



# 45V 1A Schottky Diode – 1N5819

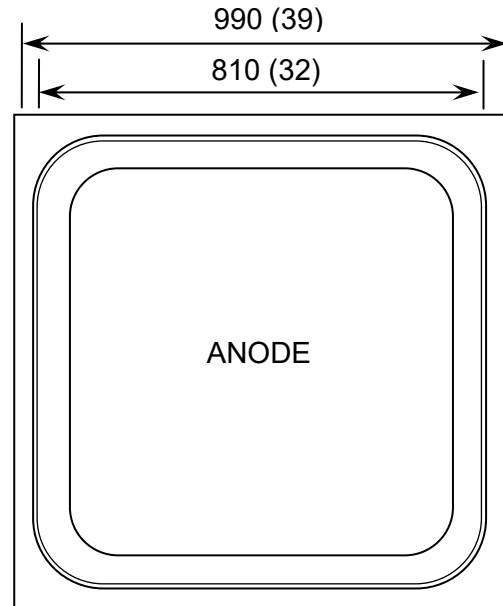
Rev 1.0  
11/01/21

Schottky Barrier Rectifier diode in bare die form

## Features:

- Guardring for over-voltage protection
- High surge capacity
- Very small conduction losses
- Low forward voltage drop
- High reliability tested grades

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



## Ordering Information

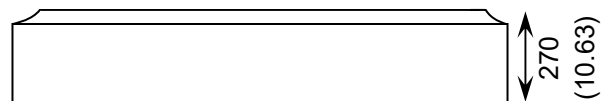
The following part suffixes apply:

- 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)



CHIP BACKSIDE IS CATHODE

## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

## Mechanical Specification

Die Size (Unsawn)	990 x 990 39 x 39	$\mu\text{m}$ mils
Anode Pad Size	810 x 810 32 x 32	$\mu\text{m}$ mils
Die Thickness	270 ( $\pm 20$ ) 10.63 (0.79)	$\mu\text{m}$ mils
Top Metal Composition	Al	
Back Metal Composition	Au	





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

PARAMETER	SYMBOL	VALUE	UNIT
Working peak reverse voltage	$V_{RWM}$	45	V
Average forward rectified current	$I_{F(AV)}$	1	A
Peak forward surge current, Test pulse – 8.3ms, half sine-wave	$I_{FSM}$	25	A
Non-Repetitive Avalanche Energy, $I_{AS} = 0.18\text{A}$ , $L = 160\text{mH}$	$E_{AS}$	2.6	mJ
Repetitive Avalanche Current, $I_{AS}$ decay linearly to 0 in $1\mu\text{s}$ , $f$ limited by $T_J$ max $V_A = 1.5V_R$	$I_{AR}$	0.18	A
Operating Junction temperature	$T_J$	-55 to 125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to 150	$^\circ\text{C}$

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

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Maximum instantaneous forward voltage <sup>1</sup>	$V_F$	$V_{RWM} = 45\text{V}$ , $I_{FM} = 0.1\text{A}$	-	-	0.34	V
		$V_{RWM} = 45\text{V}$ , $I_{FM} = 1\text{A}$	-	-	0.49	
Maximum reverse leakage current <sup>1</sup>	$I_{RM} @ V_{RM}$	$V_{RM} = 45\text{V}$ , $T_J = 25^\circ\text{C}$	-	-	0.05	mA
		$V_{RM} = 45\text{V}$ , $T_J = 100^\circ\text{C}$	-	-	5	
Junction Capacitance	$C_T$	$V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$ , $f_{SIG} = 1\text{MHz}$ , $V_{SIG} = 50\text{mV}$ (p-p)	-	-	70	pF

1. Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

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

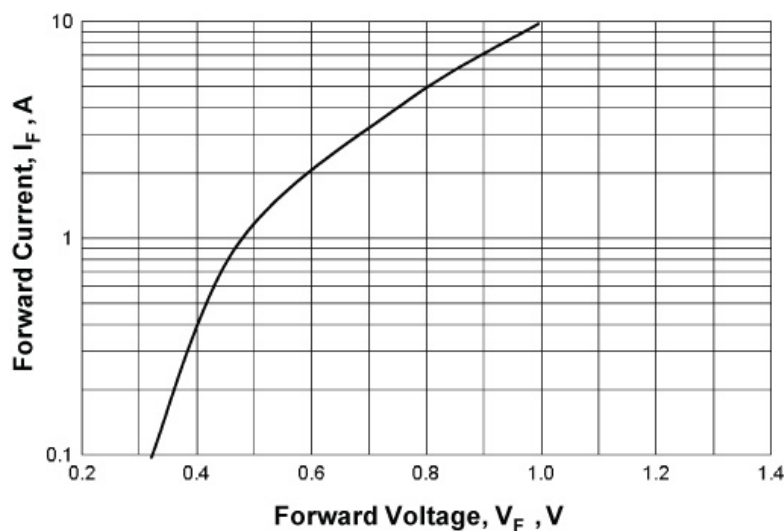


FIGURE 1. Forward Voltage Characteristics





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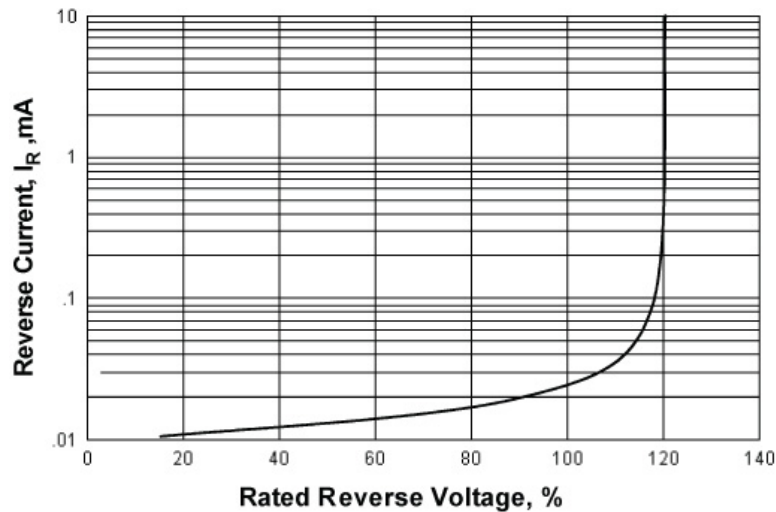


FIGURE 2. Reverse Current Versus Reverse Voltage

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