SPECIFICATION SHEET

GENERAL PURPOSE RECTIFIER CASE SOD123FL SM SERIES

SPECIFICATION SHEET NO.	S0515 – SM4005PL00S0A5	
ORIGINAL MFG/PART NO.	MDD Diodes/SM4005PL	
NEXTGEN PART CODE	SM4005PL00S0A5	Indicate This Code For RFQ /Order
DATE	May. 15, 2025	
REVISION	A3	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD General Purpose Silicon Rectifier, Case SOD-123FL, SM Series, 2 Pads Repetitive Peak Reverse Voltage V_{RRM}: 600V Max. RMS Voltage V_{RMS}: 420V Max. Average Forward Rectified Current $I_{(AV)}$: 1.0A Max Operating and Storage Temperature Range (T_J, T_{STG}): -55°C ~+150°C Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE
Issued/Checked/Approved Mandy Xu · Ruby Zhang · Jack Zhang
Effective Date: May. 15, 2025

CUSTOMER APPROVE
Date:

MAIN FEATURE

Image shown is a representation only. Exact specifications should be obtained from the product dimension.

- Glass Passivated Device
- Case Type SOD-123FL
- Ideal For Surface Mounted Applications
- Low Reverse Leakage
- Metallurgically Bonded Construction
- High temperature soldering guaranteed:250℃/10 seconds
- Meet MSL 1 Requirement
- Cross Competitors Parts and More.
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)

APPLICATION

- For Printed Circuit Board

ELECTRICAL CHARACTERISTICS

- See Page 5 ~ Page 6 For Different Part Code.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code SM4005PL00S0A5 For RFQ and Order.

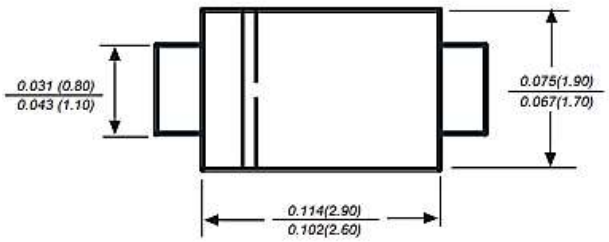
PART CODE GUIDE

RFQ
Request For Quotation

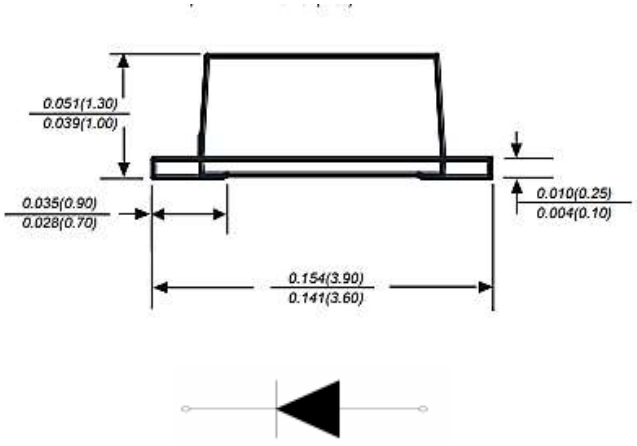
CODE	NAME	KEY SPECIFICATION OPTION
SM	Product Series Code	SMD General Purpose Silicon Rectifier, Case SOD-123FL, 2 Pads
4005PL	Parameters Code	Letter or Digits (A~Z, a~z or 0~9)
00S0	Internal Control Code	Letter or Digits (A~Z, a~z or 0~9)
A5	Marking Code	Marking “A5”
XX	Special/Custom Parameters Code	Letter or Digits (A~Z, a~z or 0~9) for Special Parametric; Blank: N/A

DIMENSION - Unit: mm, Case SOD-123FL, Inch/mm

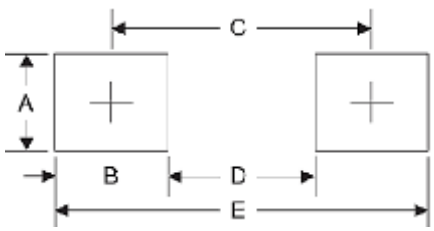
Top View



Side View



Recommend Pad Layout



SYMBOL	A	B	C	D	E
Unit (Inch)	0.047	0.047	0.126	0.079	0.173
Unit (mm)	1.2	1.2	3.2	2	4.4

MECHANICAL DATA

CASE	TERMINALS	POLARITY	MOUNTING POSITION	WEIGHT PER PIECE
JEDEC SOD-123FL Molded Plastic Body	Solder plated, Solderable per MIL-STD-750, Method 2026	Polarity Symbol Marking on Body	Any	0.00053 Ounce, 0.015 Grams

MAX. RATINGS & ELECTRICAL CHARACTERISTICS

- 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%.

PARAMETER	SYMBOLS	VALUE	UNITS
Maximum Average Forward Rectified Current at TL (NOTE 1)	$I_{(AV)}$	1.0	A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load (JEDEC Method)	I_{FSM}	25	A
Typical Thermal Resistance (Note 2)	$R_{\Theta JA}$	180	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Note:

1. Averaged Over Any 20ms Period.
2. Thermal Resistance From Junction To Ambient At 0.375” (9.5mm) Lead Length, P.C.B. Mounted.

MAX. RATINGS & ELECTRICAL CHARACTERISTICS - FOR DIFFERENT PART CODE

- 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%.

PART CODE	Max. Repetitive Peak Reverse Voltage	Max. RMS Voltage	Max. DC Blocking Voltage	Max. Inst. Forward Voltage @ 1.0A	Maximum DC Reverse Current At Rated DC Blocking Voltage		Typical Junction Cap. (Note 1)	Marking List
					@ 25 °C	@ 125 °C		
	V_{RRM}	V_{RMS}	V_{DC}	V_F	I_R		C_J	
	V	V	V	V	µA		pF	
SM4001PL00S0A1	50	35	50	1.1	10	50	4	A1
SM4002PL00S0A2	100	70	100	1.1	10	50	4	A2
SM4003PL00S0A3	200	140	200	1.1	10	50	4	A3
SM4004PL00S0A4	400	280	400	1.1	10	50	4	A4
SM4005PL00S0A5	600	420	600	1.1	10	50	4	A5
SM4006PL00S0A6	800	560	800	1.1	10	50	4	A6
SM4007PL00S0A7	1000	700	1000	1.1	10	50	4	A7

Note:

1. Measured at 1MHz And Applied Reverse Voltage Of 4.0V D.C
2. Thermal Resistance From Junction To Ambient At 0.375” (9.5mm)lead Length, P.C.B. Mounted

RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.

Fig.1 Forward Current Derating Curve

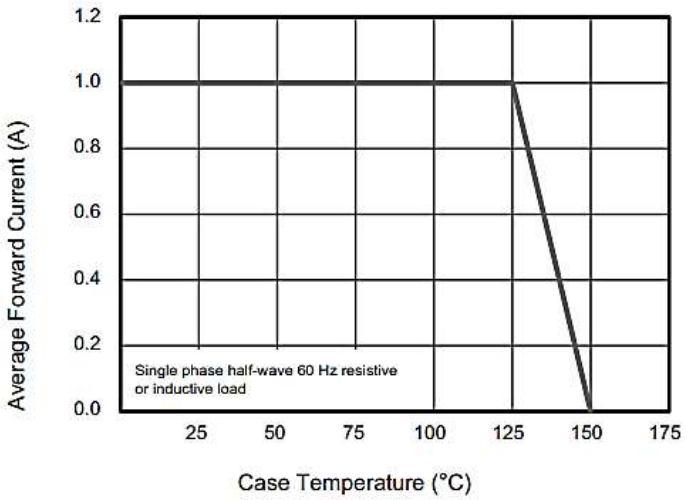
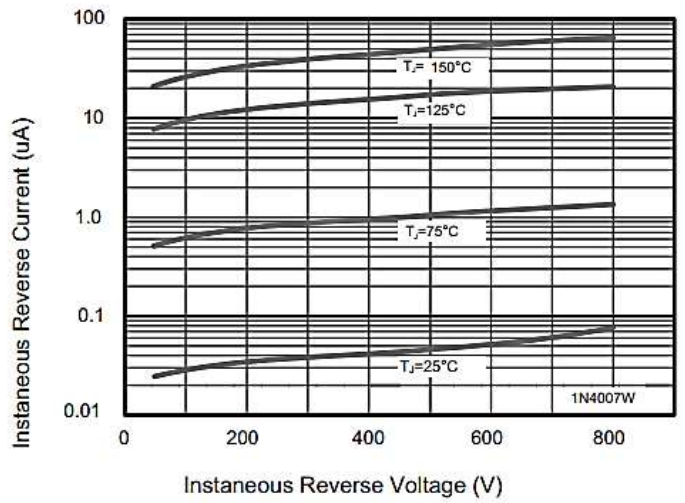


Fig.2 Typical Instaneous Reverse Characteristics



RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.

Fig.3 Typical Forward Characteristic

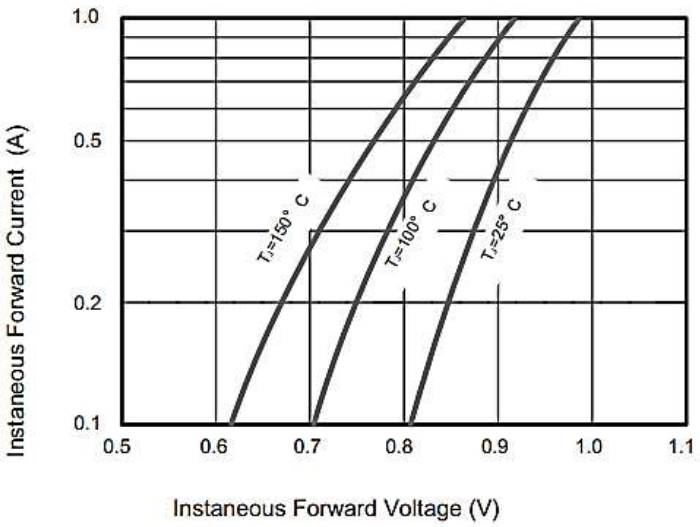
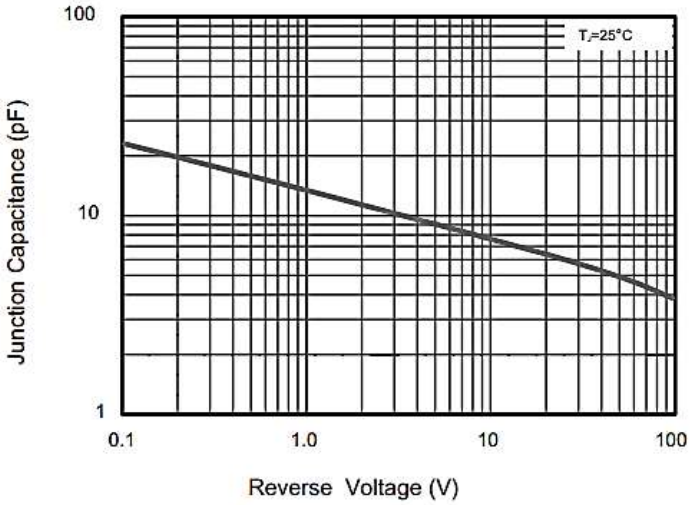
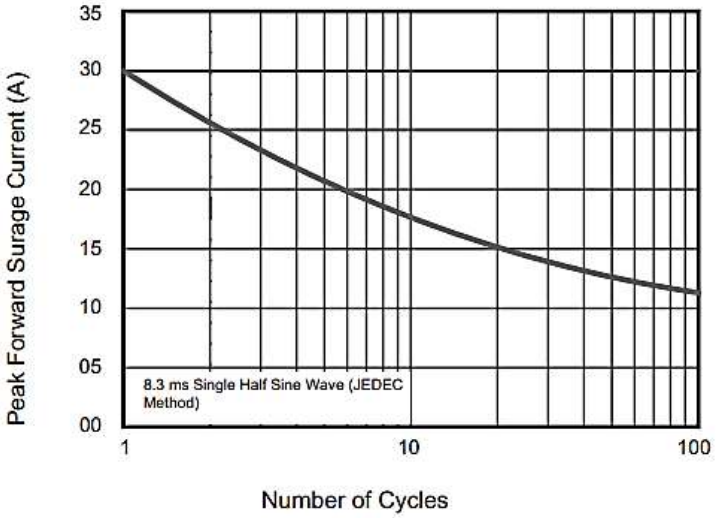


Fig.4 Typical Junction Capacitance

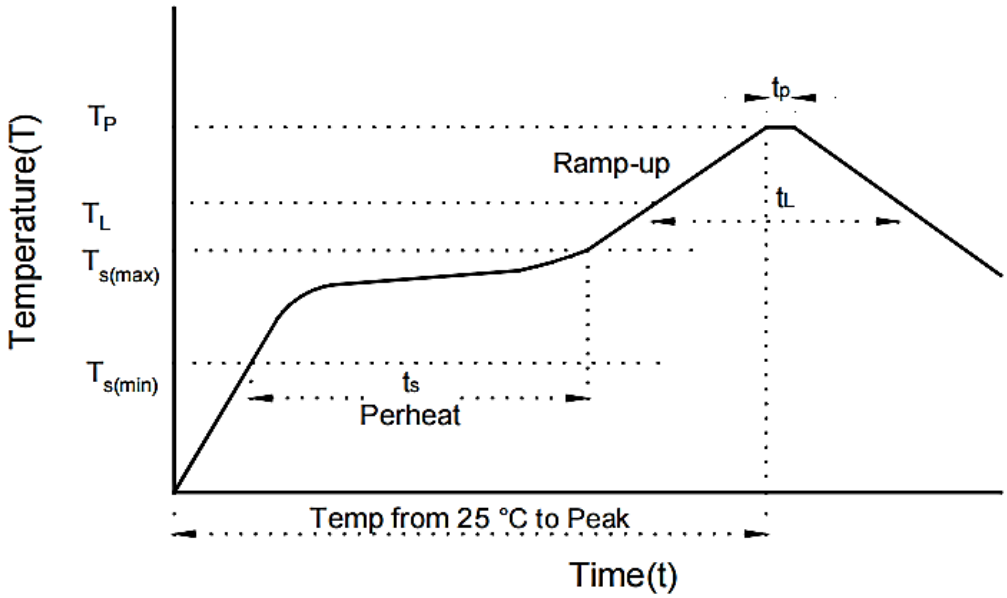


RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.

Fig.5 Maximum Non-Repetitive Peak Forward Surage Current

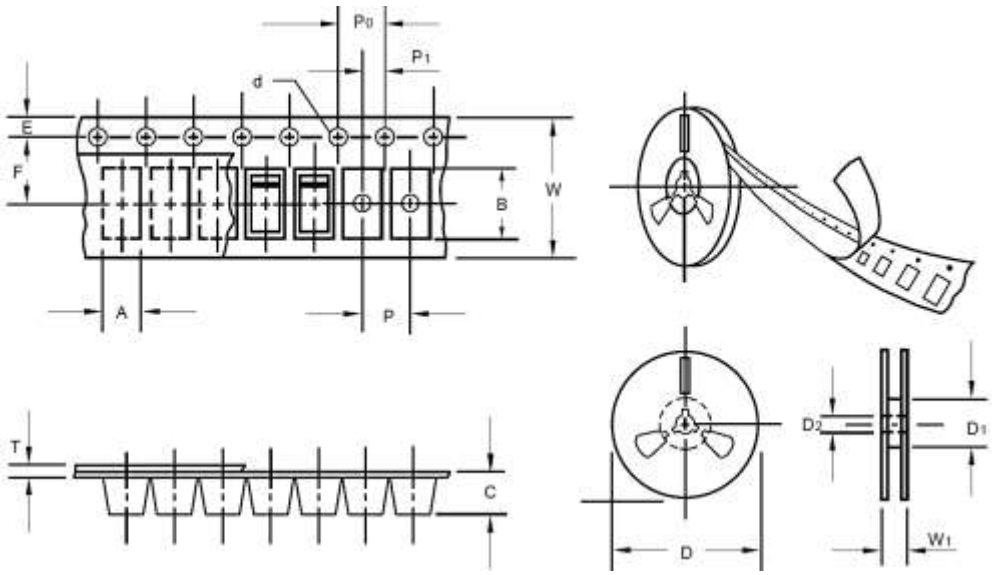


SUGGESTED REFLOW PROFILE - For Reference Only



PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (T_L Max to T_p)		3°C/second Max
Preheat	Temperature Min (T_s Min.)	150°C
	Temperature Max (T_s Max.)	200°C
	Time (t_s Min. to t_s Max.)	60 ~ 180 seconds
Time maintained above	Temperature (T_L)	217°C
	Time (t_L)	60 ~ 150 seconds
Peak/Classification Temperature (T_p)		260 °C
Time within 5°C of actual Peak Temperature (t_p)		10 seconds Max.
Ramp-down Rate		6 °C /Second Max.
Time 25 °C to Peak Temperature		8 Minutes Max.
Suggest reflow times		3 Times Max.

TAPE/REEL - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-A and specifications



ITEM	SYMBOL	TOLERANCE	SOD-123FL
Carrier width	A	0.1	2.1
Carrier Length	B	0.1	4.0
Carrier Depth	C	0.1	1.60
Sprocket hole	d	0.05	1.55
7”Reel outside diameter	D	2	178
7”Reel inner diameter	D1	Min.	50.0
Feed hole diameter	D2	0.5	13
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.5
Punch hole pitch	P	0.1	4
Sprocket hole pitch	P0	0.1	4
Embossment center	P1	0.1	2
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.15
Reel width	W1	1	10.5
Qty. Per Reel (pcs)	3000		

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained can be obtained at Download Center.
2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
4. NextGen Component, Inc (*NextGen*) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.
5. *NextGen* makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does *NextGen* assume any liability for application assistance or customer product design.
6. *NextGen* does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application. No license is granted by implication or otherwise under any intellectual property rights of NextGen.
7. *NextGen* products are not authorized for use as critical components in life support devices or systems without express written approval by *NextGen.*
8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.