




SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N0310- DFN06035D6S5BU
DATE	Mar. 10, 2021
REVISION	A0
DESCRIPTION	SMD Plastic-Encapsulate ESD Protection Diodes, DFN0603 series ESD05D6BU Type, Ultra Low Capacitance ESD Protection Diodes Reverse Working Voltage : 5.0V, Peak Pulse Power per: 100 Watts Operating Temp. Range -55°C ~+125°C, Package in Tape/Reel, 10,000pcs/Reel RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	MDD ESD05D6BU
PART CODE	DFN06035D6S5BU

VENDOR APPROVE			
Issued/Checked/Approved			
DATE: March 10, 2021			

CUSTOMER APPROVE	
DATE:	

SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES

MAIN FEATURE

- Peak Power Dissipation: 100 W (8/20μs)
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Package optimized for high-speed lines
- Working Voltage: 5V
- Cable Discharge Event(CDE)
- Low clamping voltage
- Low leakage current
- Low Capacitance :0.25pF Typical



APPLICATION

- Serial ATA
- Desktops, Servers and Notebooks
- Cellular Phone
- MDDI Ports
- Display Ports
- USB Data Line Protection
- Digital Visual Interface (DVI)

RFQ

[Request For Quotation](#)

PART CODE GUIDE

DFN0603	5D6	S	5BU
1	2	3	4

- 1) **DFN0603**: SMD Plastic-Encapsulate ESD Protection Diodes, DFN1006 series, 2 pads
- 2) **5D6**: Type code for original part number ESD05D6BU
- 3) **S**: Package code, Package in Tape/Reel, 10,000pcs/Reel
- 4) **5BU**: Marking code “5BU” on the case surface, Different Marking for different specification.

MORE ITEMS AVAILABLE

DFN06035D6S5BU	DFN06033D6S3BU	DFN06035D6S00Y		

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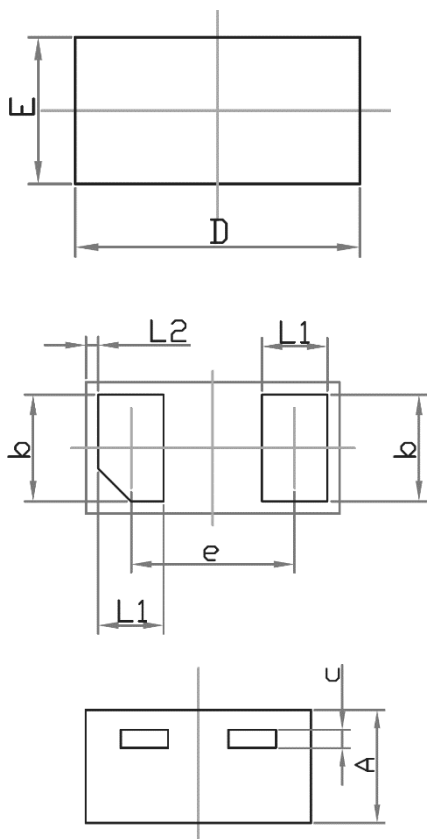
DIMENSION (Unit: Inch/mm)

Image for reference



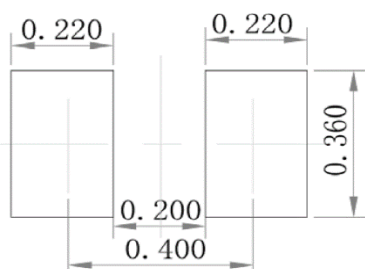
Marking: 5BU

DFN0603

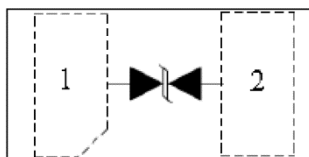


Symbol	Value (mm)		
	Min.	Typ.	Max.
A	0.275	-	0.340
D	0.570		0.670
E	0.270		0.370
b	0.225		0.295
c	-	0.05	-
e	0.365		0.435
L1	0.125		0.195
L2		0.03	

Recommend Pad Layout



Pin Configuration



Circuit Diagram



SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES
MECHANICAL DATA

Case	Terminals	Flammability Rating	Marking	Weight per piece
JEDEC DFN0603 molded plastic body	Gold plated, solderable per MIL-STD-750, method 2026	UL 94V-0	5BU	0.00019 Ounce, 0.00591 grams

ABSOLUTE MAX. RATINGS AT Ta=25 °C (unless otherwise specified)

Parameter	SYMBOLS	VALUE	UNITS
		LIMIT	
ESD per IEC 61000-4-2 (Air)	V ESD	+/-20	KV
ESD per IEC 61000-4-2 (Contact)	V ESD	+/-20	KV
Peak Pulse Power(tp=8/20us waveform)	P PP	100	W
Lead Solder Temperature – Maximum (10 Second Duration)	T L	260(10 sec.)	°C
Operating Temperature Range	TOPT	-55 ~+ 125	°C
Storage Temperature Range	T STG	-55 ~ +150	°C

ABSOLUTE MAX. RATINGS AT Ta=25 °C (unless otherwise specified)

Parameter	SYMBOLS	VALUE			UNITS
		Min.	Typical	Max.	
Reverse Working Voltage	V RWM			5.0	V
Reverse Breakdown Voltage @ I _T = 1.0mA	V BR	6.0			V
Reverse Leakage Current @V _{RWM} = 5.0V	I R			100	nA
Clamping Voltage @ I _{PP} = 1A, t _p = 8/20μs	V C			13	V
Clamping Voltage @ I _{PP} = 4A, t _p = 8/20μs	V C			25	V
Junction Capacitance VR = 0V, f = 1MHz	C J		0.25	-	pF

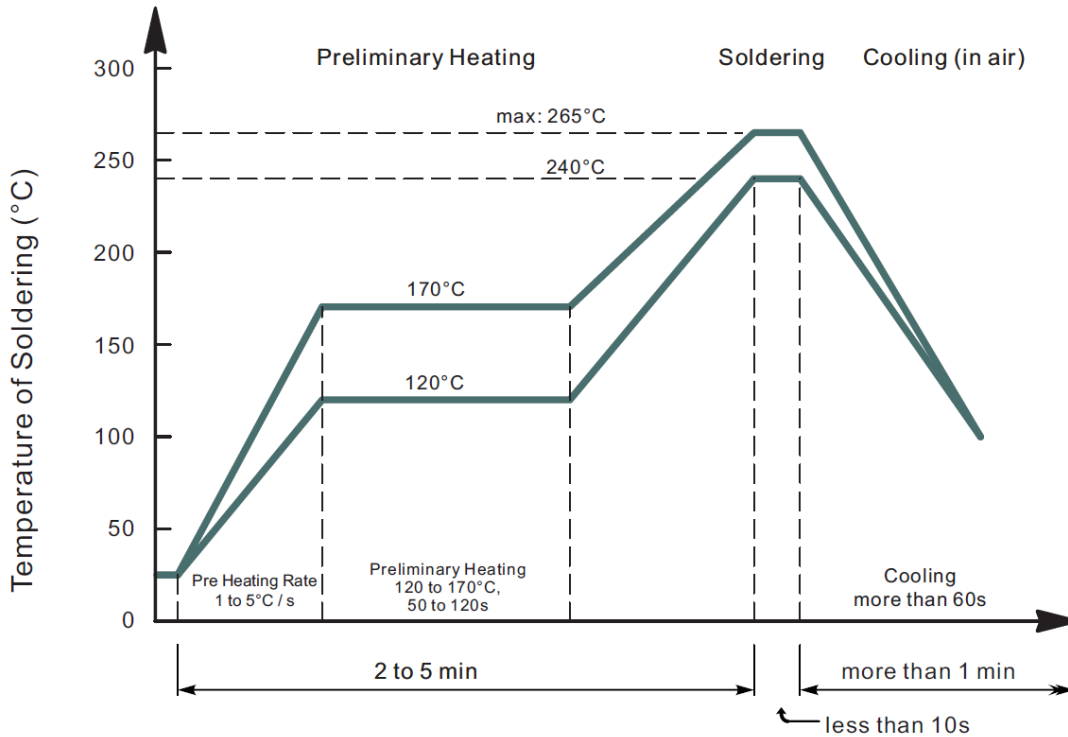
Note:
The above data are for reference only.

SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES
RELIABILITY

Number	Experiment Items	Experiment Method And Conditions	Reference Documents
1	Solder Resistance Test	Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031.2
2	Solderability Test	230°C ±5°C for 5 sec.	MIL-STD-750D METHOD-2026.1 0
3	Pull Test	1 kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036.4
4	Bend Test	0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times	MIL-STD-750D METHOD-2036.4
5	High Temperature Reverse Bias Test	TA=100°C for 1000 Hours at VR=80% Rated VR	MIL-STD-750D METHOD-1038.4
6	Forward Operation Life Test	TA=25°C Rated Average Rectified Current	MIL-STD-750D METHOD-1027.3
7	Intermittent Operation Life Test	On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles.	MIL-STD-750D METHOD-1036.3
8	Pressure Cooker Test	15 PSIG, TA=121°C, 4 hours	MIL-S-19500 APPENOIXC
9	Temperature Cycling Test	-55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles.	MIL-STD-750D METHOD-1051.7
10	Thermal Shock Test	0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles	MIL-STD-750D METHOD-1056.7
11	Forward Surge Test	8.3ms Single Sale Sine-wave One Surge.	MIL-STD-750D METHOD-4066.4
12	Humidity Test	TA=65°C, RH=98% for 1000 hours.	MIL-STD-750D METHOD-1021.3
13	High Temperature Storage life Test	150°C for 1000 Hours	MIL-STD-750D METHOD-1031.5

SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES

SUGGESTED REFLOW PROFILE (For Reference Only)



- Recommended peak temperature is over 245°C, If peak temperature is below 245 °C, you may adjust the following parameters; time length of peak temperature (longer), time length of soldering (longer), thickness of solder paste (thicker)
- Welding shall not exceed 2 times
- Remark: lead free solder paste (96.5 sn/3.0 Ag/0.5Cu)

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RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Fig 1 Power Derating Curve

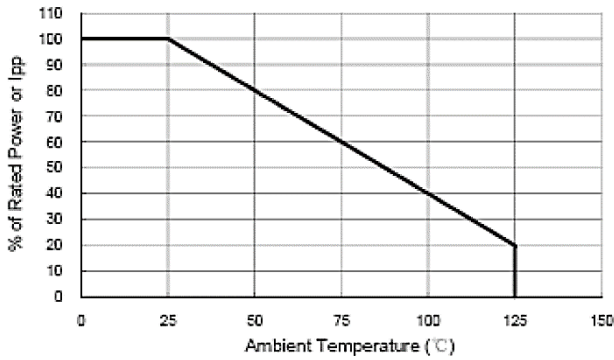


Fig 2 Clamping Voltage vs Peak Pulse Current

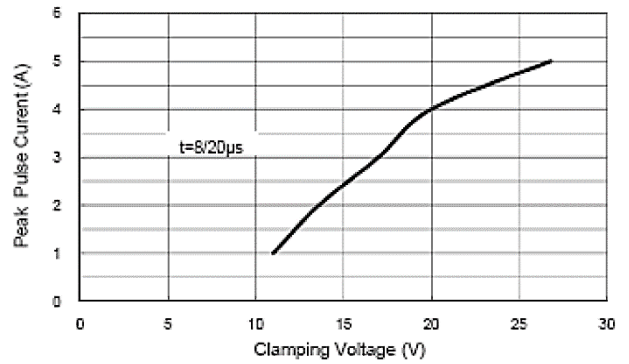


Fig 3 Voltage Sweeping

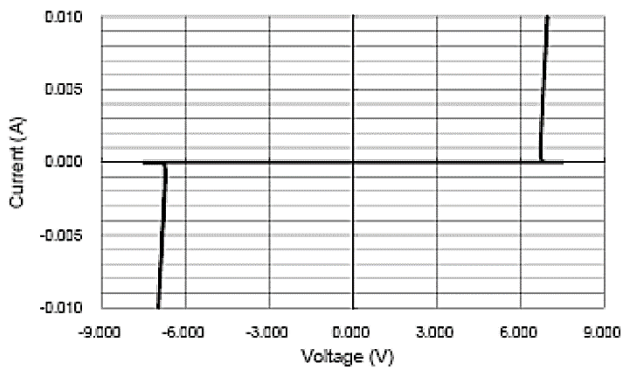


Fig 4 Voltage vs Capacitance

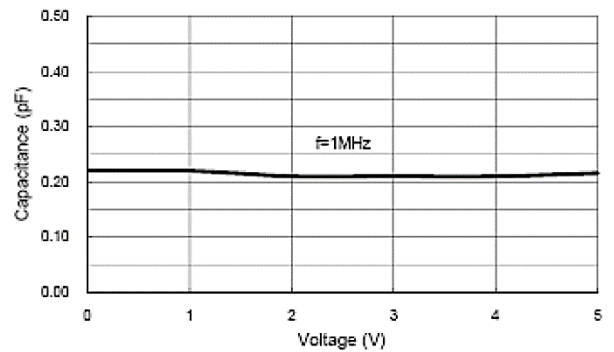


Fig 5 ESD Clamping (+8kV Contact per IEC 61000-4-2)

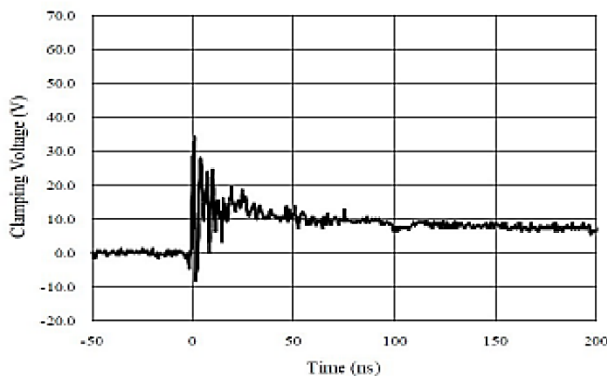
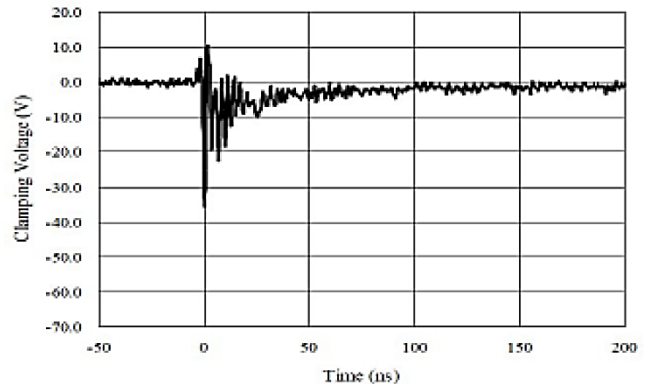


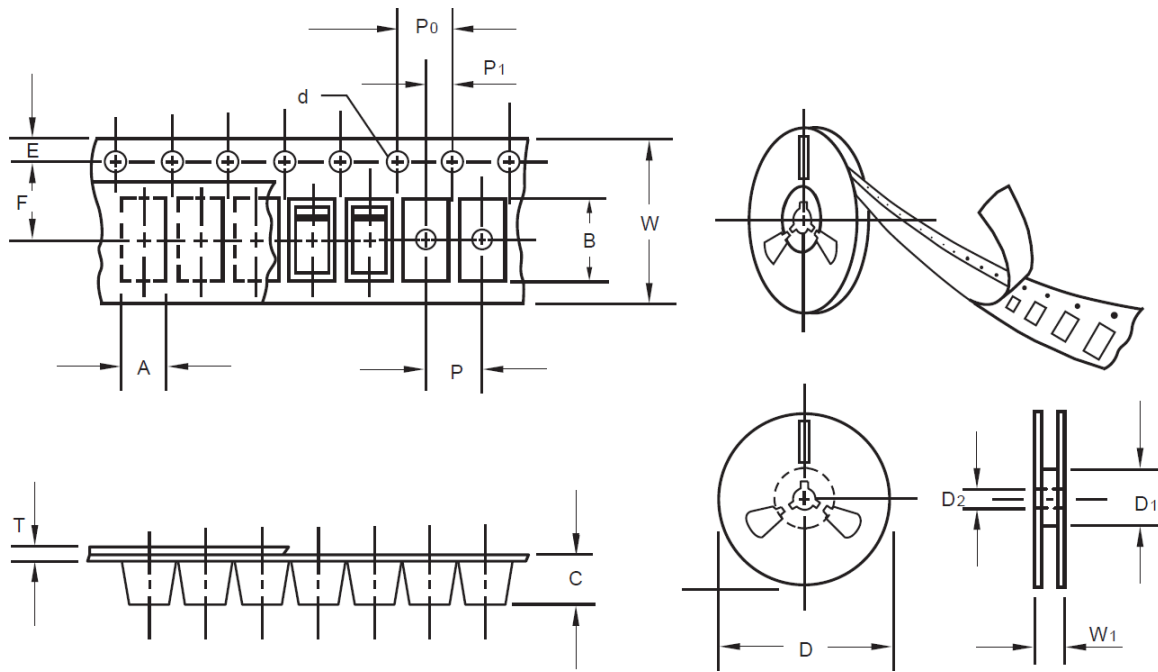
Fig 6 ESD Clamping (-8kV Contact per IEC 61000-4-2)



SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES

TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and specifications.

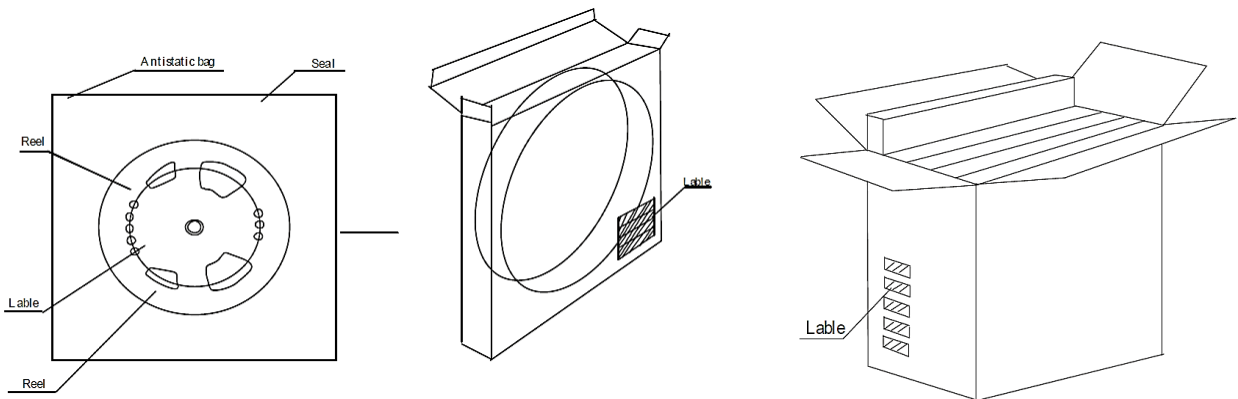


Item	Symbol	Tolerance	DFN0603
Carrier width	A	0.1	2.10
Carrier Length	B	0.1	4.00
Carrier Depth	C	0.1	1.60
Sprocket hole	d	0.05	1.55
13"Reel outside diameter	-	-	-
13"Reel inner diameter	-	-	-
7"Reel outside diameter	D	2.0	178.00
7"Reel inner diameter	D1	Min.	50.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.15
Reel width	W1	1.0	10.50

SMD ESD PROTECTION DIODES (TUBE) DFN0603 SERIES

PACKAGE

Case Code	Reel Size	MPQ (pcs)	Component Spacing (mm)	Qty. Per Box (pcs)	Inner Box L*W*H (mm)	Reel Size (mm)	Carton size L*W*H (mm)	Qty. Per Carton (pcs)	G. W (kg)
DFN1006	7"	10,000		100,000	210*210*205	178	445*445*230	400,000	6.5



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