DUAL SURFACE MOUNT SCHOTTKY BARRIER DIODE

Product Summary

V_{RRM} (V)	I_{FM} (A)	V_F Max (V)	I_R Max (µA) @ 25V
40	0.4	0.50	70

Features

- Very Low Forward Voltage Drop
- Common Cathode Configuration
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Description and Applications

This Schottky Barrier Diode is designed for low forward voltage drop and very low reverse leakage current. It is ideally suited to use as:

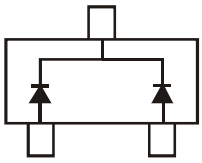
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

Mechanical Data

- Case: SC59
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SC59

Top View



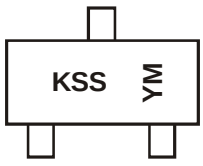
Device Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
SDM20E40C-7-F	SC59	3,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) 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/.

Marking Information



KSS = Product Type Marking Code
YM = Date Code Marking
Y =Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
Code	C	D	E	F	G	H	I	J	K

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Forward Continuous Current (Note 6)	I_{FM}	0.4	A
Non-Repetitive Peak Forward Surge Current @ t = 8.3ms	I_{FSM}	2	A
Repetitive peak Forward Current	I_{FRM}	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	400	mW
Typical Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	180	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	41	°C/W
Operating Temperature Range	T_{OP}	-30 to +85	°C
Junction Temperature Range	T_J	-30 to +125	°C
Storage Temperature Range	T_{STG}	-40 to +125	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	40	—	—	V	I_R = 500µA
Forward Voltage	V_F	— —	— —	300 500	mV	I_F = 10mA I_F = 200mA
Leakage Current (Note 5)	I_R	—	—	70	µA	V_R = 25V
Total Capacitance	C_T	—	—	100	pF	V_R = 0V, f = 1.0MHz

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. Mounted on FR4 PC Board with minimum recommended pad layout which can be found on our website at http://www.diodes.com/package-outlines.html.

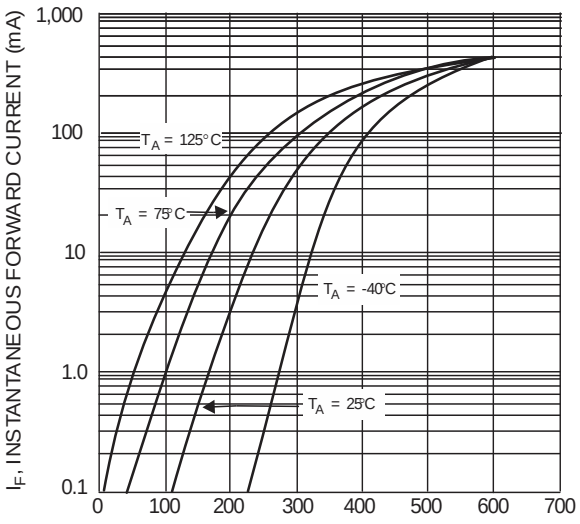


Fig. 1 Typical Forward Characteristics

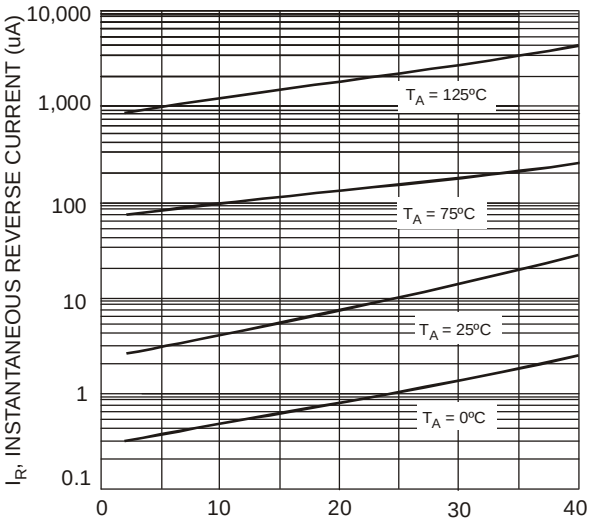


Fig. 2 Typical Reverse Characteristics

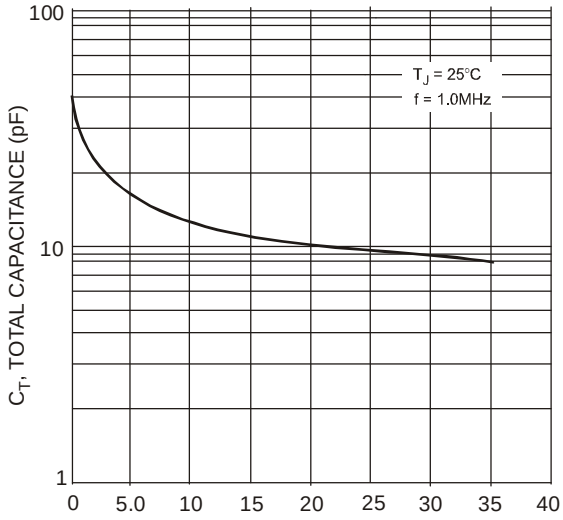


Fig. 3 Total Capacitance vs. Reverse Voltage

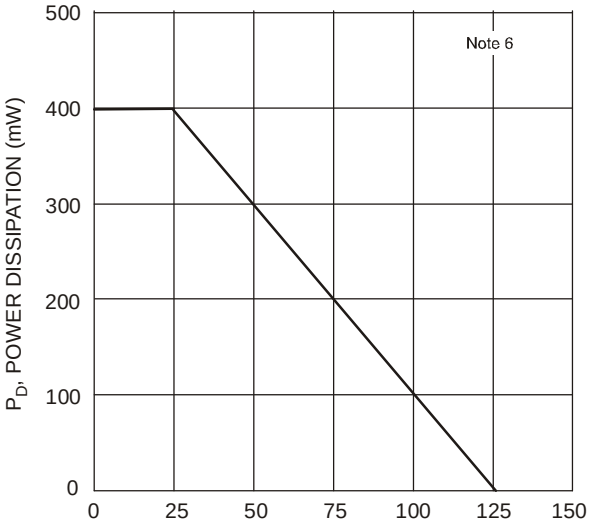
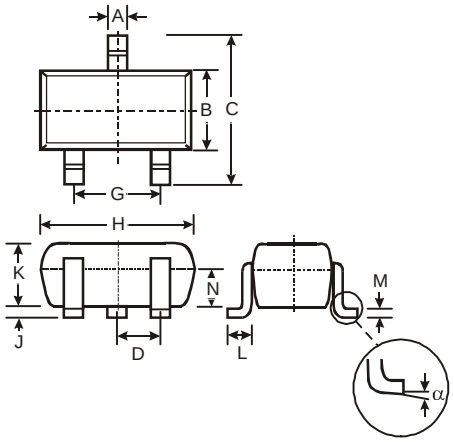


Fig. 4 Power Derating Curve

Package Outline Dimensions

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

SC59



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Dim	**Min**	**Max**	**Typ**
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

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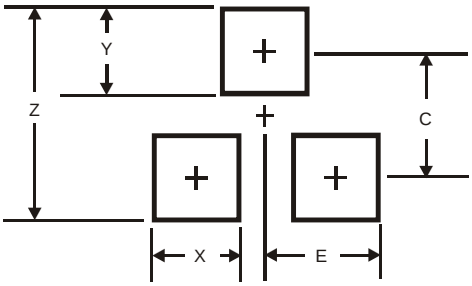
SC59



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

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