3300V, 2A SILICON CARBIDE SiC SCHOTTKY DIODE

FEATURES

▲ High Surge Current Capability SiC Schottky
▲ Maximum Operating Junction Temperature over 175°C
▲ Zero Reverse and Forward Recovery
▲ Fast and Temperature-independent Switching
▲ Positive Temperature Coefficient on V_F

ADVANTAGES AND BENEFITS

▲ Extremely Low Standby and Switching Power Losses
▲ Higher Efficiency than when using Si Diodes
▲ High Frequency Operation
▲ Very Low Heat Sink Requirements
▲ Paralleling of Devices Without Thermal Runaway

DESCRIPTION

KE33DJ20 is a high performance 3300V, 2A Silicon Carbide (SiC) Schottky with enhanced surge current capabilities, able to operate at high frequencies and temperatures in excess 175°C. SiC Schottky diodes offer zero reverse and forward recovery, making them ideal for high frequency and high efficiency applications, with minimum heat sinking requirements.

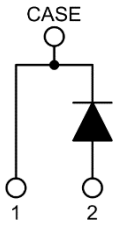
APPLICATIONS

▲ Rectification, Voltage Blocking, Boost and Free Wheeling
▲ Switching Mode Power Supplies (SMPS)
▲ Power Factor Correction (PFC)
▲ Uninterruptible Power Supplies (UPS)
▲ Wind Turbine and Solar Inverters
▲ Motor Drives
▲ High Voltage Multipliers
▲ Induction Heating
▲ Snubbers

KEY PERFORMANCE

Parameter	Value
V_{RRM}	3300V
I_F	2A
Q_C	36nC

PACKAGING



QUICK ORDERING INFORMATION

Part Number	Package	Marking
KE33DJ02B	Bare die	
KE33DJ02T47	TO-247-2L	KE33DJ02

Other packages and packaging configurations available and also possible upon request.

ABSOLUTE MAXIMUM RATINGS

Unless otherwise stated, specification applies for T_C=25°C.

Parameter	Symbol	Values	Unit	Note/Test Condition
DC Blocking Voltage	V_R	3300	V	
Repetitive Peak Reverse Voltage	V_{RRM}	3300	V	T_J=25°C
Surge Peak Reverse Voltage	V_{RSM}	3300	V	
Continuous Forward Current	I_F	2	A	T_C=165°C
Repetitive Peak Forward Surge Current	I_{FRM}	10	A	T_C=25°C, t_p=10ms half sinewave
Non-repetitive Peak Forward Surge Current	I_{FSM}	60	A	T_C=25°C, t_p=10µs, pulse
Operating Temperature Range	T_J	-55 to +175	°C	
Storage Temperature Range	T_{STG}	-55 to +175	°C	

ELECTRICAL CHARACTERISTICS

Unless otherwise stated, specification applies for -55°C<T_J<175°C.

Parameter	Symbol	Values Min	Typ	Max	Unit	Note/Test Condition	
Forward Voltage	V_F		1.75 3.56	1.8 3.8	V	T_J=25°C T_J=175°C	I_F=2A
Reverse Current	I_R		55 90	150 350	µA	T_J=25°C T_J=175°C	V_R=3300V
Total Capacitive Charge	Q_C	-	36	-	nC	V_R=3300V, I_F=2A di/dt=200A/µs	T_J=25°C
Total Capacitance	C		240 10.9 8.3	250 11.6 8.8	pF	V_R=1V V_R=1000V V_R=2000V	f=1MHz, T_J=25°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Values Min	Typ	Max	Unit	Note/Test Condition
Junction-case Thermal Resistance	R_{TH-JC}		1.2		°C/W	TO-247

TYPICAL PERFORMANCE

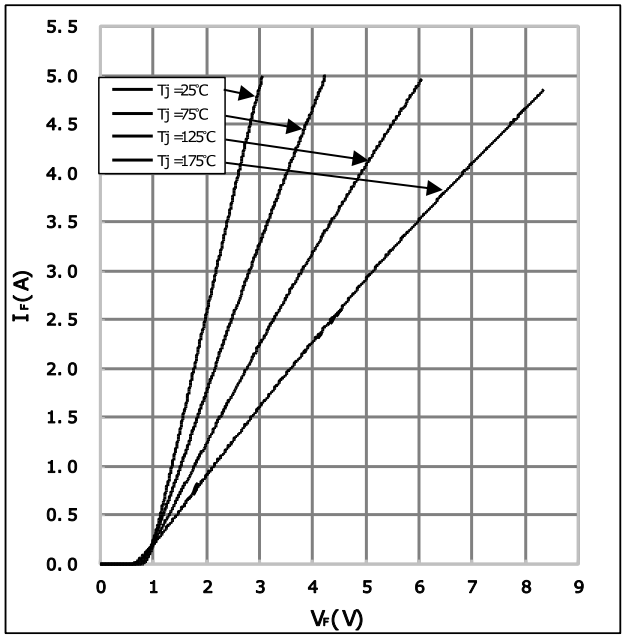


Fig 1. Typical Forward I-V characteristics vs T_J.

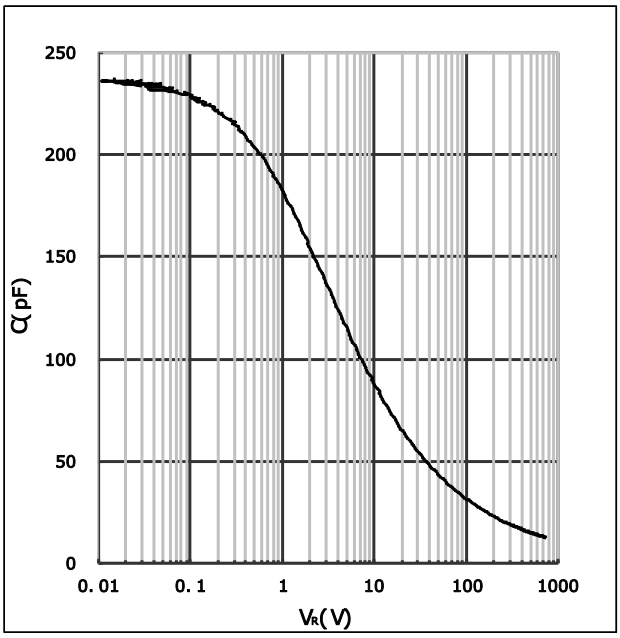


Fig 2. Diode Capacitance C(pF) versus reverse voltage.

DETAILED ORDERING INFORMATION

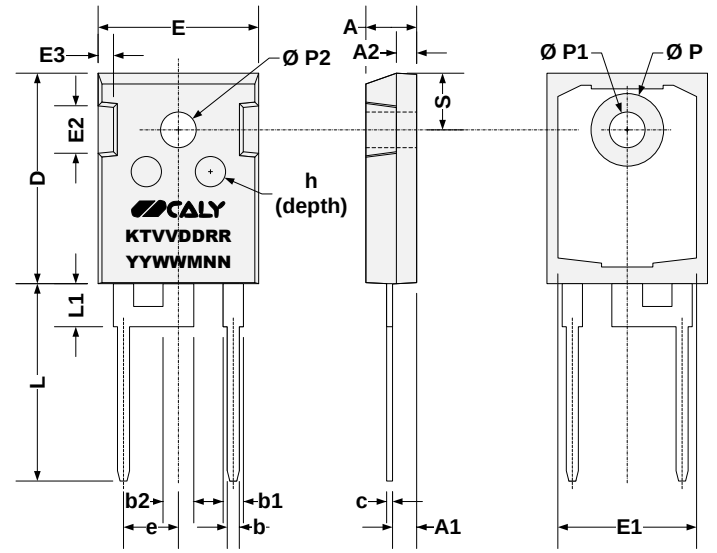
K	E	33	DJ	02	T47
Source K = CALY Technologies	Temperature range: E = -55°C to +175°C	Rated Voltage: 33 = 3300V	Device / Type DJ = Diode / JBS (MPS)	Rated Current: 02 = 2A	Package: T47 = TO-247 2L

Part Number	Temperature Range	Package	Pin Count	Marking
KE33DJ02B	-55°C to +175°C	Bare die		
KE33DJ02T47	-55°C to +175°C	TO-247-2L	2	KE33DJ02

Other packages, packaging configurations and finishing materials possible upon request. MOQ may apply.

PACKAGE OUTLINE

TO247-2



M3 Screw: 1Nm (8.8lbf-in)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.85	5.10	0.191	0.200
A1	2.20	2.60	0.087	0.102
A2	1.90	2.10	0.075	0.083
b	1.00	1.40	0.039	0.055
b1	1.80	2.20	0.071	0.087
b2	2.80	3.20	0.110	0.126
c	0.50	0.70	0.020	0.028
D	20.30	20.60	0.799	0.811
E	15.45	15.75	0.608	0.620
e	5.45 BSC		0.215 BSC	
E1	13.46	14.02	0.530	0.552
E2	4.27	4.52	0.168	0.178
E3	1.40	1.65	0.055	0.065
L	20.30	21.00	0.799	0.827
L1	4.20	4.80	0.165	0.189
h	0.00	0.30	0.000	0.012
Φ P	7.10	7.30	0.280	0.287
Φ P1	3.50 BSC		0.138 BSC	
Φ P2	3.60 BSC		0.142 BSC	
S	5.98 BSC		0.235 BSC	

Unique Lot Assembly Code	
YY	Last two digits of assembly year (e.g. 18 = 2018)
WW	Assembly week (01 to 52)
M	Assembly location code
NN	Assembly lot code (01 to 99)

REVISION HISTORY

Revision	Date	Description
1A	2018-07-19	First release
1B	2018-Aug-09	Amended links in Contact Us Section

IMPORTANT NOTICE & DISCLAIMER

Information in this document supersedes and replaces all information previously supplied. Information in this document is provided solely in connection with CALY Technologies products.
The information contained herein is believed to be reliable. CALY Technologies makes no warranties regarding the information contained herein. CALY Technologies assumes no responsibility or liability whatsoever for any of the information contained herein. CALY Technologies assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. CALY Technologies reserves the right to make changes, corrections, modifications or improvements to this document and the information herein without notice. Customers should obtain and verify the latest relevant information before placing orders for CALY Technologies products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.
Unless expressly approved in writing by an authorized representative of CALY Technologies, CALY Technologies products are not designed, authorized or warranted for use in military, aircraft, space, life-saving, or life-sustaining applications, nor in products or systems where failure or malfunction may result in personal injury, death, or property or environmental damage.
General Sales Terms & Conditions apply.

CONTACT US

For more information on CALY Technologies' products, technical support or ordering:
Website: caly-technologies.com
Email: sales@caly-technologies.com
info@caly-technologies.com

CALY Technologies SAS
CS52132
56 Bd Niels Bohr, Bat CEI2
69603 Villeurbanne Cedex
France