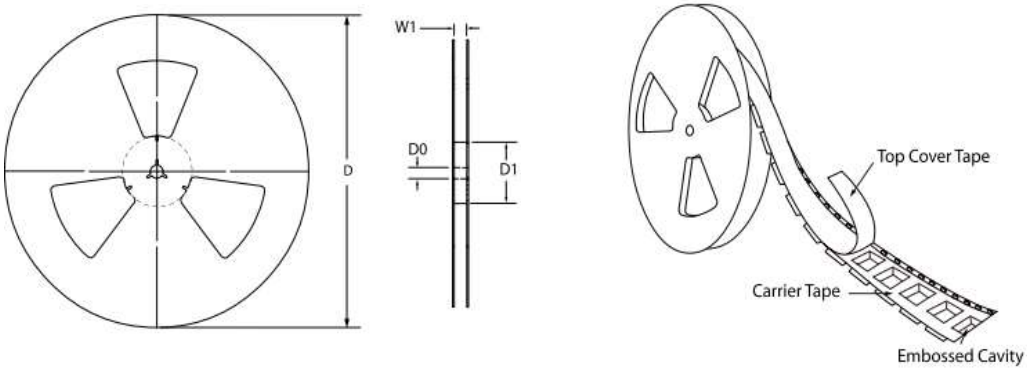
TAPE & REEL SPECIFICATION



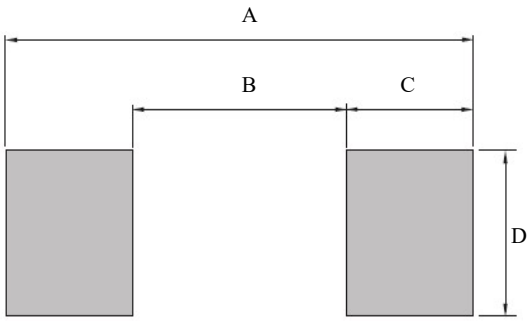


Item	Symbol	DFN0603 (0201)
Carrier width	A_0	0.37 ± 0.05
Carrier length	B_0	0.67 ± 0.05
Carrier depth	K	0.50 ± 0.05
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D_0	13.00 ± 0.20
Reel inner diameter	D_1	MIN. 54.00
Sprocke hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocke hole pitch	P_0	4.00 ± 0.10
Punch hole pitch	P_1	4.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	0.18 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W1	MAX. 13.50

ORDER INFORMATION

Package	Reel Size	Quantity
DFN0603 (0201)	7"	10,000

SUGGESTED SOLDER PAD LAYOUT



PACKAGE	A	B	C	D
DFN0603 (0201)	0.64	0.20	0.22	0.36