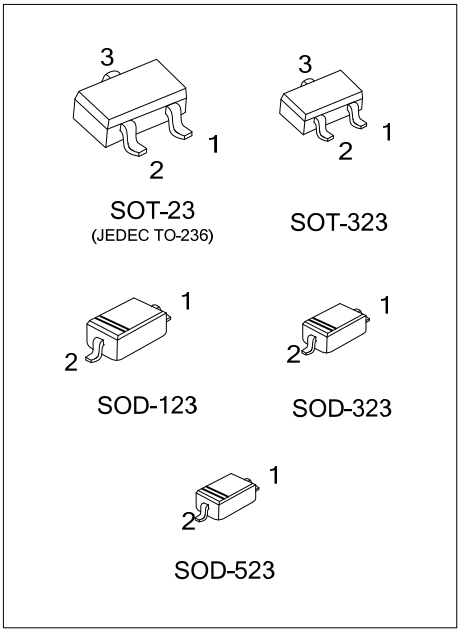
1N4148

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
		1	2	3	
1N4148G-AE3-R	SOT-23	NC	A	C	Tape Reel
1N4148G-AL3-R	SOT-323	NC	A	C	Tape Reel
1N4148G-CA2-R	SOD-123	A	C	-	Tape Reel
1N4148G-CB2-R	SOD-323	A	C	-	Tape Reel
1N4148G-CC2-R	SOD-523	A	C	-	Tape Reel

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

1N4148G-AE3-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AE3: SOT-23, AL3: SOT-323, CA2: SOD-123, CB2: SOD-323, CC2: SOD-523
(3) G: Halogen Free and Lead Free

■ MARKING

SOT-23 / SOT-323	SOD-123
S8G	S8G
SOD-323	**SOD-523**
4148G	S8G

■ ABSOLUTE MAXIMUM RATINGS (T_A=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 sec	I_{FSM}	1.0	A
	Pulse Width = 1.0 ms		4.0	A
Power Dissipation(Note 3)	SOT-23	P_D	350	mW
	SOD-123		400	
	SOT-323		270	
	SOD-323/SOD-523		200	
Junction Temperature		T_J	+175	°C
Storage Temperature		T_{STG}	-65 ~ +200	°C

Notes: 1. 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.
2. These ratings are based on a maximum junction temperature of 200°C.
3. Device mounted on FR-4 PCB minimum land pad.

■ THERMAL DATA

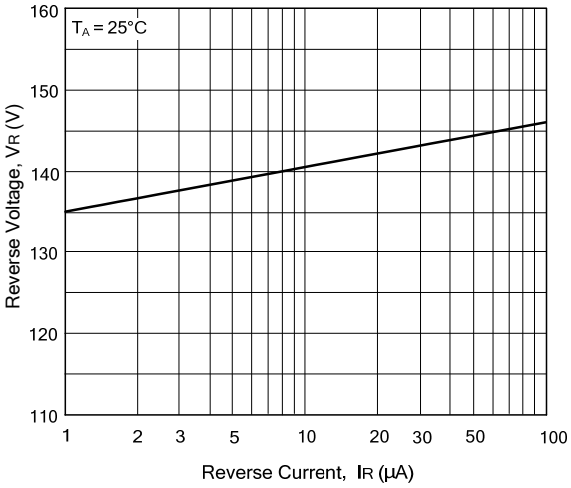
CHARACTERISTIC		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ_{JA}	357	°C/W
	SOD-123		312	
	SOT-323		460	
	SOD-323/SOD-523		500	

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

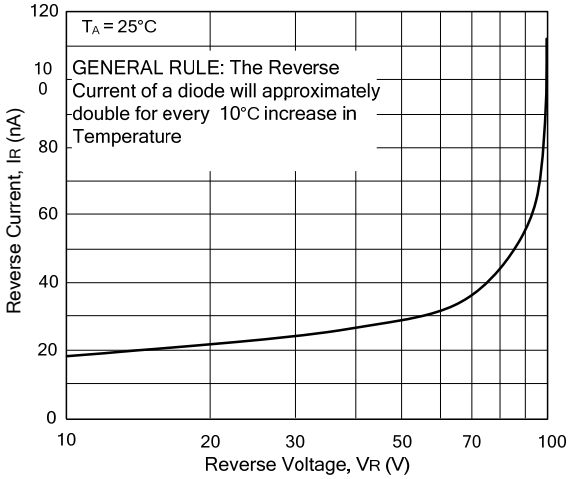
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	V_R	I_R = 100μA	100			V
		I_R = 5.0μA	75			V
Forward Voltage	V_F	I_F = 10 mA			1.0	V
Reverse Current	I_R	V_R = 20 V			25	nA
		V_R = 75 V			5.0	μA
Total Capacitance	C_T	V_R = 0, f =1.0MHz			4.0	pF
Reverse Recovery Time	t_{rr}	I_F = 10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

■ TYPICAL CHARACTERISTICS

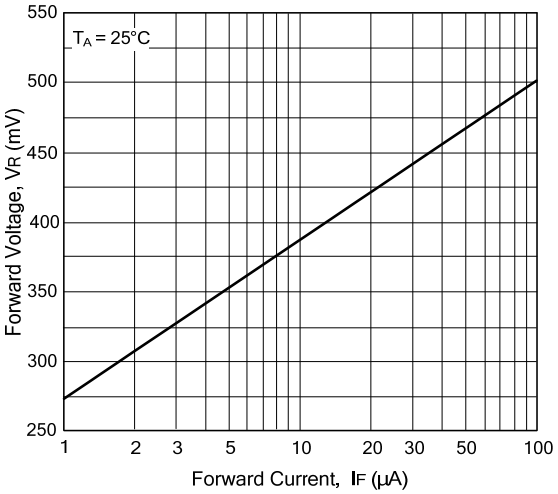
Reverse Voltage vs. Reverse Current
BV - 1.0 ~ 100μA



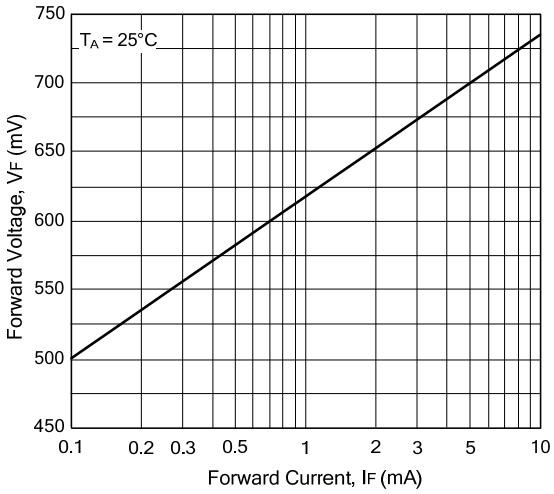
Reverse Current vs. Reverse Voltage
I_R - 10 ~ 100 V



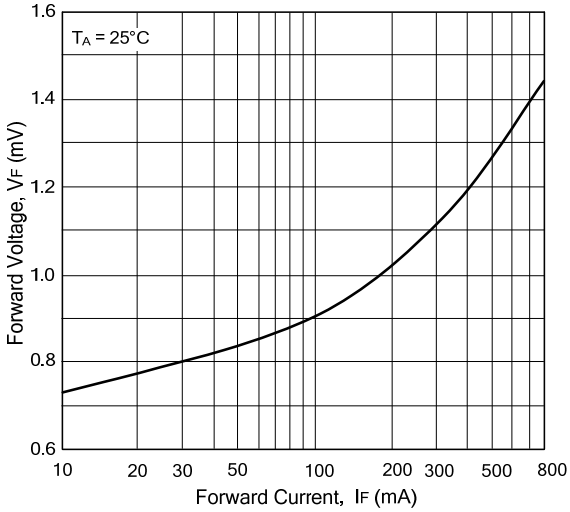
Forward Voltage vs. Forward Current
V_F - 1 ~ 100μA



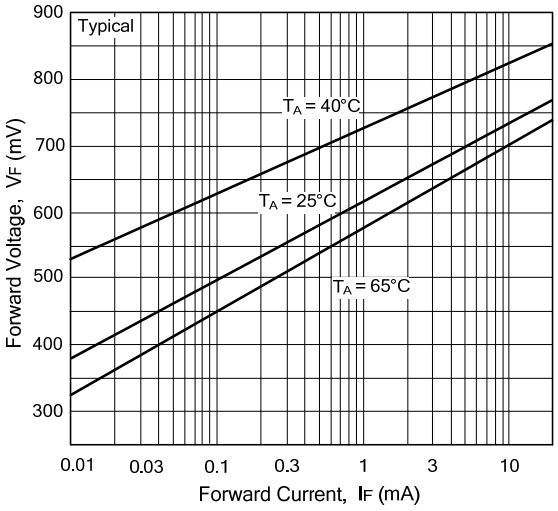
Forward Voltage vs. Forward Current
V_F - 0.1 ~ 10 mA



Forward Voltage vs. Forward Current
V_F - 10 ~ 800 mA

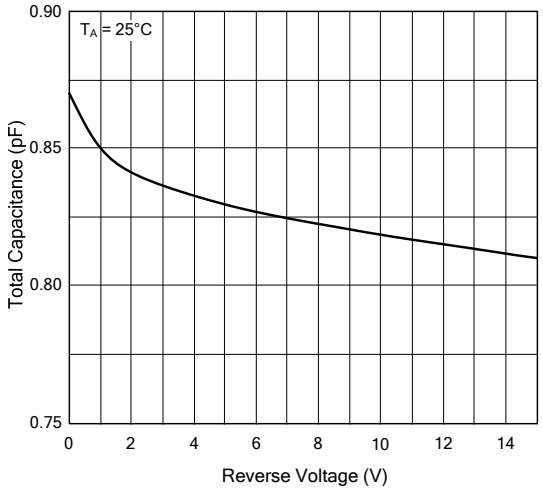


Forward Voltage vs. Ambient Temperature
V_F - 0.01 - 20 mA (-40 ~ +65°C)

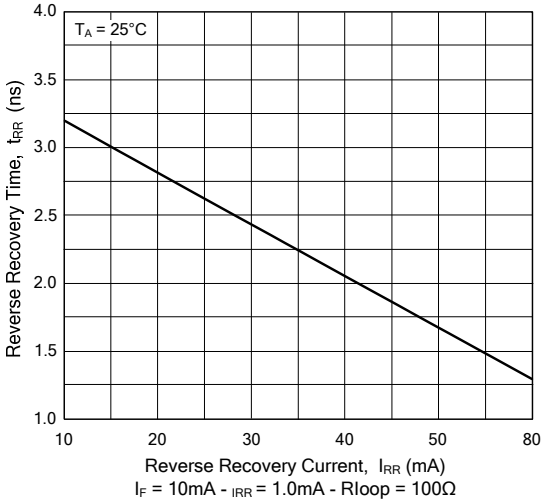


■ TYPICAL CHARACTERISTICS(Cont.)

Total Capacitance



Reverse Recovery Time vs. Reverse Recovery Current



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