Vishay Semiconductors

SD103A, SD103B, SD103C

Small Signal Schottky Diodes

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 The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guardring



RoHS

COMPLIANT HALOGEN

- 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
- FREE • 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 applications
- AEC-Q101 gualified
- Material categorization: for definitions of compliance please see www.vishav.com/doc?99912

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 V	SD103A-TR or SD103A-TAP	SD103A	Single	Tape and reel/ammopack		
SD103B	V _R = 30 V	SD103B-TR or SD103B-TAP	SD103B	Single	Tape and reel/ammopack		
SD103C	V _R = 20 V	SD103C-TR or SD103C-TAP	SD103C	Single	Tape and reel/ammopack		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT		
		SD103A	V _R	40	V		
Peak inverse voltage		SD103B	V _R	30	V		
		SD103C	V _R	20	V		
Power dissipation (infinite heat sink) ⁽¹⁾			P _{tot}	400	mW		
Peak forward surge current	t_p = 300 µs square pulse		I _{FSM}	15	A		

Note

Models Available

MECHANICAL DATA

Case: DO-35 (DO-204AH)

Cathode band color: black

Packaging codes/options:

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

Weight: approx. 125 mg

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

THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT			
Thermal resistance junction to ambient air ⁽¹⁾		R _{thJA}	310	K/W			
Junction temperature		Tj	125	°C			
Storage temperature range		T _{stg}	-55 to +150	°C			
Note							

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

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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)								
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT	
	I _R = 50 μA	SD103A	V _(BR)	40			V	
Reverse breakdown voltage		SD103B	V _(BR)	30			V	
		SD103C	V _(BR)	20			V	
	$V_R = 30 V$	SD103A	I _R			5	μA	
Leakage current	V _R = 20 V	SD103B	I _R			5	μA	
	V _R = 10 V	SD103C	I _R			5	μA	
Forward voltage drop	I _F = 20 mA		V _F			370	mV	
Forward voltage drop	I _F = 200 mA		V _F			600	mV	
Diode capacitance	V _R = 0 V, f = 1 MHz		CD		50		pF	
Reverse recovery time	$I_F = I_R = 50$ mA to 200 mA, recover to 0.1 I_R		t _{rr}		10		ns	

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

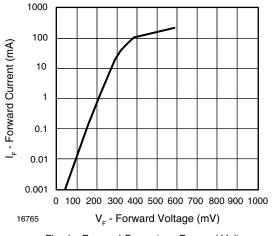


Fig. 1 - Forward Current vs. Forward Voltage

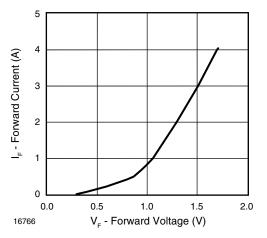


Fig. 2 - Forward Current vs. Forward Voltage

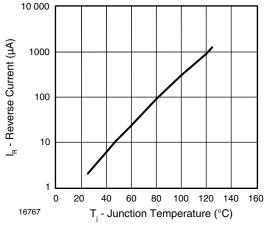


Fig. 3 - Reverse Current vs. Junction Temperature

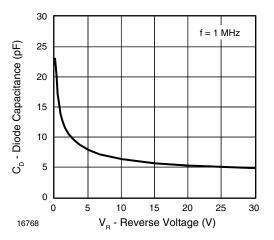


Fig. 4 - Diode Capacitance vs. Reverse Voltage

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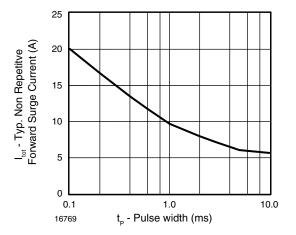
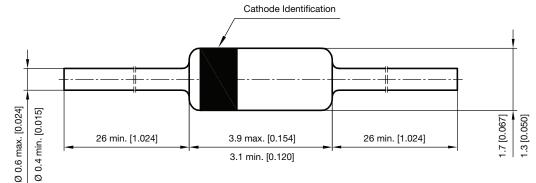


Fig. 5 - Typical Non-Repetitive Forward Surge Current vs. Pulse Width

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



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