

# 1N6492, 1N6492U4



## Silicon Schottky Barrier Diode

Rev. V1

### Features

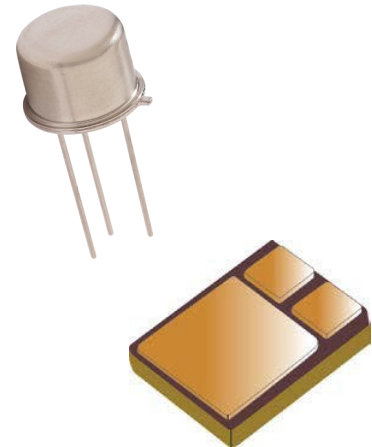
- Available in JAN, JANTX, JANTXV and JANS per MIL-PRF-19500/567
- Extremely Low Forward Voltage and Reverse Leakage
- Reverse Breakdown Voltage: 45 V
- Hermetically Sealed TO-39 package (TO-205AF) and Surface Mount U4
- High Surge Capability

### Description

The 1N6492 silicon Schottky diode offers a large reverse breakdown voltage with low forward voltage. The die, which is passivated with an advanced high-reliability passivation for very fast settling time and low leakage current, is packaged in the industry standard TO-39 hermetically sealed metal can package as well as the surface mount U4.

This rugged device is capable of reliable operation in all space, military, and industrial applications.

The 1N6492 is designed to be used in a wide variety of applications, such as low voltage, high efficiency high reliability switching power supplies.



### Electrical Specifications: $T_A = +25^\circ\text{C}$ (unless otherwise specified)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Reverse Leakage Current	$V_{RM} = 45 \text{ V (pk)}$	$I_{RM1}$	mA	—	2.0
Reverse Leakage Current	$V_{RM} = 45 \text{ V (pk), } T_A = +125^\circ\text{C}$ $V_{RM} = 45 \text{ V (pk), } T_A = +175^\circ\text{C}$	$I_{RM2}$ $I_{RM3}$	mA	—	20 200
Reverse Leakage Current	$T_A = -55^\circ\text{C}$ $V_{RM} = 45 \text{ V (pk)}$	$I_{RM4}$	mA	—	20
Reverse Leakage Current	$V_{RSM} = 54 \text{ V (pk)}$	$I_{RM5}$	A	—	2.0
Forward Voltage	$I_{FM} = 8.0 \text{ A (pk)}$ $I_{FM} = 4.0 \text{ A (pk)}$ $I_{FM} = 2.0 \text{ A (pk)}$ $I_{FM} = 1.0 \text{ A (pk)}$	$V_{FM1}$ $V_{FM2}$ $V_{FM3}$ $V_{FM4}$	V dc	—	0.92 0.68 0.56 0.48
Forward Voltage	$T_A = -55^\circ\text{C}$ $I_{FM} = 2.0 \text{ A (pk)}$	$V_{FM5}$	V dc	—	0.63
Total Capacitance	$V_R = 5 \text{ V dc, } .01 \leq f \leq 1 \text{ MHz,}$ $V_{SIG} = 15 \text{ mV (p-p)}$	$C_T$	pF	—	450

### Absolute Maximum Ratings ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Absolute Maximum
Working Voltage <sup>(1)</sup>	$V_{RWM}$ $V_{RRM}$	45 V (pk)
Maximum Reverse Surge Voltage	$V_{RSM}$	54 V (pk)
Reverse Voltage <sup>(1)</sup>	$V_R$	45 V dc
Average Rectified Output Current <sup>(4)</sup> ( $T_C = +100^\circ\text{C}$ )	$I_O$	3.60 A dc
Forward Surge Current	$I_{FSM}$	80 A dc (pk)
Forward Current <sup>(2)</sup>	$I_{F1}$ (AV)	1.20 A dc
Forward Current ( $T_C = +100^\circ\text{C}$ ) <sup>(3)</sup>	$I_{F1}$ (AV)	4 A dc
Junction Temperature <sup>(5)</sup>	$T_J$	-65°C to +175°C
Storage Temperature	$T_{STG}$	-65°C to +175°C

### Thermal Characteristics ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Absolute Maximum
Junction to Case <sup>(5)</sup>	$R_{\theta JC}$	12° C/W
Junction to Case 1N6492U4 <sup>(5)</sup>	$R_{\theta JC}$	4.5° C/W
Junction to Ambient <sup>(4)</sup> (Both Types)	$R_{\theta JA}$	175° C/W

- (1) Full rated  $V_{RRM}$  and  $V_{RWM}$  with appropriate average forward current (see note 3) is applicable over the range of  $T_C$  from -55°C to +135°C. Full rated  $V_R$  is applicable over the range of  $T_C$  from -55°C to +120°C. With these maximum voltages and case temperatures,  $T_J \leq +175^\circ\text{C}$ .
- (2) This rating requires no special mounting, heat sinking or forced air flow across the device.
- (3) Average current with a 50 percent duty cycle square wave including reverse voltage amplitude equal to the magnitude of full rated  $V_{RWM}$ . Derate linearly at 114 mA dc/°C for  $T_C > +100^\circ\text{C}$  (to 0 at  $T_C = +135^\circ\text{C}$ ); if  $V_{RWM} = 20$ , derate  $I_F$  (AV) at 62 mA dc/°C, to 0 at  $T_C = +165^\circ\text{C}$ .
- (4) Average current with an applied sine wave including reverse voltage equal to the magnitude of full rated  $V_{RWM}$ . Derate linearly at 103

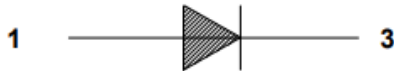
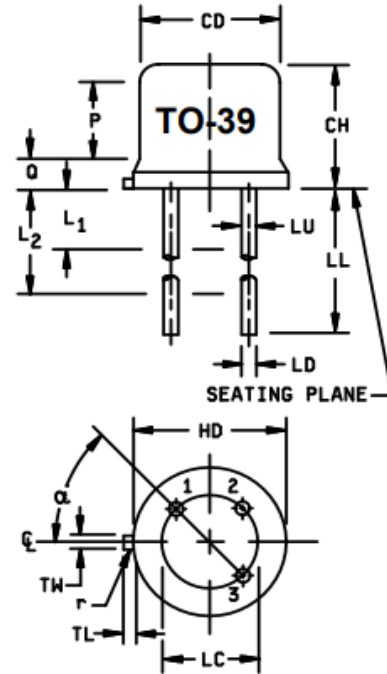
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### Outline (TO-39)

Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.160	.180	4.07	4.57	
HD	.335	.370	8.51	9.40	
LC	.200 TP		5.08 TP		7
LD	.016	.021	0.41	0.53	8, 9
LL	.500	.750	12.7	19.05	8, 9
LU	.016	.019	0.41	0.48	8, 9
L <sub>1</sub>		.050		1.27	8, 9
L <sub>2</sub>	.250		6.35		8, 9
P	.100		2.54		6
Q		.040		1.02	5
r		.010		0.254	10
TL	.029	.045	0.74	1.14	
TW	.028	.034	0.72	0.86	
α	45° TP		45° TP		7
Term 1	Anode				
Term 2	Open (no connection)				
Term 3	Cathode (case)				



#### NOTES:

- Dimensions are in inches.
- Millimeters are given for general information only.
- Beyond radius (r) maximum, TW shall be held for a minimum length of .011 inch (0.279 mm).
- Dimension TL measured from maximum HD.
- Outline in this zone is not controlled.
- Dimension CD shall not vary more than .010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
- Leads at gauge plane .054 +.001, -.000 inch (1.37 +0.03, -0.00 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods.
- LU applies between L<sub>1</sub> and L<sub>2</sub>. LD applies between L<sub>2</sub> and LL minimum. Diameter is uncontrolled in L<sub>1</sub> and beyond LL minimum.
- All three leads.
- Radius (r) applies to both inside corners of tab.
- Cathode is electrically connected to the case.
- In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

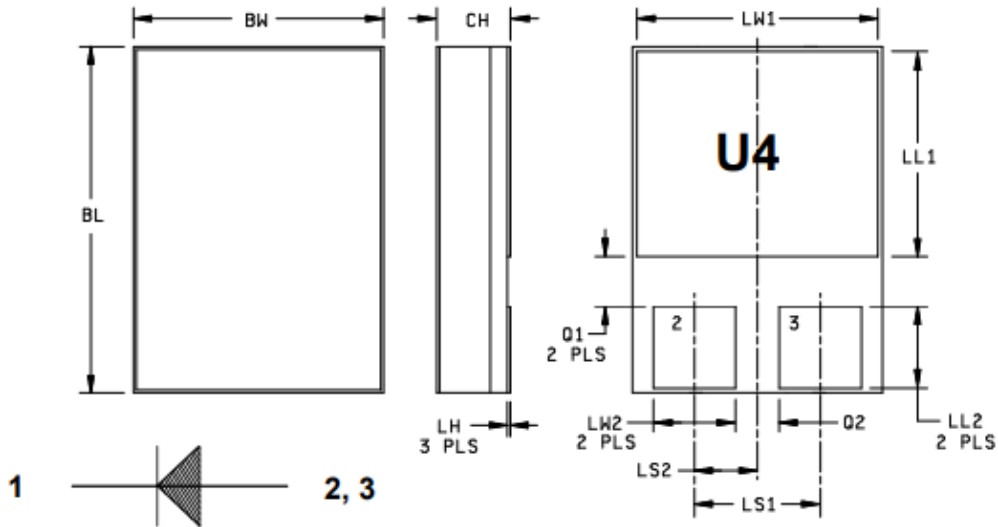
FIGURE 1. Physical dimensions (TO-205AF - formerly low profile TO-39).

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### Outline (U4)



Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	0.215	0.225	5.46	5.72
BW	0.145	0.155	3.68	3.94
CH	0.049	0.075	1.24	1.91
LH	-	0.020	-	0.508
LL1	0.085	0.125	2.16	3.17
LL2	0.045	0.075	1.14	1.90
LS1	0.070	0.095	1.78	2.41
LS2	0.035	0.048	0.889	1.21
LW1	0.135	0.145	3.43	3.68
LW2	0.047	0.057	1.19	1.45
Q1	0.030	0.070	0.762	1.78
Q2	0.020	0.035	0.508	0.88
TERM 1	Cathode			
TERM 2	Anode 1			
TERM 3	Anode 2			

#### NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.

FIGURE 2. Physical dimensions and configuration (U4).

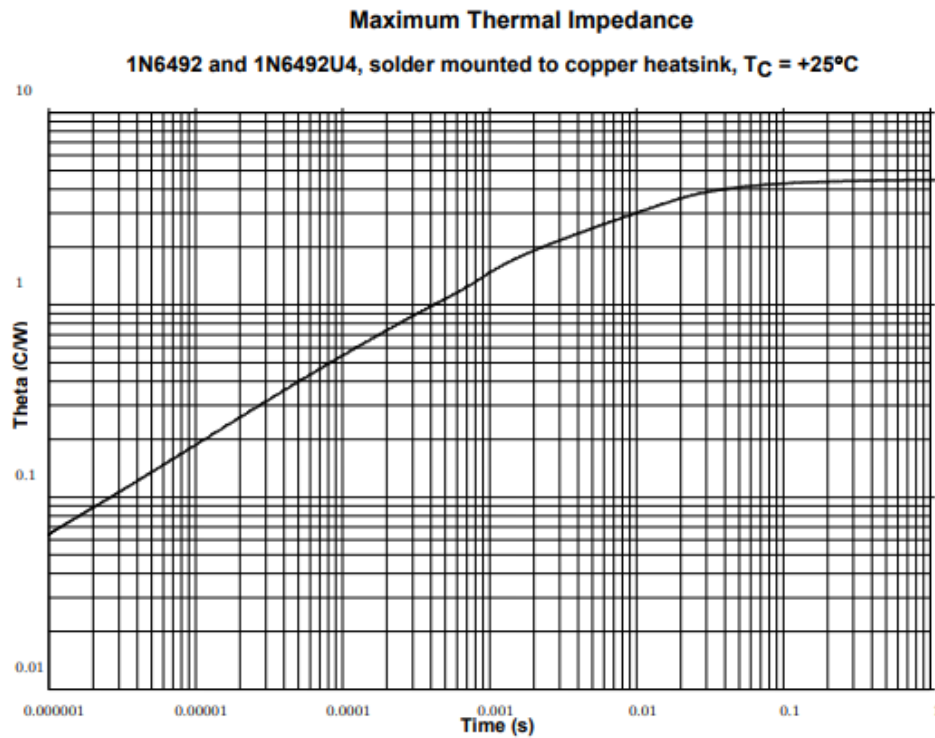
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Silicon Schottky Barrier Diode

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## Graphs



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