

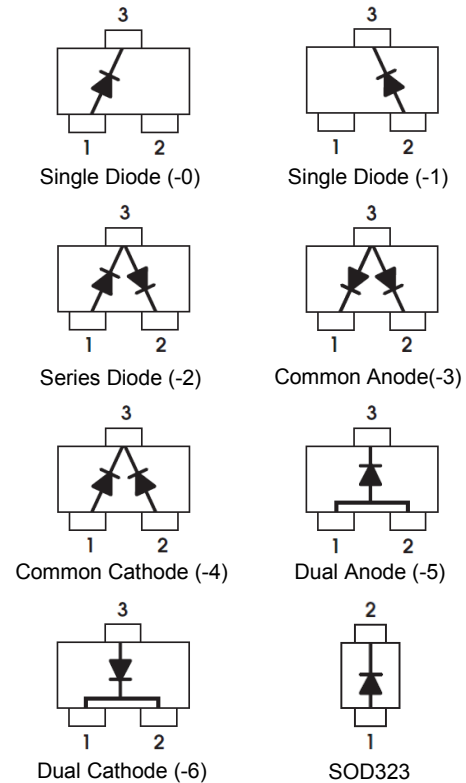
Features

- Low Series Resistance
- Low Capacitance
- Wide Dynamic Range
- Silicon Nitride / Glass Passivation
- SOT23 Surface Mount Package
- RoHS* Compliant

Description

These PIN diodes are specifically designed for commercial applications requiring devices in the SOT-23 surface mount package. The series in low profile has options for bulk or tape and reel. This series offers a wide range of specifications and package configurations to give the designer wide flexibility.

Typical applications of these PIN diodes are switches, phase shifters, pulse and amplitude modulators, limiters, leveling circuits and attenuators.



Electrical Specifications: @ +25°C

Part Number	ID Code ¹	Total Capacitance C_T	Voltage Breakdown V_B	Series Resistance R_S		Carrier Lifetime T_L
		1 MHz	$I_R = 10 \mu A$	100 mA, 100 MHz	10 mA, 100 MHz	$I_F = 10 \text{ mA},$ $I_R = 6 \text{ mA}$
		pF	V	Ω		ns
		Typical	Minimum	Typical		Typical
PIN Attenuator Diodes						
SMPN7453-SOT23-	0S	0.35 @ 50 V	200	0.80	2.5	2500
	1S	0.35 @ 50 V				
	2ST	0.45 @ 50 V				
	3CA	0.45 @ 50 V				
	4CC	0.45 @ 50 V				
SMPN7380-SOT23-	0S	0.35 @ 50 V	200	1.0	3.0	1500
	1S	0.35 @ 50 V				
	2ST	0.45 @ 50 V				
	3CA	0.45 @ 50 V				
	4CC	0.45 @ 50 V				

(Continued next page)

¹ * Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

PIN Switching Diode

Rev. V1

Electrical Specifications: @ +25°C

Part Number	ID Code ¹	Total Capacitance C_T	Voltage Breakdown V_B	Series Resistance R_S		Carrier Lifetime T_L
		1 MHz	$I_R = 10 \mu A$	100 mA, 100 MHz	10 mA, 100 MHz	$I_F = 10 \text{ mA},$ $I_R = 6 \text{ mA}$
		pF	V	Ω		ns
		Typical	Minimum	Typical		Typical
PIN Switching Diodes						
SMPN7310-SOT23-	0S	0.30 @ 5 V	100	0.60	1.0	120
	1S	0.30 @ 5 V				
	2ST	0.40 @ 5 V				
	3CA	0.40 @ 5 V				
	4CC	0.40 @ 5 V				
SMPN7316-SOT 23-	0S	0.30 @ 5 V	100	0.60	1.0	200
	1S	0.30 @ 5 V				
	2ST	0.40 @ 5 V				
	3CA	0.40 @ 5 V				
	4CC	0.40 @ 5 V				
PIN General Purpose Diodes						
SMPN7335-SOT 23-	0S	0.30 @ 50 V	200	1.50	2.0	500
	1S	0.30 @ 50 V				
	2ST	0.40 @ 50 V				
	3CA	0.40 @ 50 V				
	4CC	0.40 @ 50 V				
PIN Low Capacitance for High Frequency Applications						
SMPN7320-SOT23-	0S	0.20 @ 10 V	100	2.0	4.0	170
	1S	0.20 @ 10 V				
	2ST	0.30 @ 10 V				
	3CA	0.30 @ 10 V				
	4CC	0.30 @ 10 V				

1. 0,1,S=Single; 2,ST=Series Tee; 3,CA=Common Anode; 4,CC=Common Cathode Also available in SOD323 package.

Absolute Maximum Ratings

Parameter	Absolute Maximum
Forward Current	1 A, 1 μs pulse
Peak Inverse Voltage	Same as V_{BR}
Power Dissipation	250 mW, derate linearly to 0 @ 150°C
Operating / Storage Temperature	-65°C to +150°C

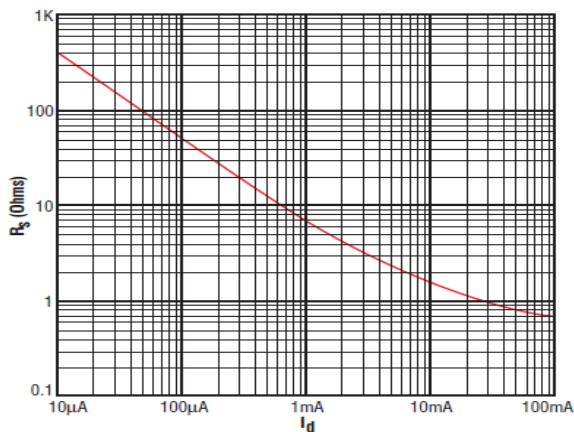
2

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.macom.com for additional data sheets and product information.

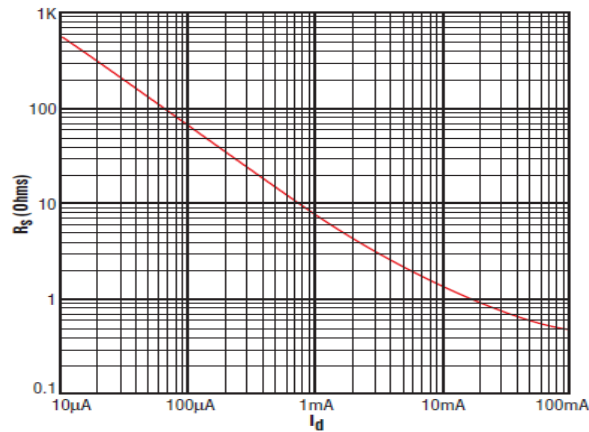
For further information and support please visit:
<https://www.macom.com/support>

Typical Resistance Curves @ 100 MHz

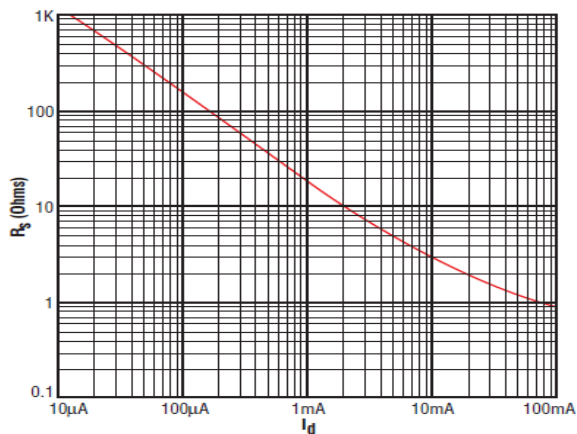
SMPN7335



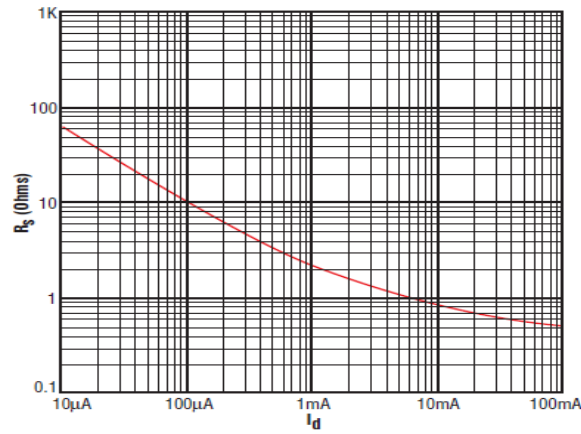
SMPN7453



SMPN7380

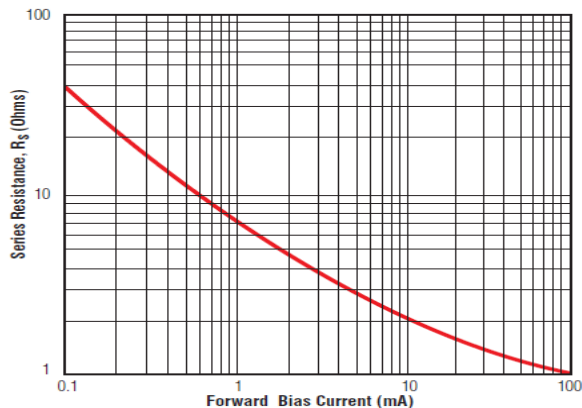


SMPN7316

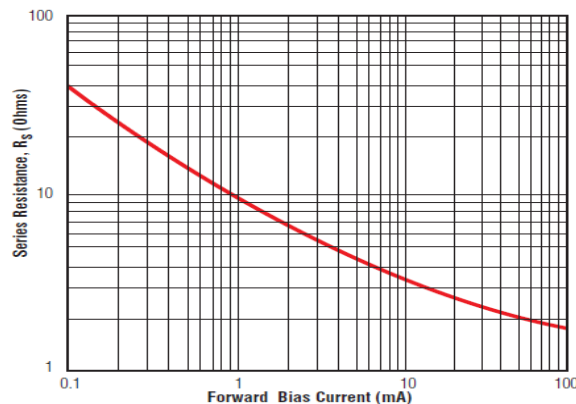


Typical Resistance Curves

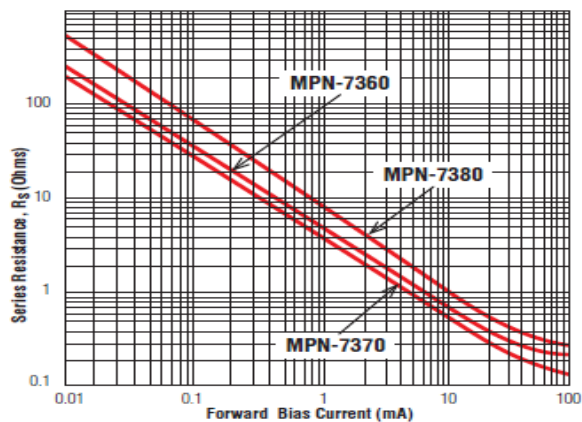
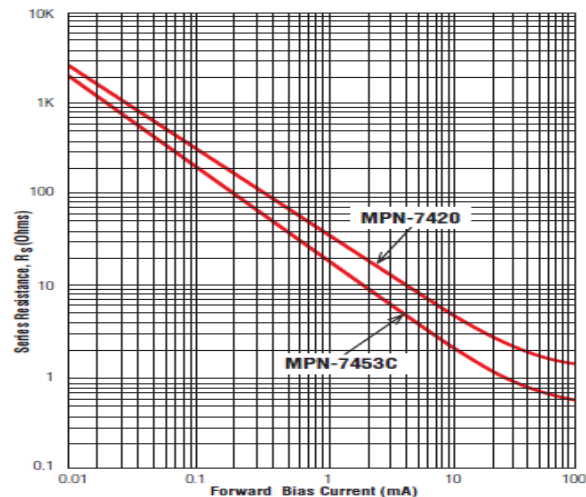
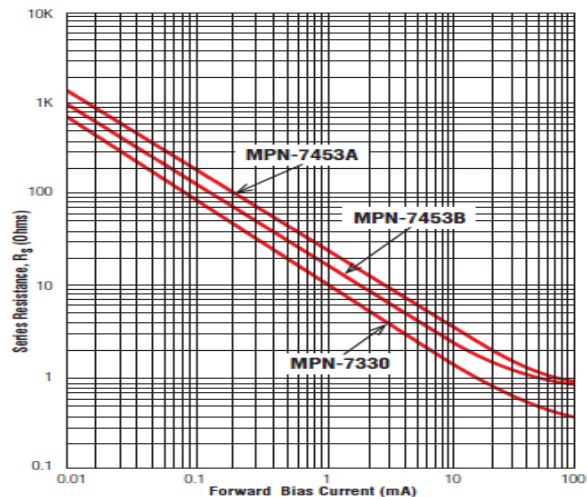
SMPN7310, @ 1 GHz



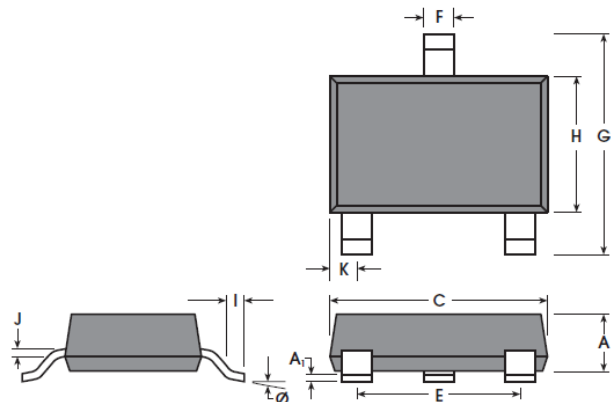
SMPN7320, @ 1 GHz



Typical Resistance Curves @ 100 MHz



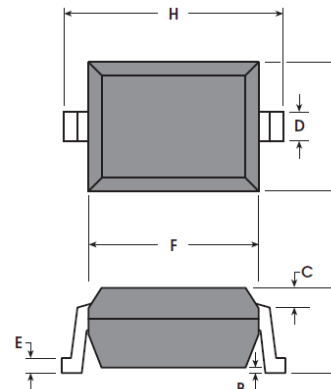
Outline Drawing - SOT23



Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.79	1.02	0.031	0.040
A ₁	0.02	0.10	0.001	0.004
C	2.67	3.05	0.105	0.120
E	1.80	2.00	0.071	0.079
F	0.38	0.54	0.010	0.021
H	2.10	2.50	0.083	0.098
I	0.13	0.25	0.005	0.010
J	0.089	0.15	0.0035	0.059
K	0.44	0.55	0.017	0.022
∅	0.0	8.0	0.0	0.0

Lead Material = Alloy 42
 Lead Finish = Tin-Lead, 60-40%
 Maximum Soldering Temperature = 260°C for 5 sec.
 Minimum Lead Strength = 2 pounds pull
 Typical Package Inductance = 2 nH
 Typical Package Capacitance = 0.10 pF (opposite leads)

Outline Drawing - SOD323



Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	—	1.10	0.034	0.043
B	—	0.10	0.003	0.004
C	—	0.20	0.006	0.010
D	0.25	0.40	0.010	0.016
E	0.08	0.15	0.003	0.006
F	1.60	1.90	0.063	0.075
G	1.15	1.45	0.045	0.057
H	2.30	2.70	0.094	0.106

Ordering Information

Example Part: SMPN7453-SOT23-xx, replace -xx with desired case style suffix	
0S	Single
1S	Single
2ST	Series Tee
3CA	Common Anode
4CC	Common Cathode

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.