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SDM0440S3F

SURFACE MOUNT SCHOTTKY BARRIER DIODE

Product Summary

V_R	I_{FM}	$V_{F\ MAX}$ @ 400mA, +25°C	$I_{R\ MAX}$ @ 40V, +25°C
40V	400mA	0.70V	20.0µA

Description and Applications

This Schottky barrier device is designed with a low forward voltage, low capacitance, and negligible reverse recovery time. It is ideally suited to use as a:

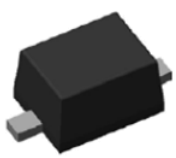
- Polarity protection diode
- Re-circulating diode
- Switching diode

Features and Benefits

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Low Reverse Capacitance
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Package: SOD323F
- Package Material: Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.0039 grams (Approximate)



Top View

Ordering Information (Note 4)

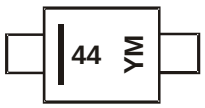
Part Number	Package	Packing	
		Qty.	Carrier
SDM0440S3F-7	SOD323F	3,000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

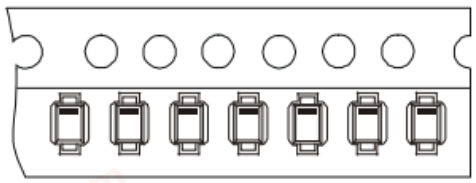
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Marking Information



44 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: J = 2022)
M = Month (ex: D = Dec)



Date Code Key

Year	2004	……	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	R	……	J	K	L	M	N	O	P	R	S	T

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
Forward Continuous Current	I_{FM}	400	mA
Repetitive Forward Current (Pulse Wave=1ms, Duty Cycle = 25%)	I_{FRM}	2	A
Non-Repetitive Peak Forward Surge Current @ 8.3ms Half-Sine Waveform	I_{FSM}	2.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	350	mW
Typical Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	350	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	—	V	I_R = 100μA
Forward Voltage Drop	V_F	—	—	0.42 0.60 0.70	V	I_F = 20mA I_F = 200mA I_F = 400mA
Peak Reverse Current (Note 6)	I_R	—	—	5.0 20.0	μA	V_R = 30V V_R = 40V
Total Capacitance	C_T	—	38	—	pF	V_R = 0V, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	4.5	—	ns	I_F = 10mA, I_{RR} = 0.1*I_R, T_A = +25°C

Notes: 5. Device mounted on 1*MRP FR-4 PC board,2oz..
6. Short duration test pulse used to minimize self-heating effect.

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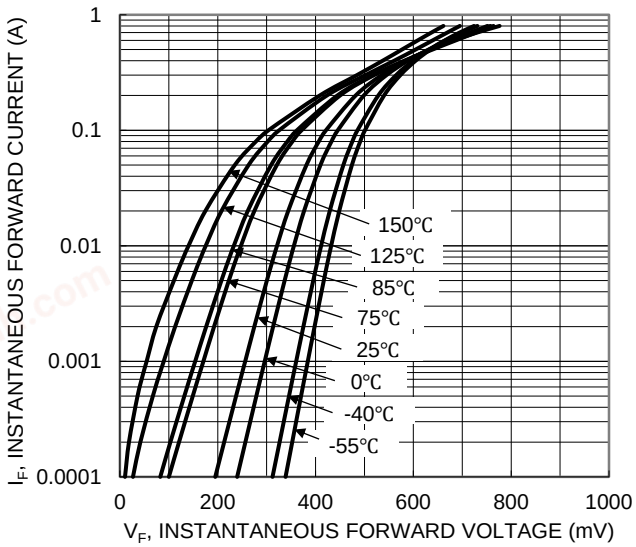


Figure 1. Typical Forward Characteristics

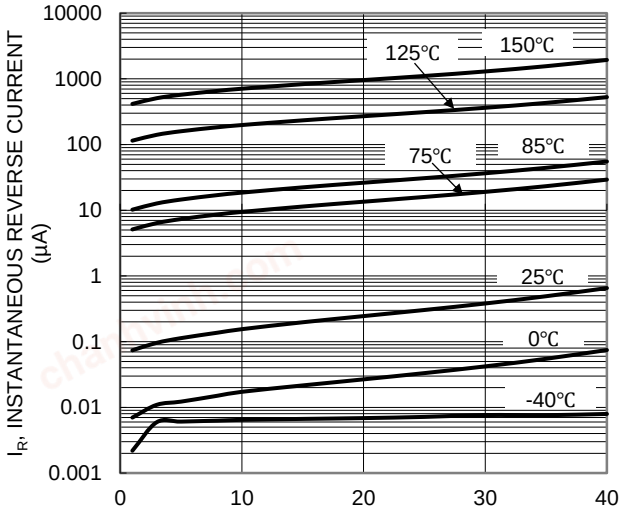


Figure 2. Typical Reverse Characteristics

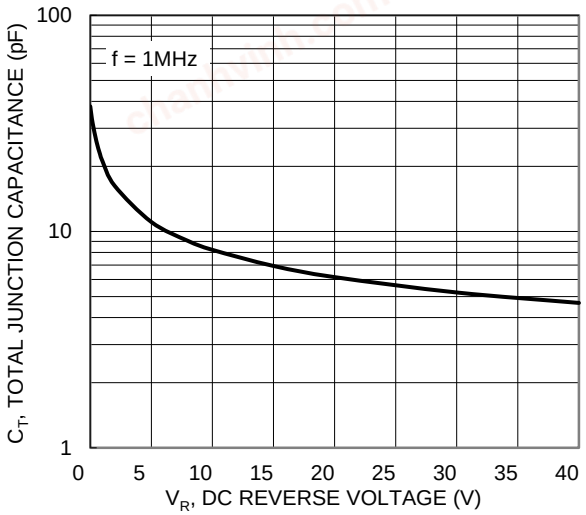


Figure 3. Total Junction Capacitance & Reverse Voltage

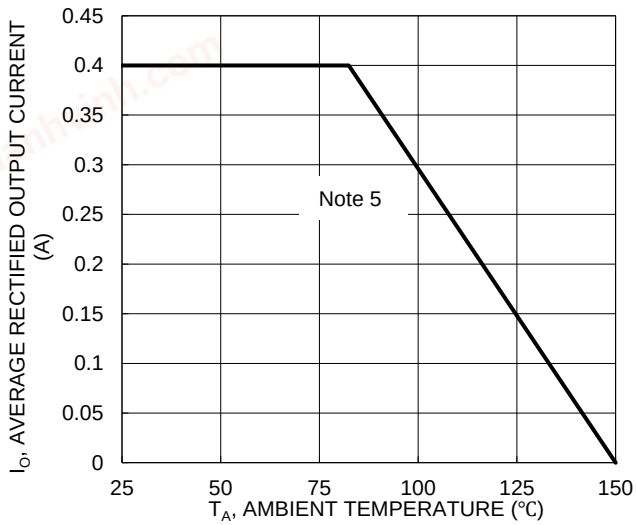


Figure 4. Power Derating Curve

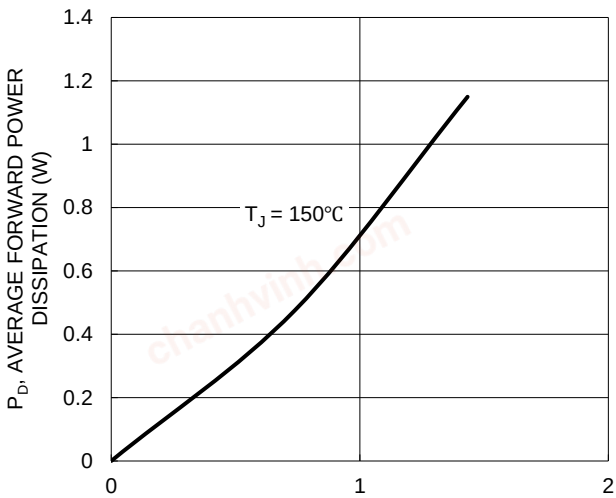


Figure 5. Forward Power Dissipation

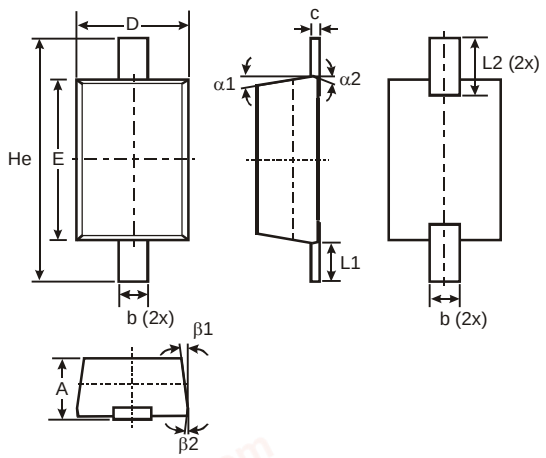
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Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD323F

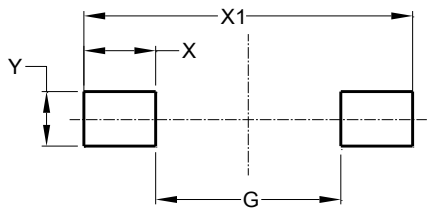


SOD323F			
Dim	**Min**	**Max**	**Typ**
A	0.60	0.75	-
b	0.25	0.35	-
c	0.05	0.26	-
D	1.15	1.35	1.25
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L1	0.30	0.50	0.40
L2	0.41	0.61	0.51
α1	-	-	7°
α2	-	-	3°
β1	-	-	7°
β2	-	-	3°
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOD323F



Dimensions	Value (in mm)
G	1.280
X	0.710
X1	2.700
Y	0.403

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