

1200V, 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

KE12DJ02 is a family of high performance 1200V, 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.

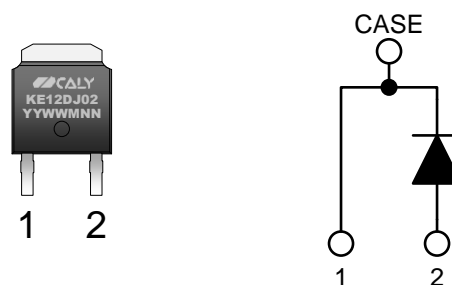
APPLICATIONS

- ▲ 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}	1200V
I_F ($T_C=25^\circ\text{C}$)	6A
I_F ($T_C=165^\circ\text{C}$)	2A
Q_C	20nC

PACKAGING



QUICK ORDERING INFORMATION

Part Number	Package	Marking
KE12DJ02T52	TO-252-2L (DPAK)	KE12DJ02

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

ABSOLUTE MAXIMUM RATINGS

Unless otherwise stated, specification applies for $T_C=25^\circ\text{C}$.

Parameter	Symbol	Values	Unit	Note/Test Condition
DC Blocking Voltage	V_R	1200	V	
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V	$T_J=25^\circ\text{C}$
Surge Peak Reverse Voltage	V_{RSM}	1200	V	
Continuous Forward Current	I_F	12	A	$T_C=25^\circ\text{C}$
		5		$T_C=140^\circ\text{C}$
		2		$T_C=165^\circ\text{C}$
Repetitive Peak Forward Surge Current	I_{FRM}	15	A	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$ half sinewave
Non-repetitive Peak Forward Surge Current	I_{FSM}	100	A	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$ half sinewave
Operating Temperature Range	T_J	-55 to +175	$^\circ\text{C}$	
Storage Temperature Range	T_{STG}	-55 to +175	$^\circ\text{C}$	

ELECTRICAL CHARACTERISTICS

 Unless otherwise stated, specification applies for $-55^{\circ}\text{C} < T_j < 175^{\circ}\text{C}$.

Parameter	Symbol	Values			Unit	Note/Test Condition
		Min	Typ	Max		
Forward Voltage	V_F		1.36	1.7	V	$I_F=2\text{A}, T_j=25^{\circ}\text{C}$
			1.86	2.5		$I_F=2\text{A}, T_j=175^{\circ}\text{C}$
Reverse Current	I_R		4	100	μA	$V_R=1200\text{V}, T_j=25^{\circ}\text{C}$
			9	200		$V_R=1200\text{V}, T_j=175^{\circ}\text{C}$
Total Capacitive Charge	Q_C		20		nC	$V_R=800\text{V}, T_j=150^{\circ}\text{C}$
Total Capacitance			255	300	pF	$V_R=0\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$
			19	25		$V_R=400\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$
			18	20		$V_R=800\text{V}, T_j=25^{\circ}\text{C}, f=1\text{MHz}$

THERMAL CHARACTERISTICS

Parameter	Symbol	Values			Unit	Note/Test Condition
		Min	Typ	Max		
Thermal Resistance, Junction-to-Case	R_{thJC}		2.65		$^{\circ}\text{C/W}$	

DETAILED ORDERING INFORMATION


Part Number	Temperature Range	Package	Pin Count	Marking
KE12DJ02B	-55°C to $+175^{\circ}\text{C}$	Bare die	2	
KE12DJ02T52	-55°C to $+175^{\circ}\text{C}$	TO-252-2LD	2	KE12DJ02

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

PACKAGE OUTLINES
TO-252AA-2LD (DPAK)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.38		
A1	0	0.127		
b	0.64	0.88		
b2	0.77	1.14		
b3	5.21	5.46		
c	0.46	0.60		
c2	0.46	0.58		
D	6.00	6.223		
D1	5.21	--		
E	6.40	6.731		
E1	4.40	--		
H	9.40	10.40		
L	1.40	1.77		
L1	2.743 REF			
L2	0.508 BSC			
L3	0.89	1.27		
L5	1.145	1.52		

Unique Lot Assembly Code

YY	Last two digits of assembly year (e.g. 16 = 2016).
WW	Assembly week (01 to 52).
M	Assembly location code.
NN	Assembly lot code (01 to 99).

REVISION HISTORY

Revision	Date	Description
1A	2018-Feb-27	First release
1B	2018-Aug-08	Amended links in Contact Us Section

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