



100V 0.3A Fast Switching Diode - 1N6642

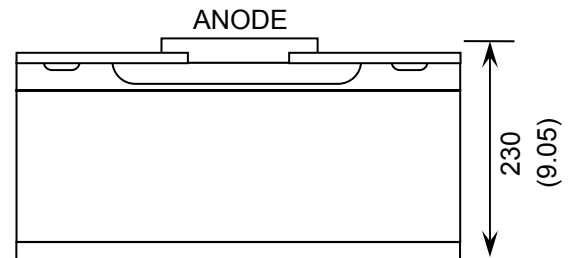
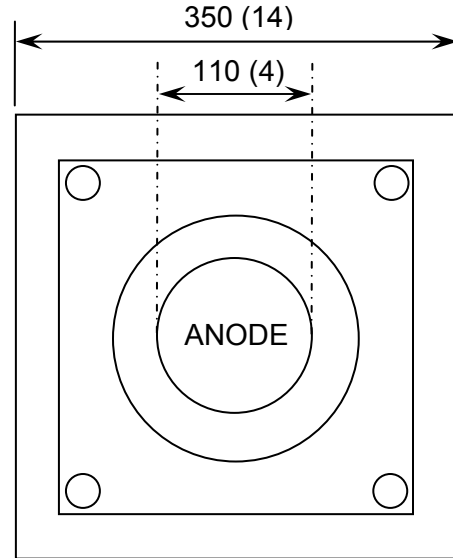
Rev 1.1
24/10/24

Small-Signal high speed switching diode in bare die form

Features:

- Fast Switching Speed
- High conductance
- Suited for hi-rel switching applications
- High reliability tested grades.

Die Dimensions in μm (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

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 \leftrightarrow 230 μm (9 Mils) – On request
- With additional electrical selection – On request

Mechanical Specification

Die Size (Unsawn)	350 x 350 13.78 x 13.78	μm mils
Anode Pad Size	110 \varnothing 4.3 \varnothing	μm mils
Die Thickness	230 (± 15) 9.05 (± 0.59)	μm mils
Top Metal Composition	Al	
Back Metal Composition	AuAs	





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Absolute Maximum Ratings¹ $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE		UNIT
Non-repetitive Peak Reverse Voltage	V_{RSM}	105		V
Breakdown Voltage	V_{BR}	100		V
Working Peak Reverse Voltage	V_{RWM}	75		V
Average Rectified Forward Current	I_O	300		mA
Non-repetitive Peak forward surge current	I_{FSM}	$t_p = 8.3 \text{ ms}$ sinusoidal	2.5	A
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_{BR}	$I_R = 100\mu\text{A}$	100	-	-	V
Forward Voltage ²	V_F	$I_F = 10\text{mA}$	-	-	0.8	V
		$I_F = 50\text{mA}$	-	-	1.2	
		$I_F = 100\text{mA}$	-	-	1.2	
Reverse Leakage	I_R	$V_R = 20\text{V}$	-	-	25	nA
		$V_R = 75\text{V}$	-	-	500	
		$V_R = 20\text{V}, T_J = 150^\circ\text{C}$	-	-	50	μA
		$V_R = 75\text{V}, T_J = 150^\circ\text{C}$	-	-	100	
Total Capacitance	C_T	$V_R = 0\text{V}, f = 1\text{MHz}$	-	-	4	pF
		$V_R = 1.5\text{V}, f = 1\text{MHz}$	-	-	2.8	
Reverse Recovery Time	t_{rr}	$I_F = I_R = 10\text{mA}, R_L = 100\Omega, I_{rr} = 1\text{mA}$	-	-	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

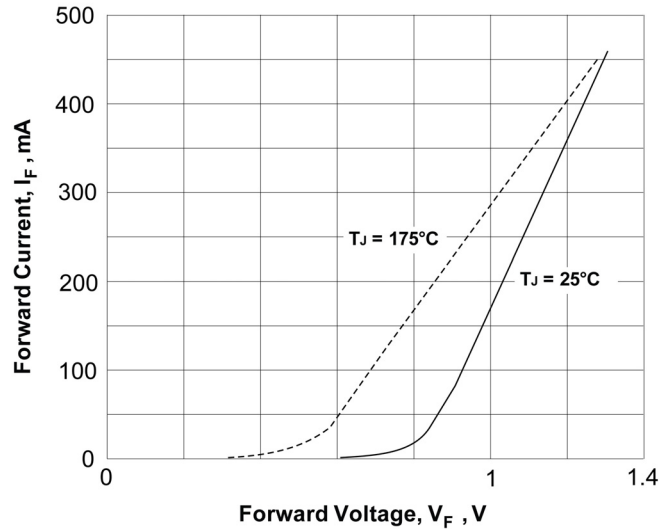


FIGURE 1. Forward Voltage Characteristics

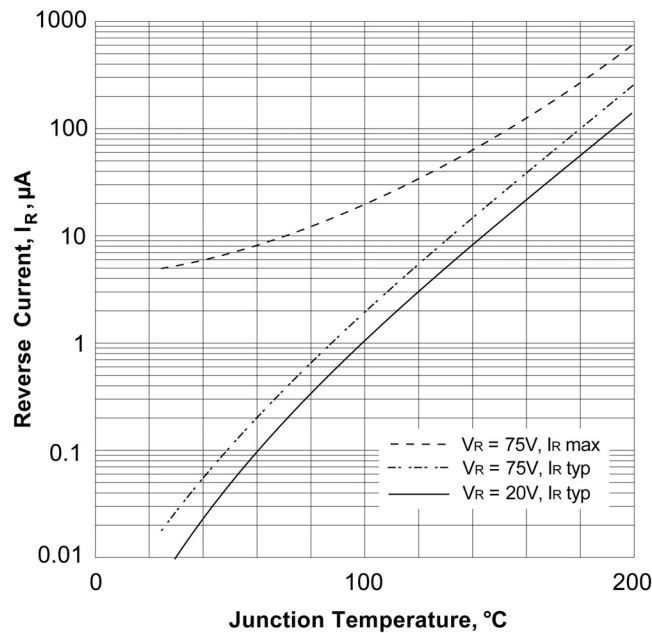


FIGURE 2. Leakage Current Versus Temperature

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