



# THE DATASHEET OF SD103A-TR





## Small Signal Schottky Diodes



### FEATURES

- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guardring
- The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing and coupling diodes for fast switching and low logic level applications
- Other applications are click suppression, efficient full wave bridges in telephone subsets, and blocking diodes in rechargeable low voltage battery systems
- These diodes are also available in the SOD-123 and SOD-323 case with type designations SD103AW(S) to SD103CW(S), and in the MiniMELF case with type designations LL103A thru LL103C
- For general purpose application
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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HALOGEN  
**FREE**

### LINKS TO ADDITIONAL RESOURCES



### MECHANICAL DATA

**Case:** DO-35 (DO-204AH)

**Weight:** approx. 125 mg

**Cathode band color:** black

**Packaging codes/options:**

TR/10K per 13" reel (52 mm tape), 50K/box

TAP/10K per ammpack (52 mm tape), 50K/box

### APPLICATIONS

- HF-detector
- Protection circuit
- Small battery charger
- AC/DC, DC/DC converters

### PARTS TABLE

PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS
SD103A	$V_R = 40\text{ V}$	SD103A-TR or SD103A-TAP	SD103A	Single	Tape and reel/ammpack
SD103B	$V_R = 30\text{ V}$	SD103B-TR or SD103B-TAP	SD103B	Single	Tape and reel/ammpack
SD103C	$V_R = 20\text{ V}$	SD103C-TR or SD103C-TAP	SD103C	Single	Tape and reel/ammpack

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Peak inverse voltage		SD103A	$V_R$	40	V
		SD103B	$V_R$	30	V
		SD103C	$V_R$	20	V
Power dissipation (infinite heat sink) <sup>(1)</sup>			$P_{tot}$	400	mW
Peak forward surge current	$t_p = 300\text{ }\mu\text{s}$ square pulse		$I_{FSM}$	15	A

**Note**

<sup>(1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

### THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air <sup>(1)</sup>		$R_{thJA}$	310	K/W
Junction temperature		$T_j$	125	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to +150	$^\circ\text{C}$

**Note**

<sup>(1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I <sub>R</sub> = 50 μA	SD103A	V <sub>(BR)</sub>	40			V
		SD103B	V <sub>(BR)</sub>	30			V
		SD103C	V <sub>(BR)</sub>	20			V
Leakage current	V <sub>R</sub> = 30 V	SD103A	I <sub>R</sub>			5	μA
	V <sub>R</sub> = 20 V	SD103B	I <sub>R</sub>			5	μA
	V <sub>R</sub> = 10 V	SD103C	I <sub>R</sub>			5	μA
Forward voltage drop	I <sub>F</sub> = 20 mA		V <sub>F</sub>			370	mV
	I <sub>F</sub> = 200 mA		V <sub>F</sub>			600	mV
Diode capacitance	V <sub>R</sub> = 0 V, f = 1 MHz		C <sub>D</sub>		50		pF
Reverse recovery time	I <sub>F</sub> = I <sub>R</sub> = 50 mA to 200 mA, recover to 0.1 I <sub>R</sub>		t <sub>rr</sub>		10		ns

**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

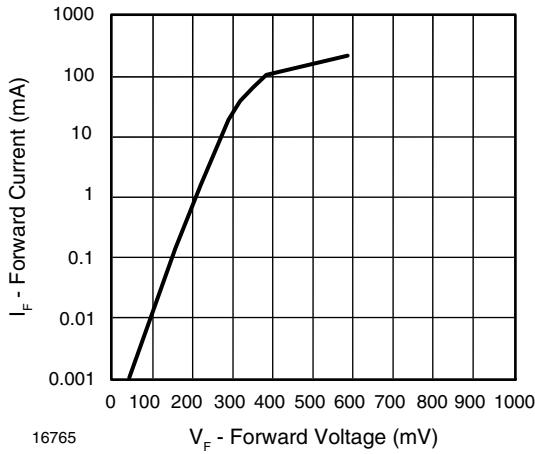


Fig. 1 - Forward Current vs. Forward Voltage

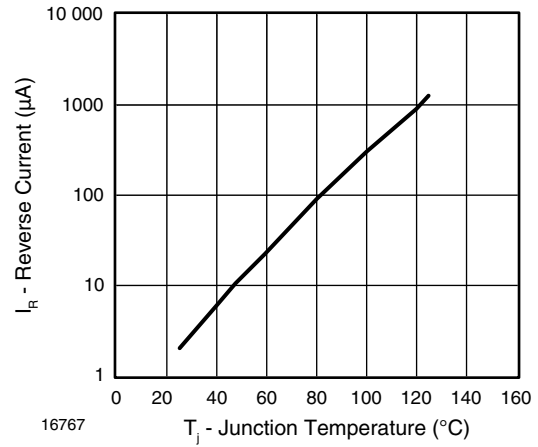


Fig. 3 - Reverse Current vs. Junction Temperature

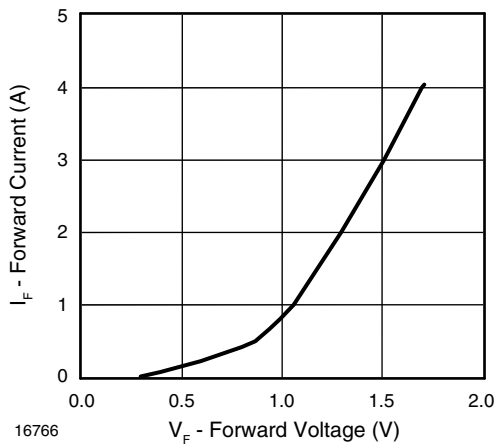


Fig. 2 - Forward Current vs. Forward Voltage

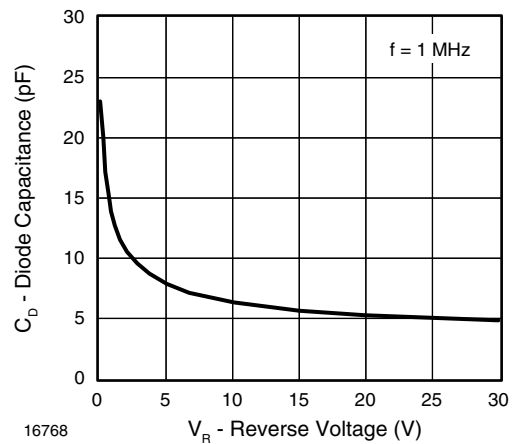


Fig. 4 - Diode Capacitance vs. Reverse Voltage

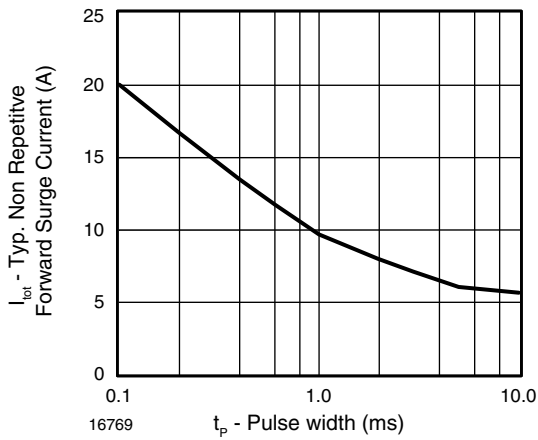
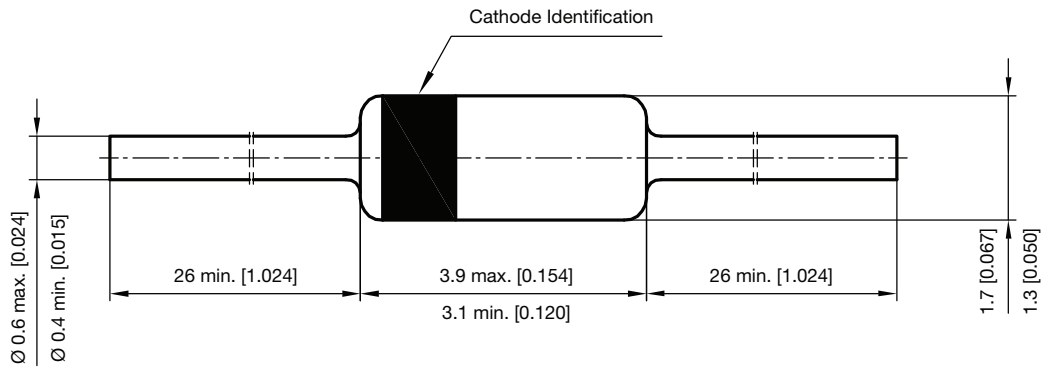


Fig. 5 - Typical Non-Repetitive Forward Surge Current vs. Pulse Width

**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**



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