



# 100V 0.3A Fast Switching Diode - CD4148

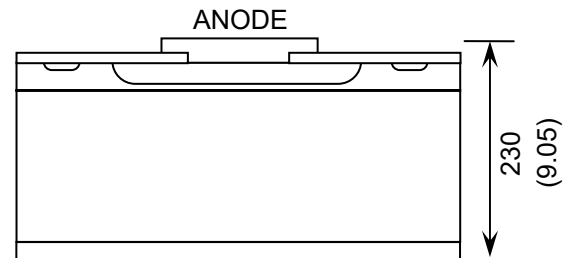
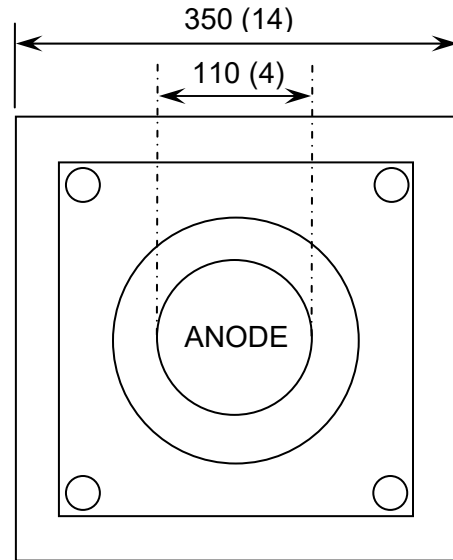
Rev 1.1  
24/10/24

Small-Signal high speed switching diode in bare die form

## Features:

- Fast Switching Speed
- High conductance
- General purpose switching applications
- High reliability tested grades.

## Die Dimensions in $\mu\text{m}$ (mils)



CHIP BACKSIDE IS CATHODE

## Ordering Information

The following part suffixes apply:

- No suffix - MIL-STD-750 /2073 Visual Inspection
- "H" - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- "K" - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

[www.siliconsupplies.com/quality/bare-die-lot-qualification](http://www.siliconsupplies.com/quality/bare-die-lot-qualification)

## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- Die Thickness <> 230 $\mu\text{m}$ (9 Mils) – On request
- With additional electrical selection – On request

## Mechanical Specification

Die Size (Unsawn)	350 x 350 13.78 x 13.78	$\mu\text{m}$ mils
Anode Pad Size	110 $\varnothing$ 4.3 $\varnothing$	$\mu\text{m}$ mils
Die Thickness	230 ( $\pm 15$ ) 9.05 ( $\pm 0.59$ )	$\mu\text{m}$ mils
Top Metal Composition	Al	
Back Metal Composition	AuAs	





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## Absolute Maximum Ratings<sup>1</sup> $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Non-repetitive Peak Reverse Voltage	$V_{RSM}$	105	V
Repetitive Peak Reverse Voltage	$V_{RRM}$	100	V
Average Rectified Forward Current	$I_O$	200	mA
DC Forward Current	$I_F$	300	mA
Recurrent Peak Forward Current	$I_f$	400	mA
Non-repetitive Peak forward surge current	$I_{FSM}$	Pulse width 1s	1
		Pulse width 1 $\mu$ s	4
Power Dissipation	$P_D$	200	mW
Operating Junction temperature	$T_J$	-55 to 175	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to 200	$^\circ\text{C}$

1. Operation above the absolute maximum rating may cause device failure. Operation at the absolute maximum ratings, for extended periods, may reduce device reliability.

## Electrical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Breakdown Voltage	$V_R$	$I_R = 100\mu\text{A}$	100	-	-	V
		$I_R = 5\mu\text{A}$	75	-	-	V
Forward Voltage <sup>2</sup>	$V_F$	$I_F = 5\text{mA}$	-	-	0.72	V
		$I_F = 20\text{mA}$	-	-	1	
		$I_F = 100\text{mA}$	-	-	1	
Reverse Leakage	$I_R$	$V_R = 20\text{V}$	-	-	0.025	$\mu\text{A}$
		$V_R = 20\text{V}, T_J = 150^\circ\text{C}$	-	-	50	
		$V_R = 75\text{V}$	-	-	5	
		$V_R = 100\text{V}$	-	-	10	
Total Capacitance	$C_T$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	-	4	pF
Reverse Recovery Time	$t_{rr}$	$I_F = 10\text{mA}, V_R = 6\text{V} (600\text{mA})$ $I_{rr} = 1\text{mA}, R_L = 100\Omega$	-	-	4	ns

2. Pulse Width = 8.3ms, Non-recurrent square wave





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## Typical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise stated

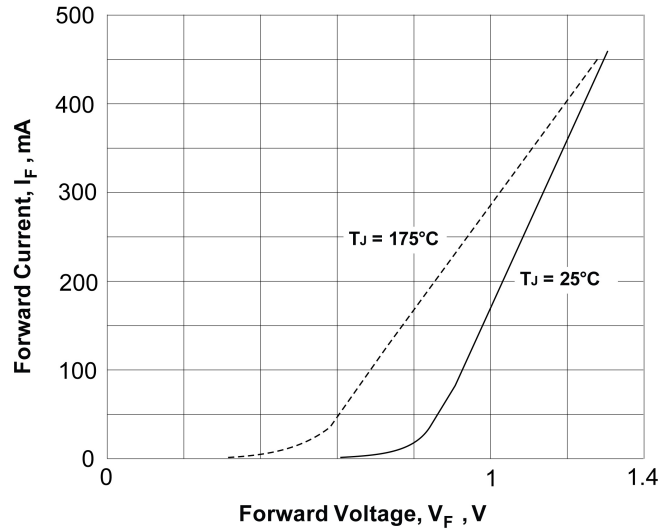


FIGURE 1. Forward Voltage Characteristics

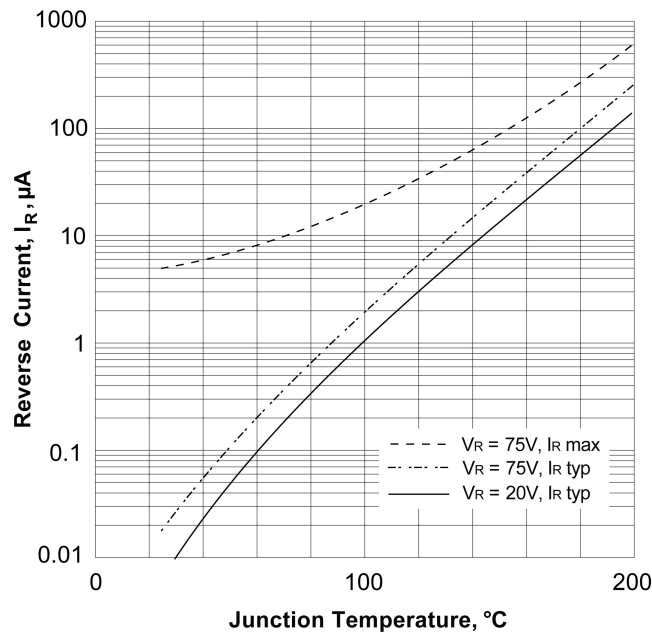


FIGURE 2. Leakage Current Versus Temperature

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