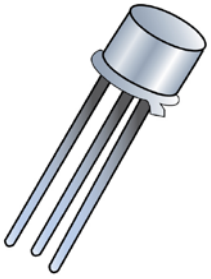
RoHS Available

Silicon Carbide Schottky Power Rectifier 2A, 600V

DESCRIPTION

This 600 volt silicon carbide Schottky rectifier is in a hermetically sealed package with internal metallurgical bonds. It's very fast switching capabilities provide greater efficiency at higher temperatures than competing ultrafast silicon rectifiers.



TO-39 Package

Important: For the latest information, visit our website http://www.microsemi.com.

FEATURES

- Short-leaded TO-39 package.
- Lightweight.
- High temperature – rated for T_J up to +175 °C.
- Zero reverse recovery current.
- Temperature independent switching behavior.
- Very fast switching compared to fast or ultrafast silicon rectifiers.
- Positive V_F temperature coefficient, better enabling the use of parallel devices for higher currents.
- RoHS compliant version is available.

APPLICATIONS / BENEFITS

- Military, space and other high reliability applications.
- Switching power supplies or other applications requiring extremely fast switching speed and the lowest possible switching losses.
- High forward surge capability.
- High reverse voltage capability with very fast switching.
- Inherently radiation hard (>100 krads) as described in Microsemi MicroNote 050.

MAXIMUM RATINGS @ T_C = +25 °C unless otherwise noted

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J and T_{STG}	-65 to +175	°C
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	25	°C/W
Working Peak Reverse Voltage	V_{RWM}	600	V
Non-Repetitive Peak Inverse Voltage	V_{RSM}	600	V
DC Blocking Voltage	V_{DC}	600	V
Average DC Output Current @ T_C = 50 °C	I_O	2	A
Non-Repetitive Sinusoidal Surge Current @ t_p = 8.3 ms, half sinewave, I_O = 0; V_{RM} = 0	I_{FSM}	50	A

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MECHANICAL and PACKAGING

- CASE: Nickel-plated-kovar base & Ametek 899L 201 nickel lid.
- TERMINALS: Solder dipped nickel or RoHS compliant matte-tin plated kovar.
- MARKING: Alpha numeric.
- POLARITY: See table on last page.
- WEIGHT: Approximately 1.064 grams.
- See Package Dimensions on last page.

PART NOMENCLATURE

SYMBOLS & DEFINITIONS

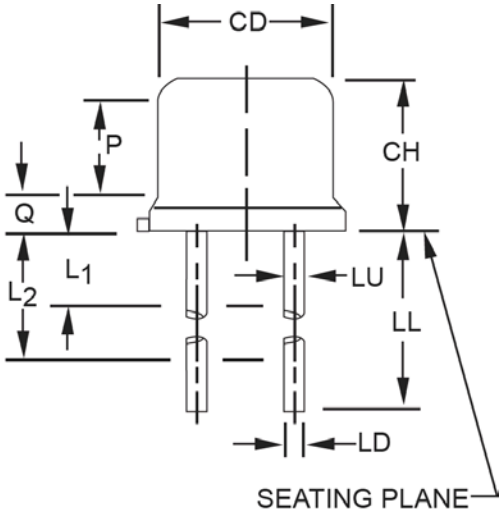
Symbol	Definition
C_J	Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1 MHz) and specified voltage.
I_F	Forward Current: The forward current dc value, no alternating component.
I_R	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
T_J	Junction Temperature: The temperature of a semiconductor junction.
V_F	Forward Voltage: The forward voltage the device will exhibit at a specified current (typically shown as maximum value).
V_R	Reverse Voltage: The reverse voltage dc value, no alternating component.

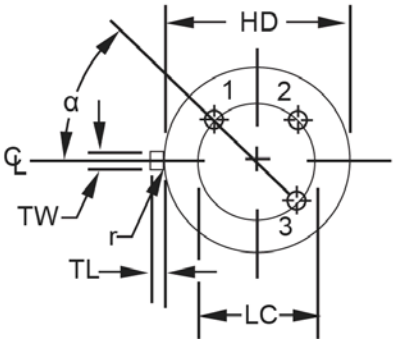
ELECTRICAL CHARACTERISTICS @ T_A = 25 °C unless otherwise noted

Parameters / Test Conditions	Symbol	Min.	Max.	Typ.	Unit
Forward Voltage* I_F = 1 A, T_J = 25 °C I_F = 2.5 A, T_J = 25 °C I_F = 5.0 A, T_J = 25 °C I_F = 10.0 A, T_J = 25 °C	V_F		 1.0 1.2 1.4 1.8		V
Reverse Current V_R = 600 V, T_J = 25 °C V_R = 600 V, T_J = 175 °C	I_R		 50 100		µA
Junction Capacitance V_R = 0 V f = 1 MHz	C_J			550	pF

* Pulse test: Pulse width 300 µsec, duty cycle 2%.

PACKAGE DIMENSIONS





Ltr	Dimensions				Notes
	Inch		Millimeters		
	Min	Max	Min	Max	
CD	0.305	0.335	7.75	8.51	
CH	0.160	0.180	4.07	4.57	
HD	0.335	0.370	8.51	9.40	
LC	0.200 TP		5.08 TP		7
LD	0.016	0.021	0.41	0.53	8, 9
LL	0.500	0.750	12.7	19.05	8, 9
LU	0.016	0.019	0.41	0.48	8, 9
L1	-	0.050	-	1.27	8, 9
L2	0.250	-	6.35	-	8, 9
P	0.100	-	2.54	-	6
Q	-	0.040	-	1.02	5
r	-	0.010	-	0.254	10
T_L	0.029	0.045	0.74	1.14	
TW	0.028	0.034	0.72	0.86	
α	45° TP		45° TP		7
Term 1	Anode				
Term 2	Open (no connection)				
Term 3	Cathode (case)				

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for information only.
3. Beyond radius (r) maximum, TW shall be held for a minimum length of 0.011 inch (0.279 mm).
4. Dimension TL measured from maximum HD.
5. Outline in this zone is not controlled.
6. Dimension CD shall not vary more than 0.010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
7. Leads at gauge plane 0.054 +0.001, -0.000 inch (1.37 +0.03, -0.00 mm) below seating plane shall be within 0.007 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.
8. LU applies between L1 and L2. LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 and beyond LL minimum.
9. All three leads.
10. Radius (r) applies to both inside corners of tab.
11. Cathode is electrically connected to the case.
12. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.