

# UTC 1N4148

# DIODE

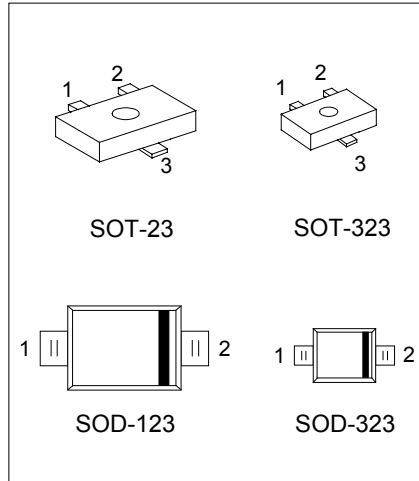
## HIGH-SPEED SWITCHING DIODE

### 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



SOT-23, SOT-323: 1:NC 2:Anode 3:Cathode  
SOD-123, SOD-323: 1:Anode 2:Cathode

\*Pb-free plating product number:1N4148L

### ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise noted.)

PARAMETER	SYMBOL	RATINGS	UNIT
Maximum Repetitive Reverse Voltage	V <sub>RRM</sub>	100	V
Average Rectified Forward Current	I <sub>F(AV)</sub>	200	mA
Non-repetitive Peak Forward Surge Current	I <sub>FSM</sub>	1.0	A
Pulse Width = 1.0 second		4.0	
Pulse Width = 1.0 microsecond			
Power Dissipation	P <sub>D</sub>	500	mW
Operating Junction Temperature	T <sub>j</sub>	175	°C
Storage Temperature Range	T <sub>stg</sub>	-65 ~ +200	°C

#### NOTES:

- (1) These ratings are based on a maximum junction temperature of 200°C.
- (2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### THERMAL CHARACTERISTICS

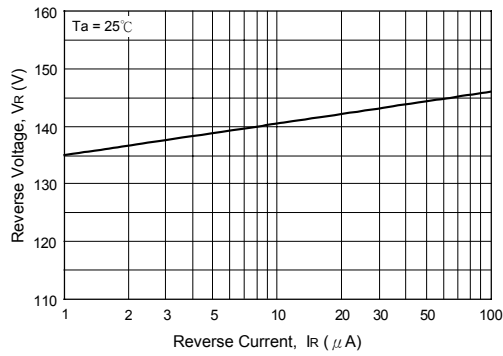
CHARACTERISTIC	SYMBOL	RATINGS	UNIT
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	300	°C/W

## ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise noted.)

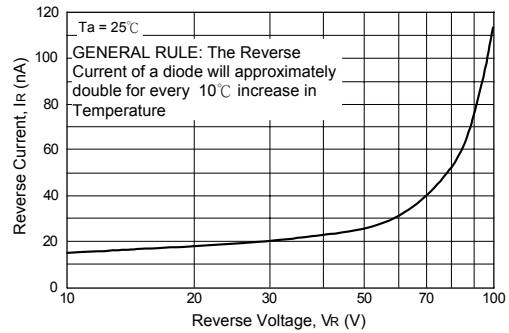
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	V <sub>R</sub>	I <sub>R</sub> = 100 μA I <sub>R</sub> = 5.0 μA	100 75			V
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10 mA			1.0	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 20 V V <sub>R</sub> = 20 V, T <sub>a</sub> = 150°C V <sub>R</sub> = 75 V			25 50 5.0	nA μA μA
Total Capacitance	C <sub>T</sub>	V <sub>R</sub> = 0, f = 1.0MHz			4.0	pF
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 10 mA, V <sub>R</sub> = 6.0 V (60mA) I <sub>rr</sub> = 1.0 mA, R <sub>L</sub> = 100Ω			4.0	ns

## TYPICAL CHARACTERISTICS

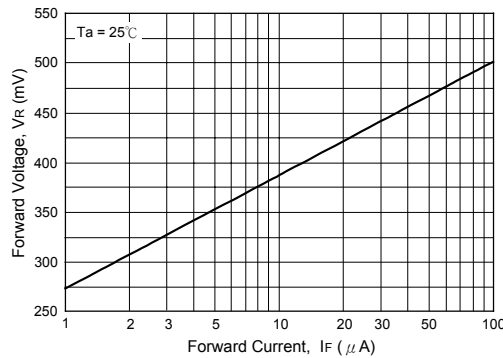
Reverse Voltage vs Reverse Current  
BV - 1.0 ~ 100 μA



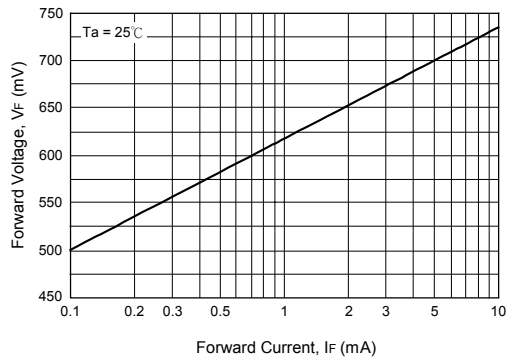
Reverse Current vs Reverse Voltage  
IR - 10 ~ 100 V



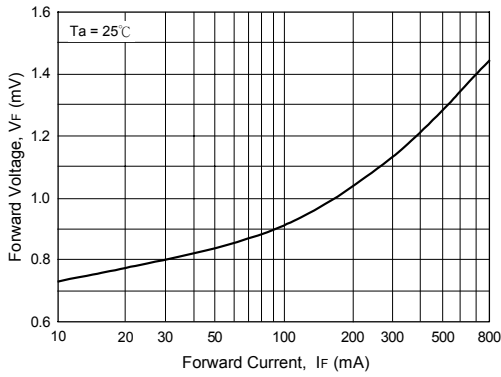
Forward Voltage vs Forward Current  
VF - 1 ~ 100 μA



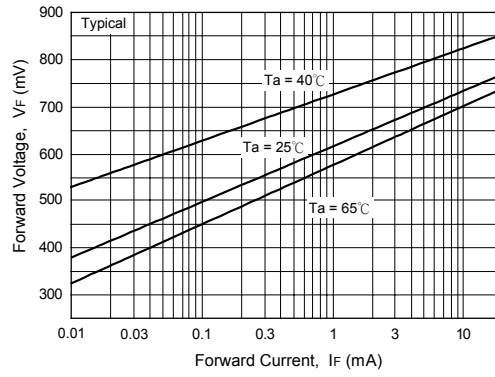
Forward Voltage vs Forward Current  
VF - 0.1 ~ 10 mA



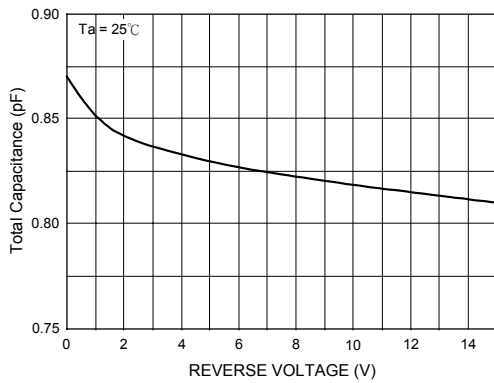
Forward Voltage vs Forward Current  
VF - 10 ~ 800 mA



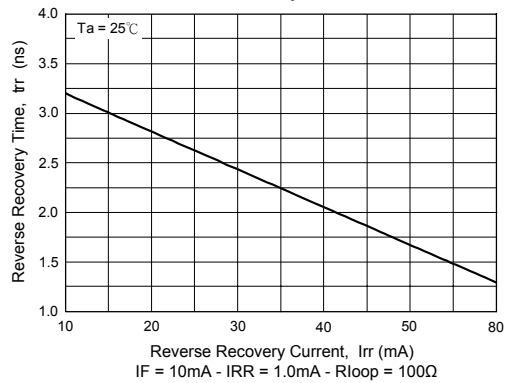
Forward Voltage vs Ambient Temperature  
VF - 0.01 - 20 mA (-40 ~ +65°C)



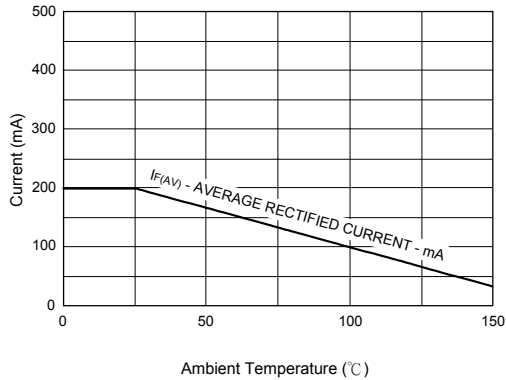
Total Capacitance



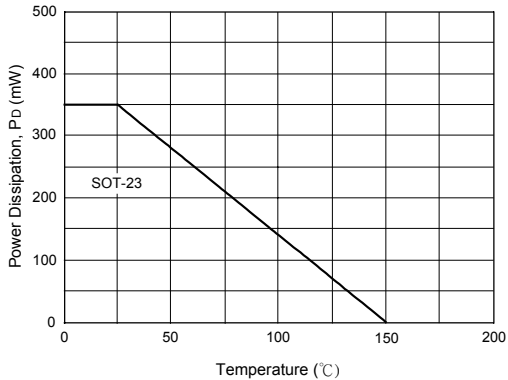
Reverse Recovery Time vs Reverse Recovery Current



Average Rectified Current (IF(AV)) versus Ambient Temperature (Ta)



Power Derating Curve



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.