



1N4148

DIODE

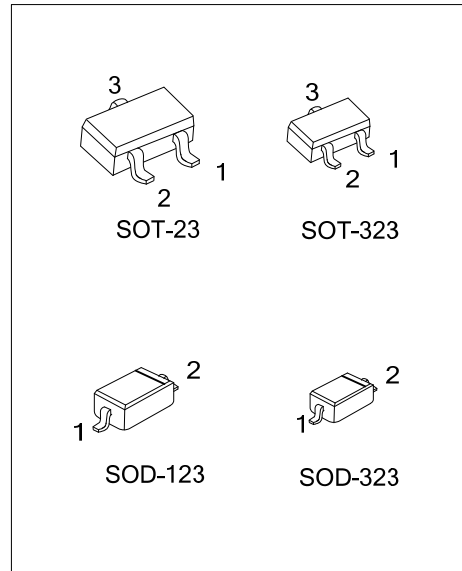
HIGH-SPEED SWITCHING DIODE

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

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 (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		
	<p>L: Lead Free G: Halogen Free</p>	

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°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 second	I_{FSM}	1.0	A
	Pulse Width = 1.0 microsecond		4.0	A
Power Dissipation		P_D	500	mW
Operating Junction Temperature		T_J	+175	°C
Storage Temperature Range		T_{STG}	-65 ~ +200	°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.

■ THERMAL DATA

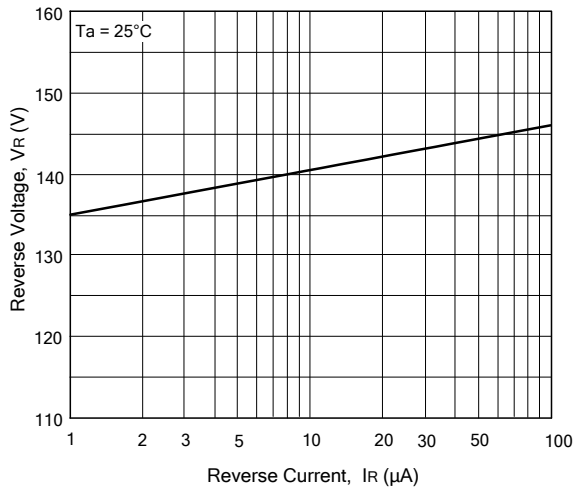
CHARACTERISTIC	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	300	°C/W

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

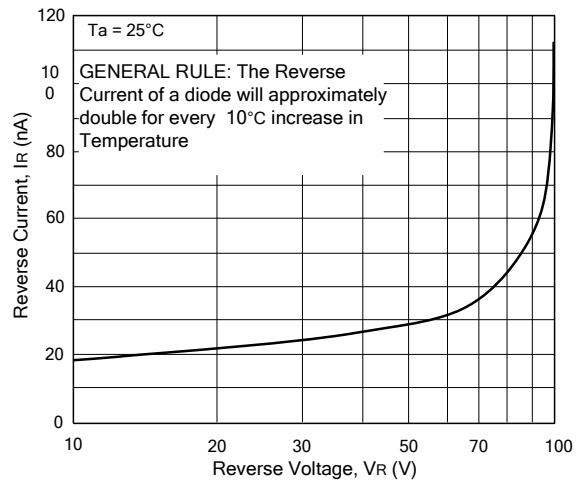
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	V_R	$I_R = 100\mu A$	100			V
		$I_R = 5.0\mu A$	75			V
Forward Voltage	V_F	$I_F = 10\text{ mA}$			1.0	V
Reverse Current	I_R	$V_R = 20\text{ V}$			25	nA
		$V_R = 75\text{ V}$			5.0	μA
Total Capacitance	C_T	$V_R = 0, f = 1.0\text{ MHz}$			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

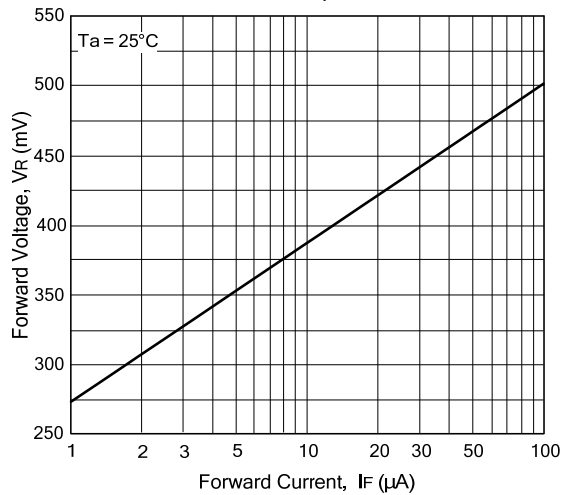
Reverse Voltage vs. Reverse Current
 $V_R - 1.0 \sim 100\mu A$



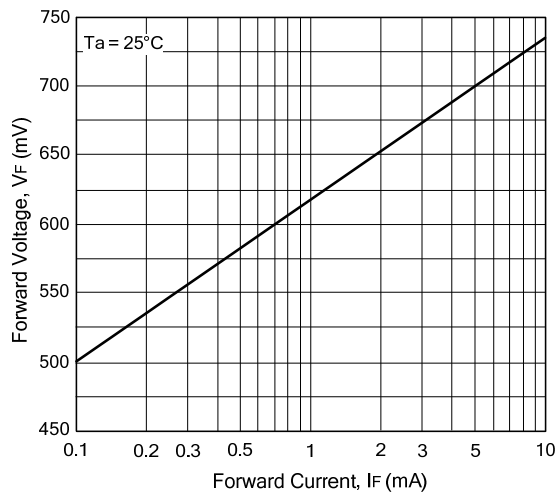
Reverse Current vs. Reverse Voltage
 $I_R - 10 \sim 100 V$



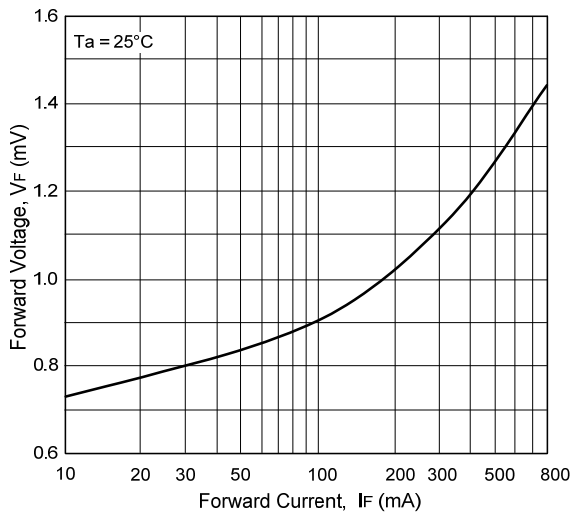
Forward Voltage vs. Forward Current
 $V_F - 1 \sim 100\mu A$



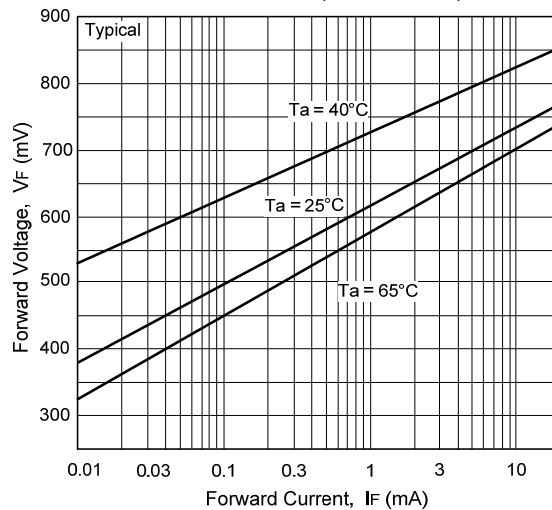
Forward Voltage vs. Forward Current
 $V_F - 0.1 \sim 10 mA$



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

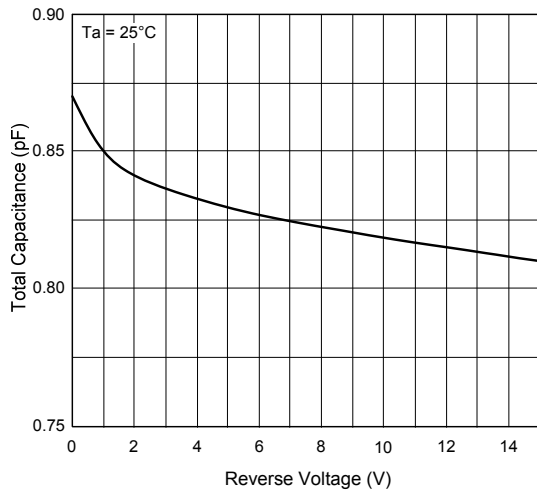


Forward Voltage vs. Ambient Temperature
 $V_F - 0.01 - 20 mA (-40 \sim +65^\circ C)$

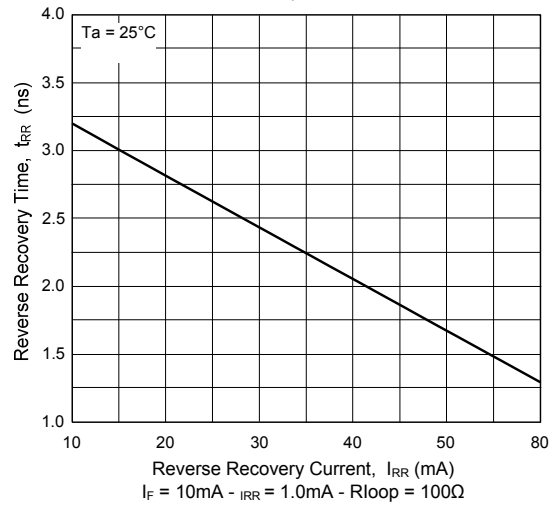


■ TYPICAL CHARACTERISTICS(Cont.)

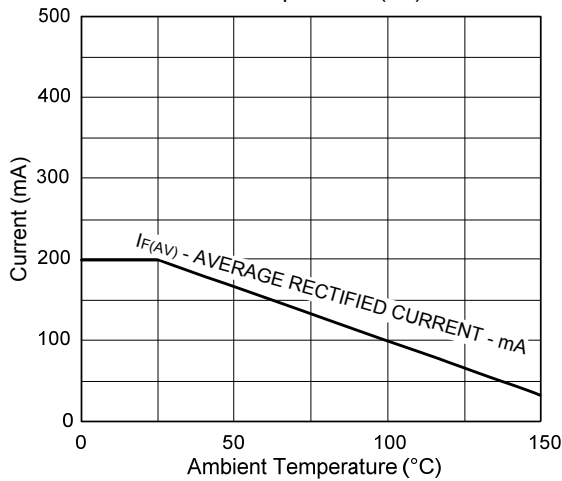
Total Capacitance



Reverse Recovery Time vs. Reverse Recovery Current



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



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