NextGen Components,Inc.

PART CODE: SMAFES1JF0S160

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N0310-SMAFES1JF0S160
DATE	Mar. 10, 2021
REVISION	A0
DESCRIPITION	SMD Super Fast Recovery Rectifier, SMAF series, ES1JF Type, 2 Pads Reverse recovery Time 35 ns Max. Reverse Voltage 600V Max. Forward Current 1.0A Max. Operating Temp. Range -55°C ~+150°C Package in Tape/Reel, 2000pcs/Reel RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	MDD ES1JF
PART CODE	SMAFES1JF0S160

VENDOR APPROVE
Issued/Checked/Approved NextGen Components, Inc. Mandy Xu NextGen Components, Inc. Ruby Zhang NextGen Components, Inc. Jack Zhang
DATE: March 10, 2021

CUSTOMER APPROVE
DATE:

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SMD SUPER FAST RECOVERY RECTIFER SMAF SERIES

MAIN FEATURE

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Low reverse leakage
- Built-in strain relief
- High forward surge current capability
- High temperature soldering guaranteed: 250℃/ 10 seconds at terminals
- Glass passivated chip junction

APPLICATION

- For SMD application

RFQ
Request For Quotation

PART CODE GUIDE

SMAF	ES1JF0	S	160
1	2	3	4

1) **SMAF**: SMD Super Fast Recovery Rectifier, SMAF series code

2) **ES1JF0**: Type code for ES1JF

3) **S**: Package code, Tape/reel, 2000pcs/reel.

4) **160:** Specification code for Forward Current 1.0A Max. Reverse Voltage 600V Max.

MORE ITEMS AVAILABLE

SMAFES1AF0S105	SMAFES1BF0S110	SMAFES1CF0S115	SMAFES1DF0S120	SMAFES1EF0S130
SMAFES1GF0S140	**SMAFES1JF0S160**			
SMAFES2AF0S205	SMAFES2BF0S210	SMAFES2CF0S215	SMAFES2DF0S220	SMAFES2EF0S230
SMAFES2GF0S240	SMAFES2JF0S260			
SMAFES3AF0S305	SMAFES3BF0S310	SMAFES3CF0S315	SMAFES3DF0S320	SMAFES3EF0S330
SMAFES3GF0S340	SMAFES3JF0S360			

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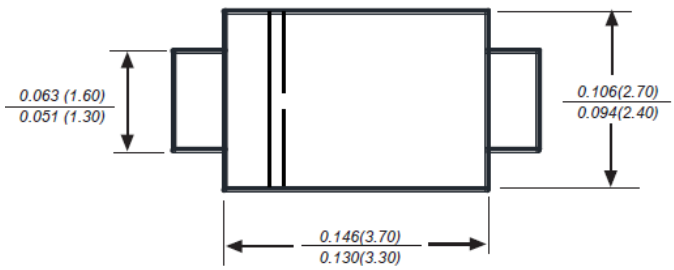
SMD SUPER FAST RECOVERY RECTIFER SMAF SERIES

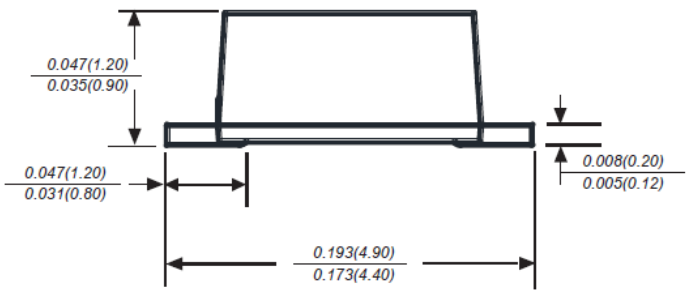
DIMENSION (Unit: Inch/mm)

Image for reference

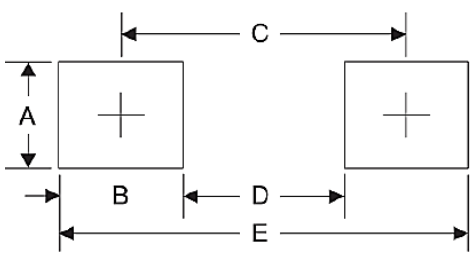
Marking: ES1JF

SMAF





Recommend Pad Layout



Symbol	Unit (Inch)	Unit (mm)
A	0.071	1.80
B	0.063	1.60
C	0.150	3.80
D	0.087	2.21
E	0.213	5.40

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SMD SUPER FAST RECOVERY RECTIFER SMAF SERIES

MECHANICAL DATA

Case	Terminals	Polarity	Mounting Position	Weight per piece
JEDEC SMAF molded plastic body	Solder plated, Solderable per MIL-STD-750, Method 2026	Color band denotes cathode end	Any	0.0018 Ounce, 0.0510 grams

MAX. RATING & CHARACTERISTICS

Parameter		SYMBOLS	VALUE			UNITS
			Min.	Typical	Max.	
Repetitive peak reverse voltage		V_{RRM}			600	Volts
RMS voltage		V_{RMS}			420	Volts
DC blocking voltage		V_{DC}			600	Volts
Average forward output rectified current at TL= 55°C		I_{AV}			1.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)		I_{FSM}		30		A
Instantaneous forward voltage at 1.0A		V_F			1.70	Volts
DC reverse current at rated DC blocking voltage	**TA=25℃**	I_R			5	μA
	TA=125℃				50	μA
Reverse recovery Time (Note 2)		trr			35	ns
Junction capacitance (NOTE 3)		C_J		15		pF
Thermal resistance (Note 4)		R_{QJA}		60		°C/W
Operating junction temperature range		T_J	-55		+150	°C
Storage temperature range		T_{STG}	-55		+150	°C

Note

1. Ratings at 25 C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.
2. Reverse recovery condition IF=0.5A,IR=1.0A,Irr=0.25A
3. Measured at 1.0MHz and applied reverse voltage of 4.0Voltage
4. P.C.B. mounted with 0.2x0.2”(5.0x5.0mm) copper pad areas.

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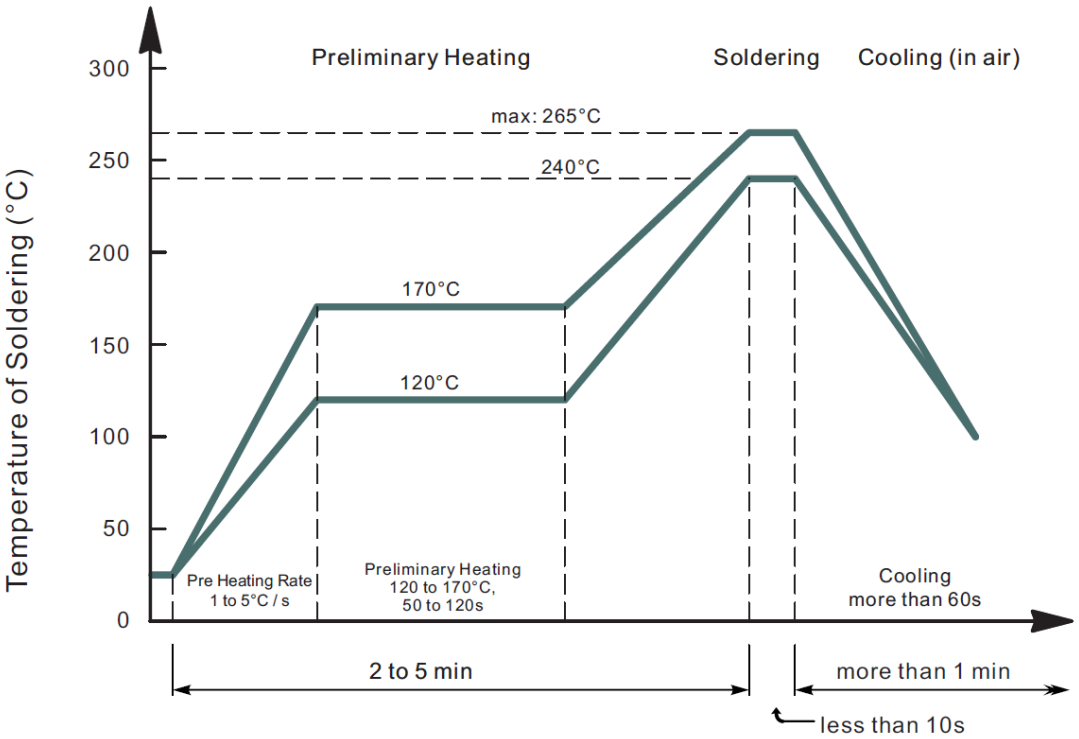
RELIABILITY

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

SMD SUPER FAST RECOVERY RECTIFER SMAF SERIES

SUGGESTED REFLOW PROFILE (For Reference Only)



- Recommended peak temperature is over 245℃, If peak temperature is below 245 ℃, 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- FORWARD CURRENT DERATING CURVE

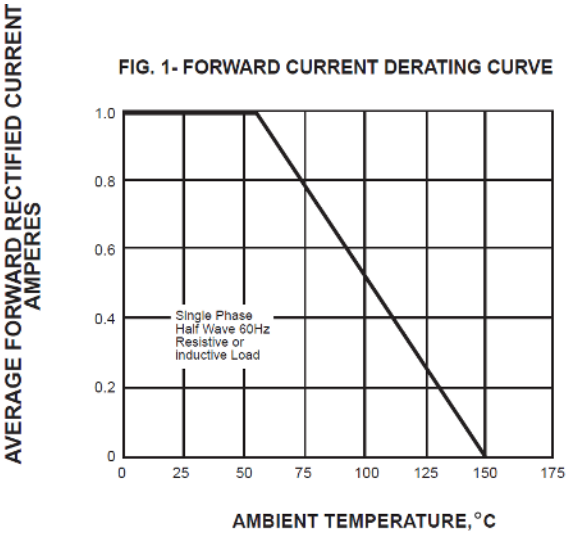


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

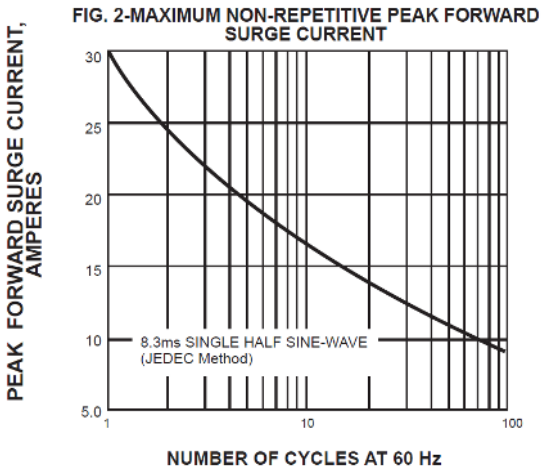


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

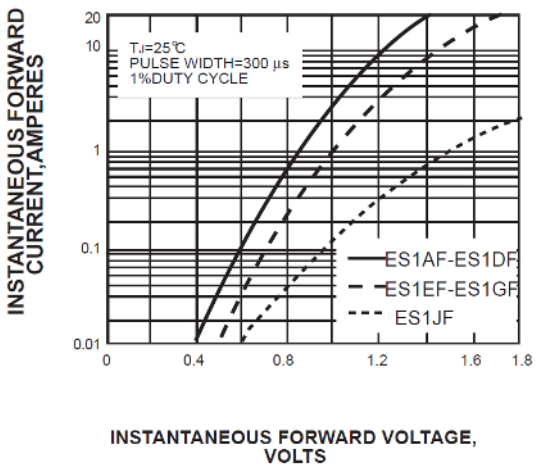


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

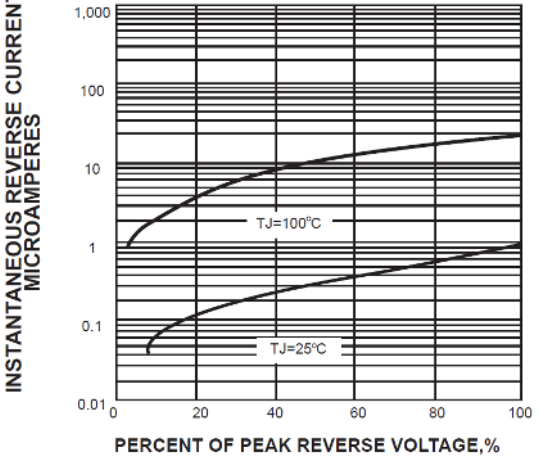


FIG. 5-TYPICAL JUNCTION CAPACITANCE

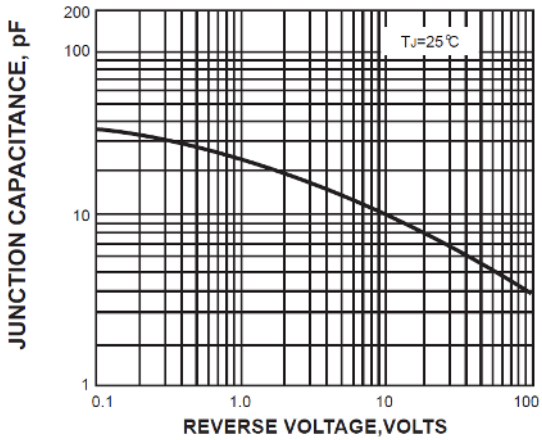
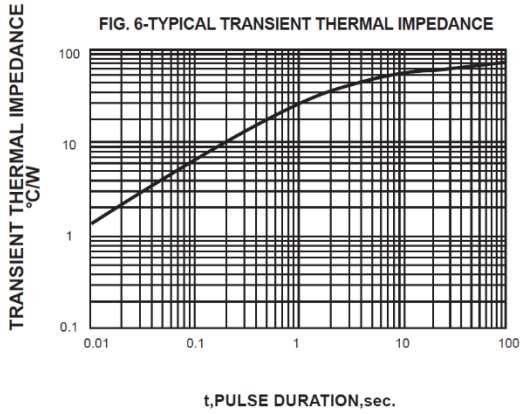


FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



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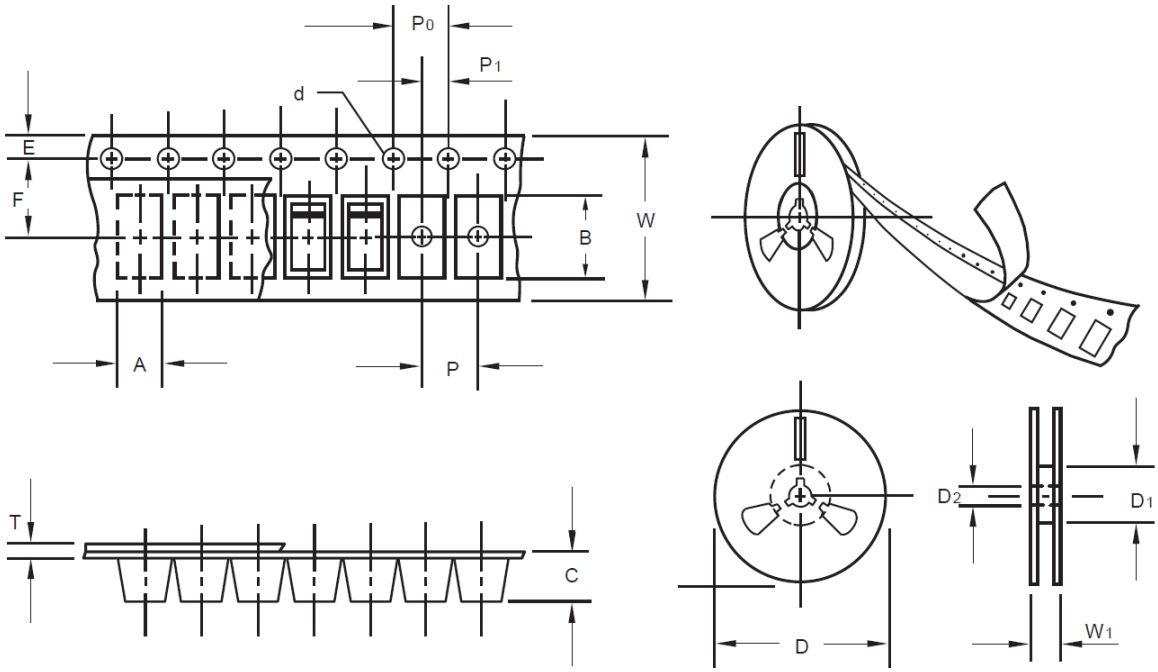
TAPE/REEL (Unit: mm)

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



Item	Symbol	Tolerance	SMAF
Carrier width	A	0.1	2.80
Carrier Length	B	0.1	4.75
Carrier Depth	C	0.1	1.42
Sprocket hole	d	0.05	1.50
7”Reel outside diameter	D	2.0	178.00
7”Reel inner diameter	D1	Min.	54.40
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.05
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	0.30
Tape width	W	0.3	8.00
Reel width	W1	1.0	12.30

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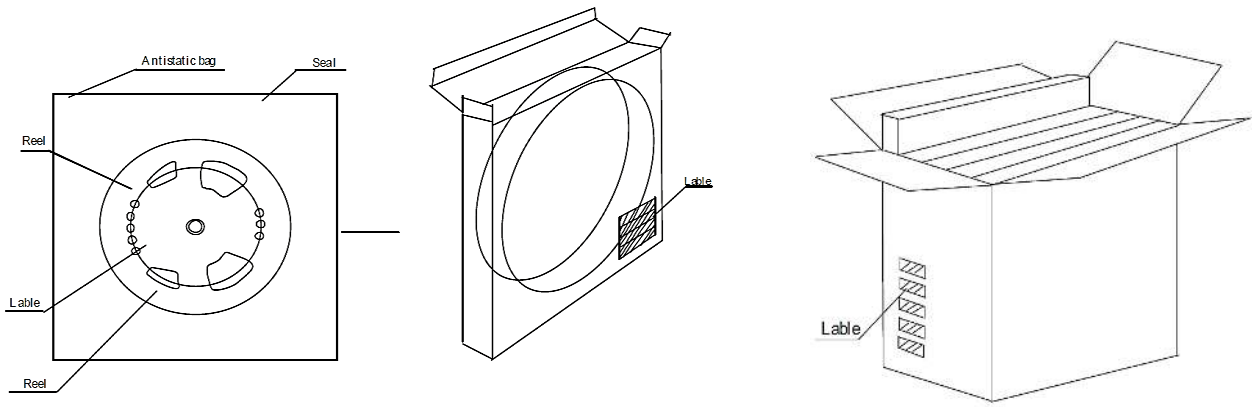
PACKAGE

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)
SMAF	7”	3,000		6,000	210*208*203	178	400*400*250	120,000	10.0



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