

**DUAL SURFACE MOUNT SCHOTTKY BARRIER DIODE**
**Product Summary**

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

**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

**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)**

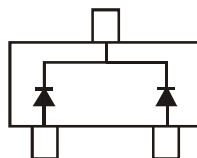
**Mechanical Data**

- 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 
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SC59



Top View

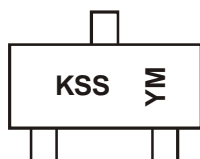


Device Schematic

**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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Forward Continuous Current (Note 6)	I <sub>FM</sub>	0.4	A
Non-Repetitive Peak Forward Surge Current @ t = 8.3ms	I <sub>FSM</sub>	2	A
Repetitive peak Forward Current	I <sub>FRM</sub>	500	mA

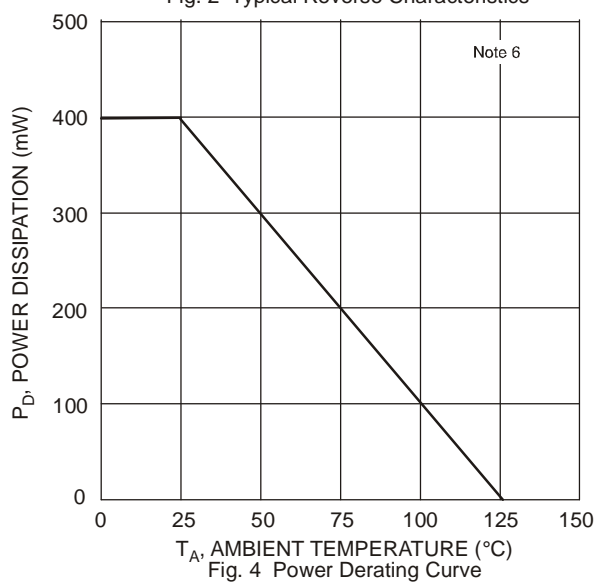
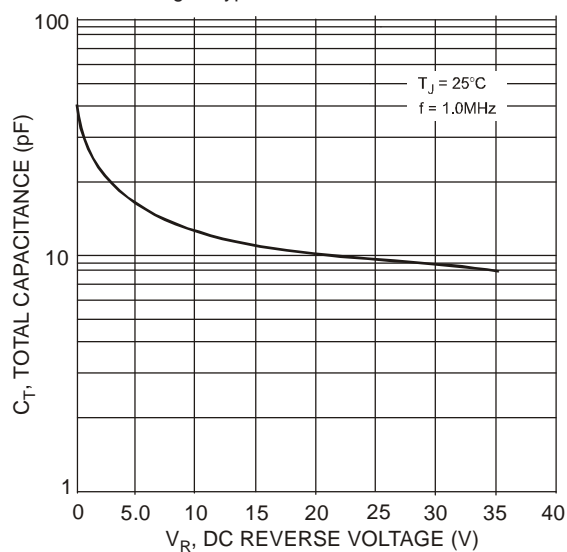
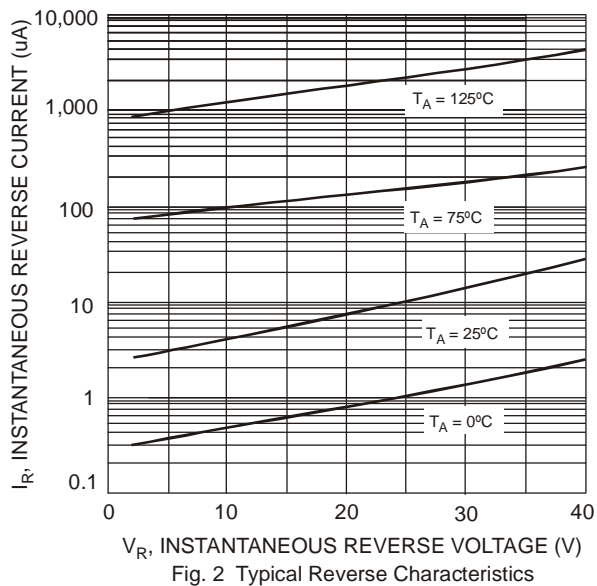
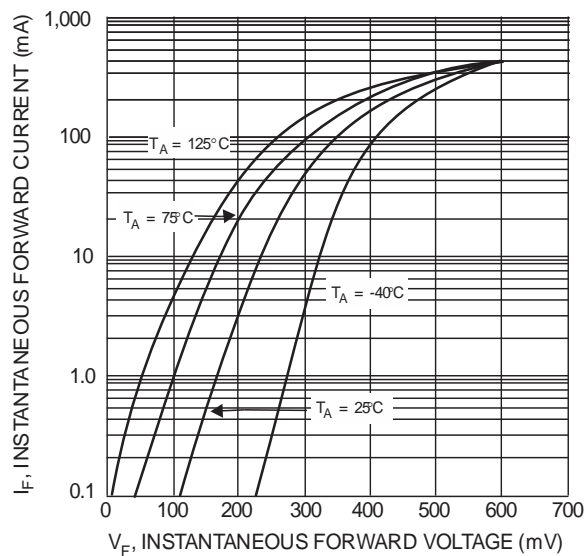
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	400	mW
Typical Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	180	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	R <sub>θJC</sub>	41	°C/W
Operating Temperature Range	T <sub>OP</sub>	-30 to +85	°C
Junction Temperature Range	T <sub>J</sub>	-30 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-40 to +125	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 500μA
Forward Voltage	V <sub>F</sub>	—	—	300 500	mV	I <sub>F</sub> = 10mA I <sub>F</sub> = 200mA
Leakage Current (Note 5)	I <sub>R</sub>	—	—	70	μA	V <sub>R</sub> = 25V
Total Capacitance	C <sub>T</sub>	—	—	100	pF	V <sub>R</sub> = 0V, f = 1.0MHz

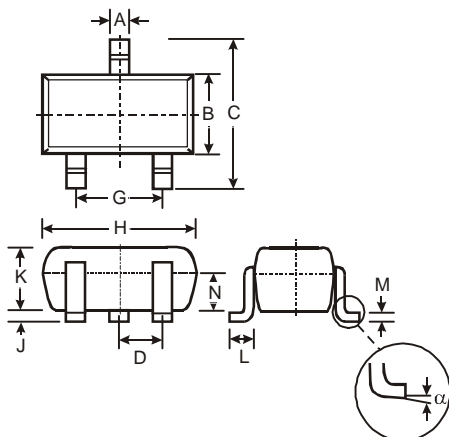
Notes: 5. Short duration pulse test used to minimize self-heating effect.  
6. Mounted on FR4 PC Board with minimum recommended pad layout which can be found on our website at <http://www.diodes.com/package-outlines.html>.



## Package Outline Dimensions

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

**SC59**

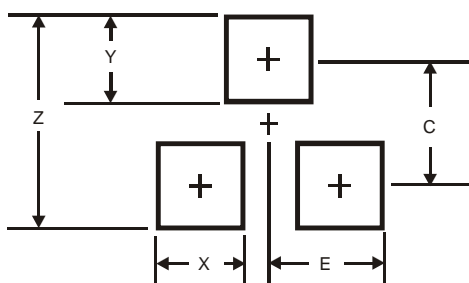


SC59			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

## Suggested Pad Layout

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

**SC59**



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

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