



1N4148

DIODE

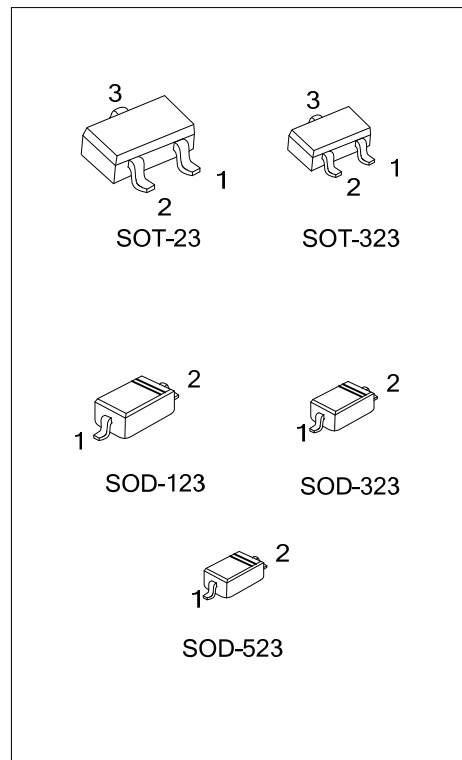
HIGH-SPEED SWITCHING DIODE

DESCRIPTION

The UTC **1N4148** is designed for high-speed switching application in hybrid thick-and thin-film circuits. The devices is manufactured by the silicon epitaxial planar process and packed in plastic surface mount package.

FEATURES

- * Ultra-high speed
- * Low forward voltage
- * Fast reverse recovery time



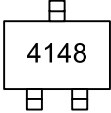
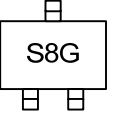
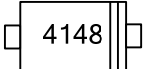

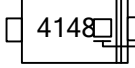
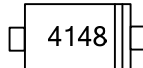

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
1N4148L-AE3-R	1N4148G-AE3-R	SOT-23	NC	A	C	Tape Reel
1N4148L-AL3-R	1N4148G-AL3-R	SOT-323	NC	A	C	Tape Reel
1N4148L-CA2-R	1N4148G-CA2-R	SOD-123	A	C	-	Tape Reel
1N4148L-CB2-R	1N4148G-CB2-R	SOD-323	A	C	-	Tape Reel
1N4148L-CC2-R	1N4148G-CC2-R	SOD-523	A	C	-	Tape Reel

Note: Pin assignment: A: Anode C: Cathode NC: No Connection

<p>1N4148L-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, CA2: SOD-123, CB2: SOD-323, CC2: SOD-523 (3) G: Halogen Free, L: Lead Free</p>
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■ MARKING

PACKAGE	MARKING	
	Lead Free	Halogen Free
SOT-23/ SOT-323/		
SOD-123		
SOD-323	 <p>L: Lead Free G: Halogen Free</p>	
SOD-523	Lead Free	Halogen Free
		

■ **ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Maximum Repetitive Reverse Voltage		V_{RRM}	100	V
Average Rectified Forward Current		$I_{F(AV)}$	200	mA
Non-repetitive Peak Forward Surge Current	Pulse Width = 1.0 sec	I_{FSM}	1.0	A
	Pulse Width = 1.0 ms		4.0	A
Power Dissipation(Note 3)	SOD-123	P_D	400	mW
	SOT-23		350	
	SOT-323		270	
	SOD-323/ SOD-523		200	
Junction Temperature		T_J	+175	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-65 ~ +200	$^{\circ}\text{C}$

Note: 1. These ratings are based on a maximum junction temperature of 200°C .

2. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

3. Device mounted on FR-4 PCB minimum land pad

■ **THERMAL DATA**

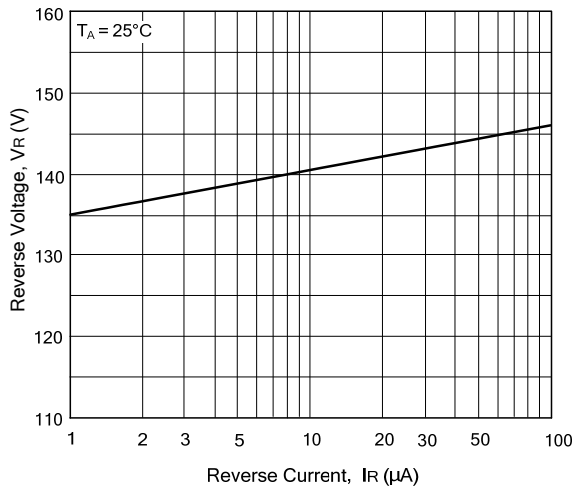
CHARACTERISTIC		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOD-123	θ_{JA}	312	$^{\circ}\text{C}/\text{W}$
	SOT-23		357	
	SOT-323		460	
	SOD-323/ SOD-523		500	

■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

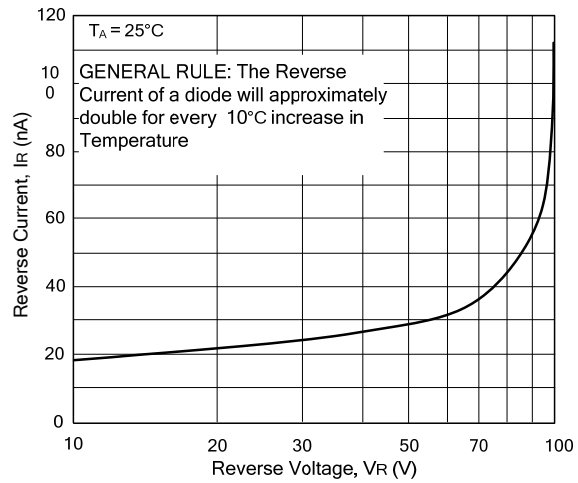
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	V_R	$I_R = 100\mu\text{A}$	100			V
		$I_R = 5.0\mu\text{A}$	75			V
Forward Voltage	V_F	$I_F = 10\text{ mA}$			1.0	V
Reverse Current	I_R	$V_R = 20\text{ V}$			25	nA
		$V_R = 75\text{ V}$			5.0	μA
Total Capacitance	C_T	$V_R = 0, f = 1.0\text{MHz}$			4.0	pF
Reverse Recovery Time	t_{rr}	$I_F = 10\text{ mA}, V_R = 6.0\text{ V (60mA)}$ $I_{RR} = 1.0\text{ mA}, R_L = 100\Omega$			4.0	ns

TYPICAL CHARACTERISTICS

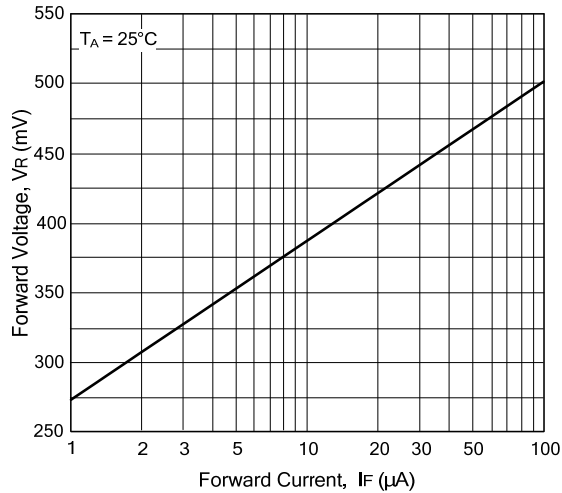
Reverse Voltage vs. Reverse Current
 $V_R - 1.0 \sim 100\mu A$



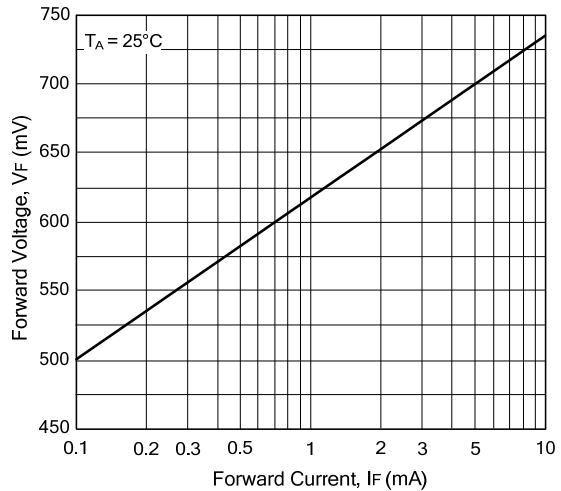
Reverse Current vs. Reverse Voltage
 $I_R - 10 \sim 100 V$



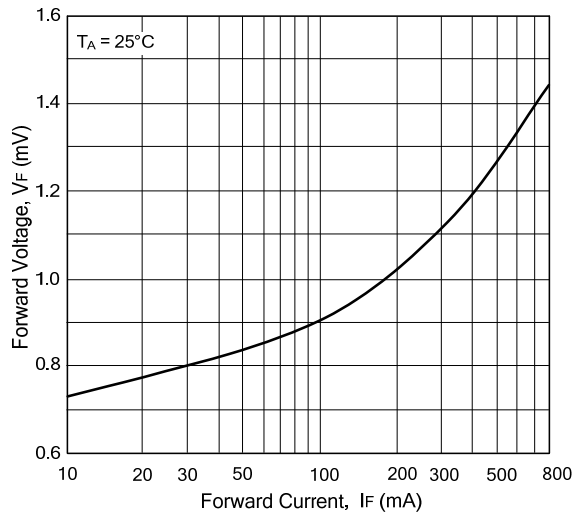
Forward Voltage vs. Forward Current
 $V_F - 1 \sim 100\mu A$



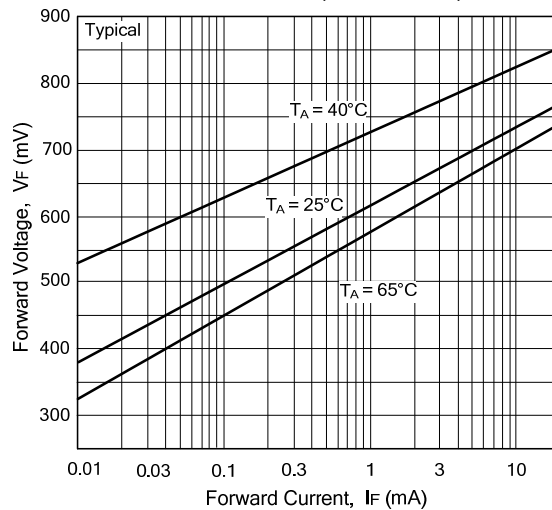
Forward Voltage vs. Forward Current
 $V_F - 0.1 \sim 10 mA$



Forward Voltage vs. Forward Current
 $V_F - 10 \sim 800 mA$

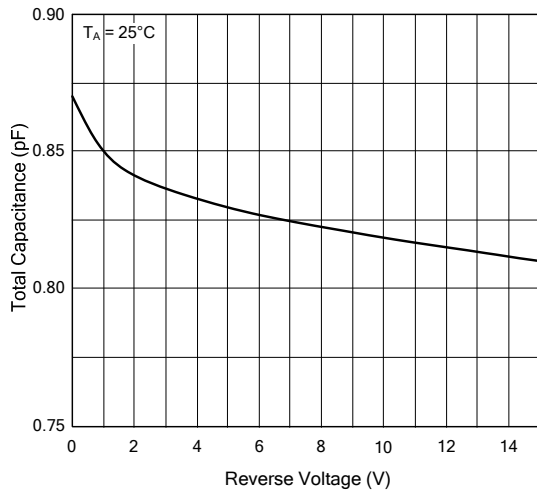


Forward Voltage vs. Ambient Temperature
 $V_F - 0.01 - 20 mA (-40 \sim +65^\circ C)$

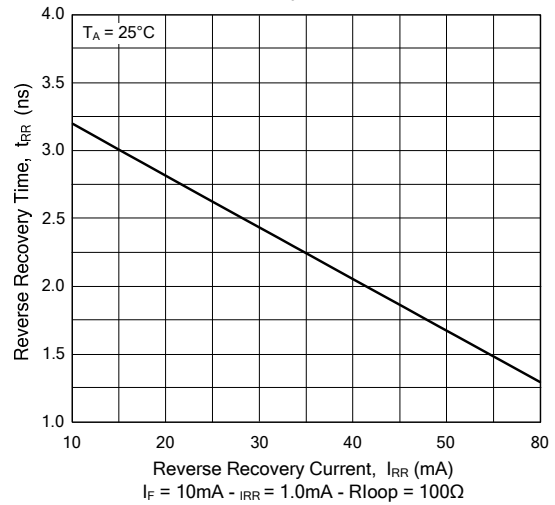


■ TYPICAL CHARACTERISTICS(Cont.)

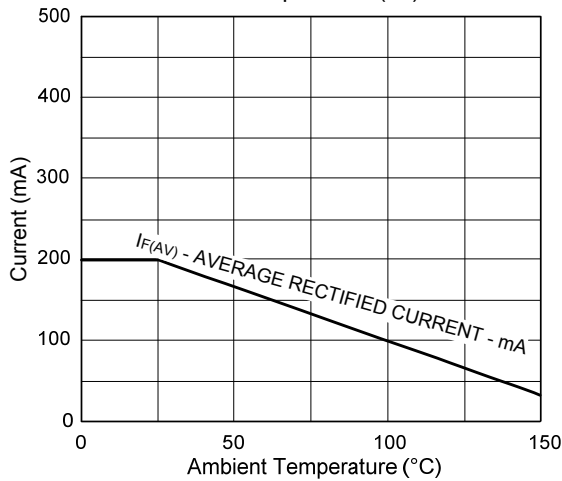
Total Capacitance



Reverse Recovery Time vs. Reverse Recovery Current



Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)



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