NextGen Components,Inc.

PART CODE: SMAFUS2M00S20A

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	P1105-SMAFUS1MF0S10A
DATE	Nov. 05, 2022
REVISION	A1
DESCRIPITION	SMD High Efficiency Rectifier, 2 Pads, SMAF series, US2MF Type Reverse Voltage 1000V Max. Forward Current 2.0A Max. Operating Temp. Range -50°C ~+150°C Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	MDD US2MF
PART CODE	SMAFUS2M00S20A

VENDOR APPROVE
Issued/Checked/Approved       
DATE: Nov. 05, 2022

CUSTOMER APPROVE
DATE:

11/5/2022

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SMD HIGH EFFICIENCY RECTIFIER 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
- Ultra fast switching for high efficiency
- High temperature soldering guaranteed: 250℃/ 10 seconds at terminals

APPLICATION

- For printed circuit board

RFQ
Request For Quotation

PART CODE GUIDE

SMAF	US2MF0	S	20A
1	2	3	4

1) **SMAF**: SMD High Efficiency Rectifier, 2 Pads, SMAF series

2) **US2MF0**: Type code for original part number US2MF

3) **S**: Package code, Tape/reel, 3000pcs/reel.

4) **20A:** Specification code for Reverse Voltage 1000V Max. Forward Current 2.0A Max.

MORE ITEMS AVAILABLE

SMAFUS1AF0S105	SMAFUS1BF0S110	SMAFUS1DF0S120	SMAFUS1GF0S140	SMAFUS1JF0S160
SMAFUS1KF0S180	SMAFUS1MF0S10A			
SMAFUS2A00S205	SMAFUS2B00S210	SMAFUS2D00S220	SMAFUS2G00S240	SMAFUS2J00S260
SMAFUS2K00S280	**SMAFUS2M00S20A**			
SMAFUS3A00S305	SMAFUS3B00S310	SMAFUS3D00S320	SMAFUS3G00S340	SMAFUS3J00S360
SMAFUS3K00S380	SMAFUS3M00S30A			

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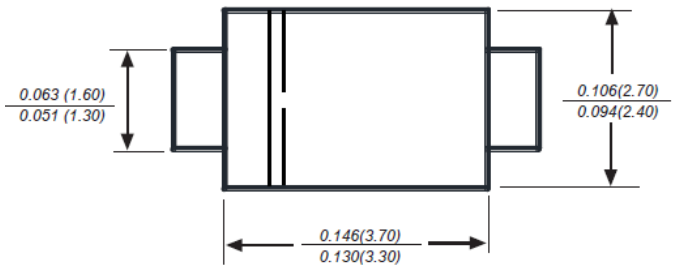
SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

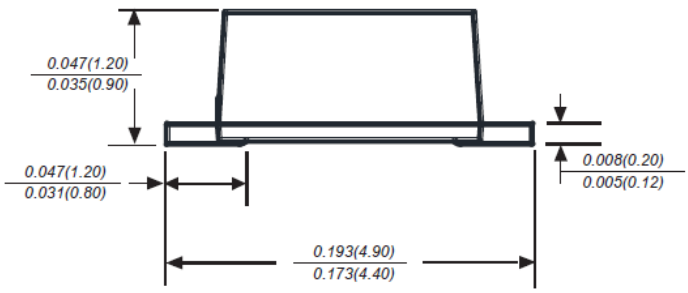
DIMENSION (Unit: Inch/mm)

Image for reference

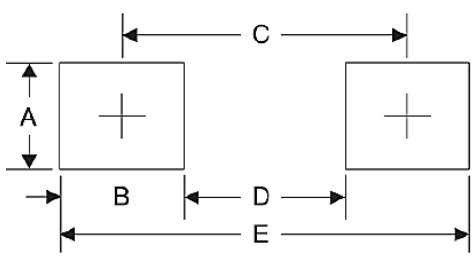
Marking: US2MF

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 HIGH EFFICIENCY RECTIFIER 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	Polarity symbol marking on case	Any	0.00095 Ounce, 0.027 grams

MAX. RATING & CHARACTERISTICS

Parameter		SYMBOLS	VALUE			UNITS
			Min.	Typical	Max.	
Repetitive peak reverse voltage		V_{RRM}			1000	Volts
RMS voltage		V_{RMS}			700	Volts
DC blocking voltage		V_{DC}			1000	Volts
Average forward output rectified current at TL= 55°C		I_{AV}			2.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)		I_{FSM}		50		A
Instantaneous forward voltage at 2.0A		V_F			1.65	Volts
DC reverse current at rated DC blocking voltage	**TA=25℃**	I_R			5.0	μA
	TA=125℃				100	μA
Reverse recovery time (NOTE 2)		T_{rr}			75	ns
Junction capacitance (Note 3)		C_J		20		pF
Thermal resistance (Note 4)		$R_{\theta JA}$		65.0		°C/W
		$R_{\theta Jc}$		20.0		
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 2.0x2.0”(5.0x5.0cm) 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

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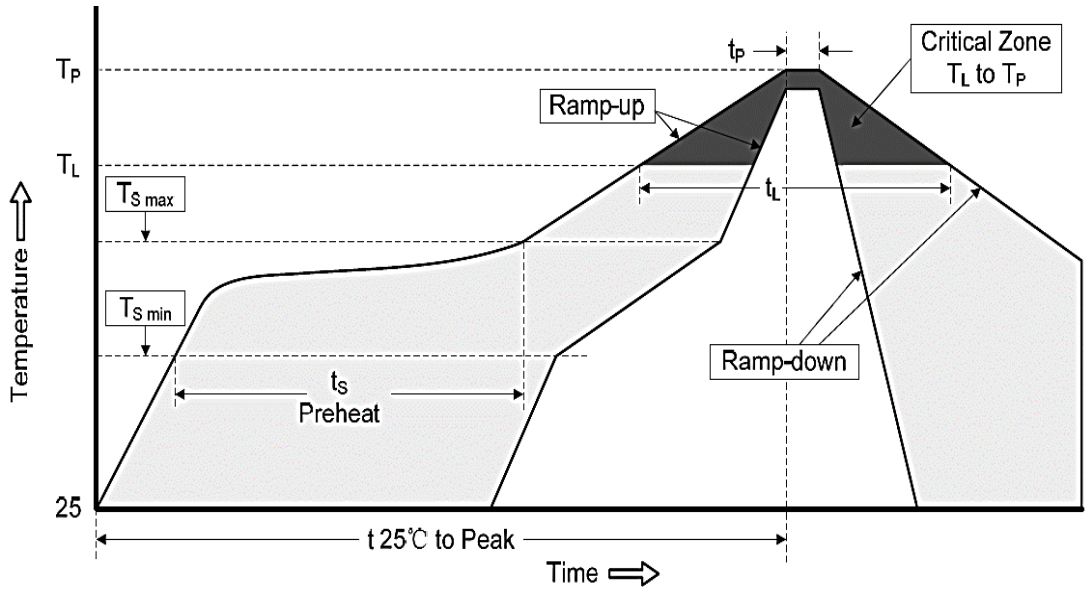
SUGGESTED REFLOW PROFILE (For Reference Only)



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)

Fig.1 Forward Current Derating Curve

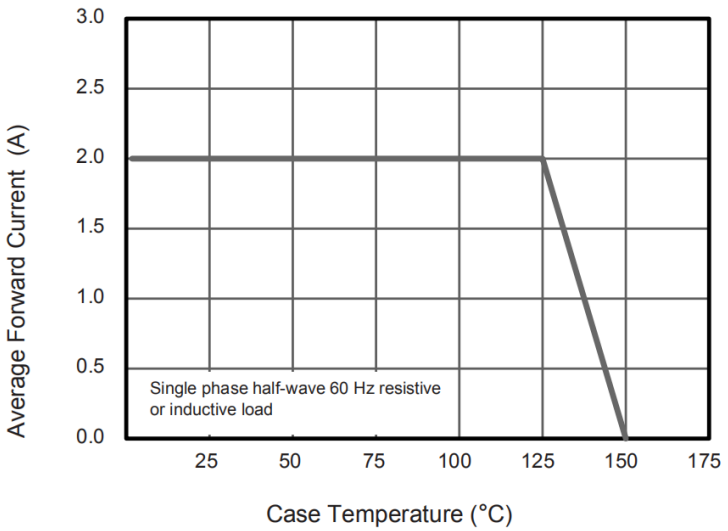
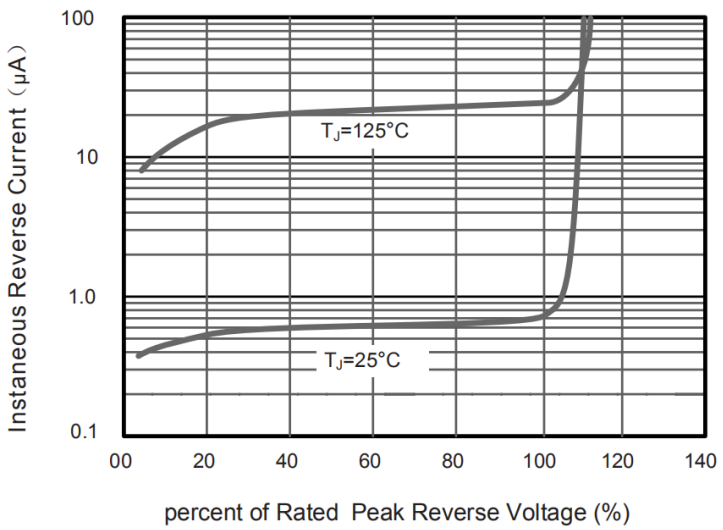


Fig.2 Typical Reverse Characteristics



RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Fig.3 Typical Forward Characteristics

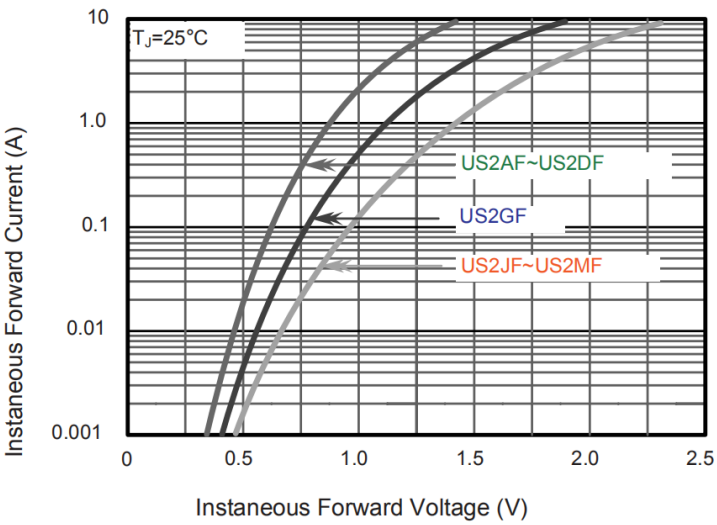
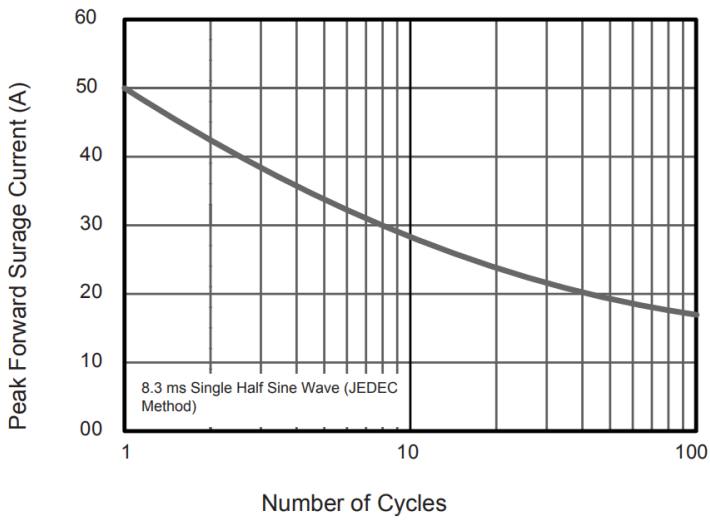


Fig.4 Maximum Non-Repetitive Peak Forward Surage Current



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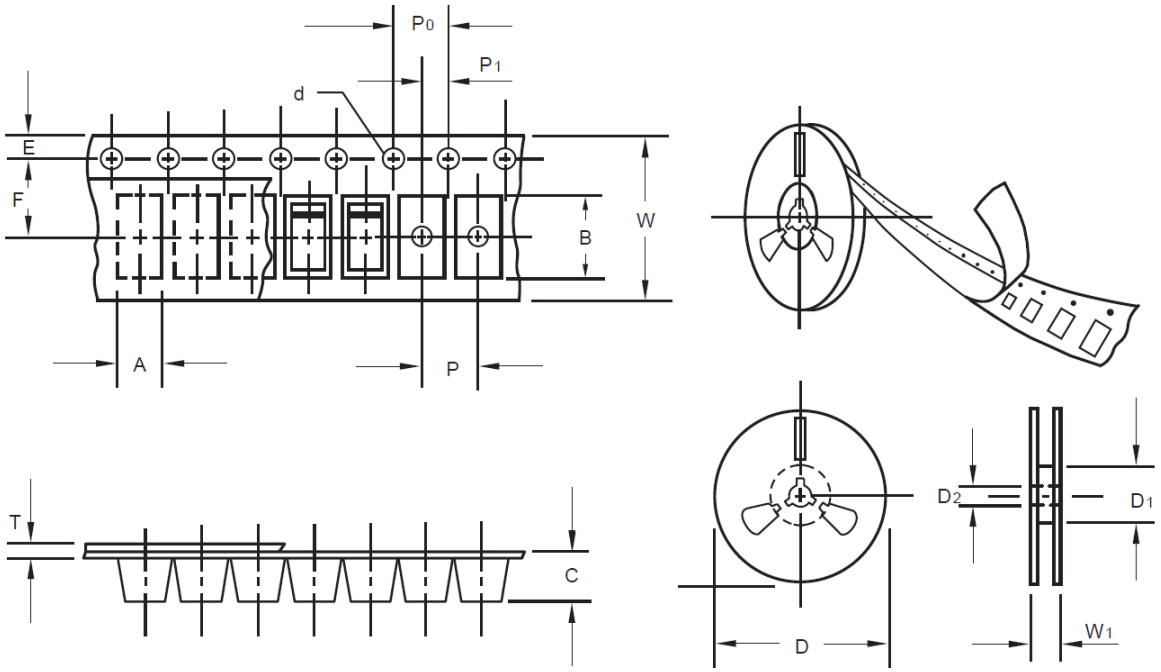
TAPE/REEL (Unit: mm)

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 For Reference

Case Code	SMAF
Reel Size	7”
Reel Size	178 mm
MPQ/Reel	3000 pcs
Qty. /Box	6000 pcs
G.W/Box	1 lbs

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