NextGen Components,Inc.

PART CODE: DFN1006D12VSYD

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N1004- DFN1006D12VSYD
DATE	Oct. 04, 2021
REVISION	A0
DESCRIPITION	SMD Plastic-Encapsulate ESD Protection Diodes, DFN1006 series ESD8D12V Type, Low Capacitance ESD Protection Diodes **Reverse Working Voltage: 12.0V, Clamping Voltage : 20.0V Max.@ 5.0A** 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 ESD8D12V
PART CODE	DFN1006D12VSYD

VENDOR APPROVE	
Issued/Checked/Approved	NextGen Components, Inc. Mandy Xu; NextGen Components, Inc. Ruby Zhang; NextGen Components, Inc. Jack Zhang
DATE: Oct. 04, 2021	

CUSTOMER APPROVE
DATE:

SMD ESD PROTECTION DIODES DFN1006 SERIES

MAIN FEATURE

- Peak Power Dissipation 150mW (8/20μs)
- Transient protection for high speed data lines
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltage: 12.0V

APPLICATION

- Cell phone handsets and accessories
- Desktops, Servers and Notebooks
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Portable Instrumentation
- Peripherals
- Pagers

RFQ
Request For Quotation

PART CODE GUIDE

DFN1006	D12V	S	YD
1	2	3	4

1) **DFN1006:** SMD Plastic-Encapsulate ESD Protection Diodes, DFN1006 series, 2 pads

2) **D12V:** Type code for original part number ESD8D12V

3) **S**: Package code, Package in Tape/Reel, 10000pcs/Reel

4) **YD:** Marking code "YD" on the case surface, Different Marking for different specification.

SMD ESD PROTECTION DIODES DFN1006 SERIES

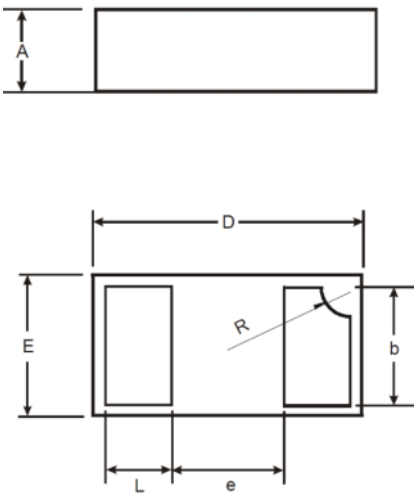
DIMENSION (Unit: mm)

Image for reference



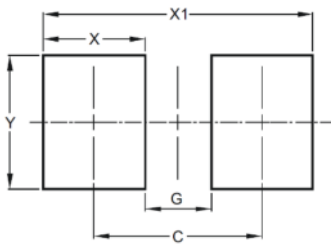
Marking: YD

DFN1006

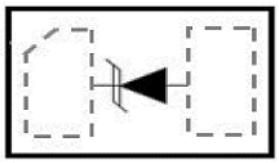


Symbol	Value (mm)		
	Min.	Typ.	Max.
A	0.45	0.50	0.550
b	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.650
e	-	0.40	-
L	0.90	1.00	1.05
R	0.07	0.12	0.17

Recommend Pad Layout



Circuit Diagram



Symbol	Unit (mm)
C	0.90
G	0.40
X	0.50
X1	1.10
Y	0.50

SMD ESD PROTECTION DIODES DFN1006 SERIES

MECHANICAL DATA

Case	Terminals	Flammability Rating	Mounting Position	Weight per piece
JEDEC DFN1006 molded plastic body	Gold plated, solderable per MIL-STD-750,Method 2026	UL 94V-0	-	-

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

Parameter	SYMBOLS	VALUE	UNITS
		LIMIT	
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/-30	KV
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/-22	KV
Total Power Dissipation on FR-5 Board (Note 1) @ Ta = 25 °C	P_D	150	mW
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260 (10 sec.)	°C
Operating Temperature Range	T_{OPT}	-55 ~+ 125	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Note: FR-5= 1.0*0.75*0.62 in.

ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise specified)

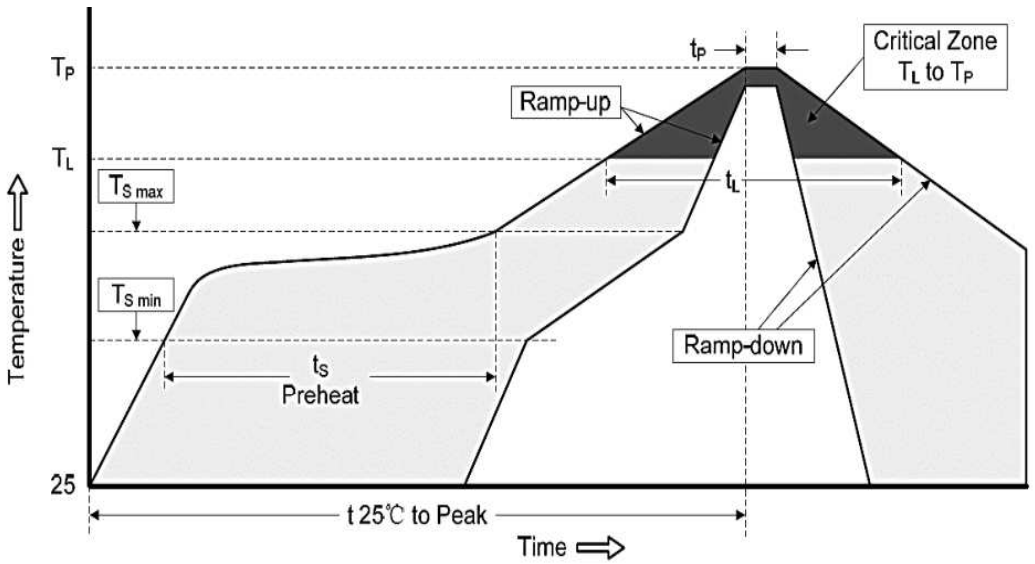
Parameter	SYMBOLS	VALUE			UNITS
		Min.	Typical	Max.	
Reverse Working Voltage	V_{RWM}			12.0	V
Reverse Breakdown Voltage @ I_T = 1.0mA	V_{BR}	13.3			V
Reverse Leakage Current @V_{RWM} = 12.0V	I_R			1.0	μA
Clamping Voltage @ I_{PP} = 1.0A, t p = 8/20μs	V_C			20.0	V
Clamping Voltage @ I_{PP} = 4.0A, t p = 8/20μs	V_C			26.0	V
Peak Power Dissipation t p = 8/20μs)	P_{PK}			104	W
Capacitance V R = 0V, f = 1MHz	C_J			45	pF

Note: The above data are for reference only.

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	T_A=100°C for 1000 Hours at V_R=80% Rated V_R	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, T_A=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	T_A=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

SUGGESTED REFLOW PROFILE (For Reference Only)



Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3℃/second Max
Preheat	**Temperature Min (Ts Min.)**	150℃
	Temperature Max (Ts Max.)	200℃
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	**Temperature (TL)**	217℃
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature (Tp)		260 ℃
Time within 5℃ of actual Peak Temperature (tp)		20 ~ 40 seconds
Ramp-down rate		6 ℃ /Second Max.
Time 25 ℃ to Peak Temperature		8 minutes Max.
Suggest reflow times		3 Times Max.

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

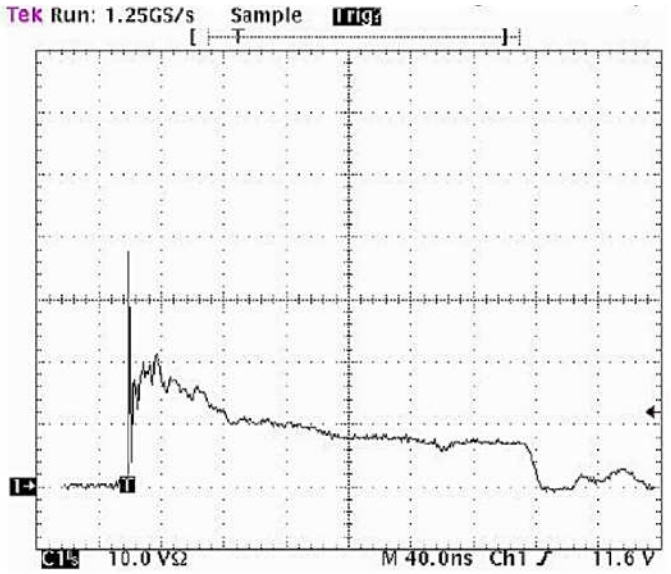


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000−4−2

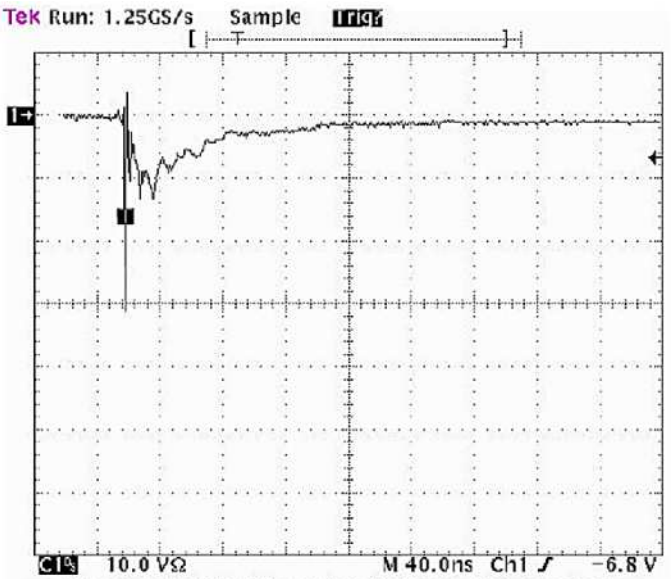
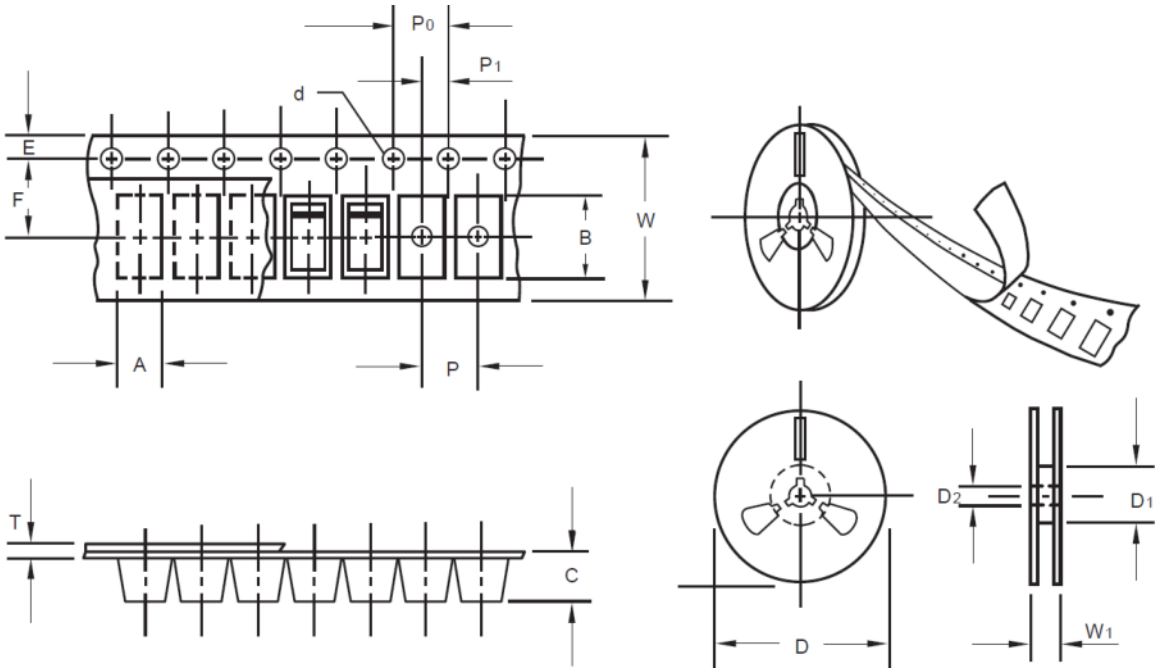


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000−4−2

TAPE/REEL (Unit: mm)

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



Item	Symbol	Tolerance	DFN1006
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

SPQ PACKAGE for Reference

Item	Unit	Value
Case Code		DFN1006
Reel Size	Inch	7
Reel Size	mm	178
Tape Space	mm	/
SPQ /Reel	pcs	10000
Weigh /SPQ	LBs	
Weigh /SPQ	KGs	-
Qty. Per Box	pcs	20,000
Inner Box	Inch	L8.0*W8.0*H1.5

DISCLAIMER

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