

1700V, 10A 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

KE17DJ10 is a family of high performance 1700V, 10A Silicon Carbide (SiC) Schottky with enhanced surge current capabilities, bale 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.

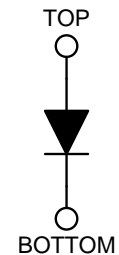
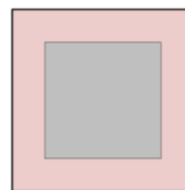
APPLICATIONS

- ▲ 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}	1700V
I_F	10A
Q_C	75nC

DIE OUTLINE



Top: anode
Bottom : cathode

QUICK ORDERING INFORMATION

Part Number	Package	Marking
KE17DJ10B	Bare die	
KE17DJ10T47	TO-247-2L	KE17DJ10

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	1700	V	
Repetitive Peak Reverse Voltage	V_{RRM}	1700	V	$T_j=25^\circ\text{C}$
Surge Peak Reverse Voltage	V_{RSM}	1700	V	
Continuous Forward Current	I_F	10	A	$T_c=150^\circ\text{C}$, $R_{\theta JC}<1.2^\circ\text{C/W}$
Repetitive Peak Forward Surge Current	I_{FRM}	50	A	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$ half sinewave
Non-repetitive Peak Forward Surge Current	I_{FSM}	300	A	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, pulse
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	Min	Values		Unit	Note/Test Condition	
			Typ	Max			
Forward Voltage	V_F	-	1.4 2.1	1.8 2.5	V	$T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$	$I_F=10\text{A}$
Reverse Current	I_R	-	30 50	100 200	μA	$T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$	$V_R=1700\text{V}$
Total Capacitive Charge	Q_C	-	77	-	nC	$V_R=1700\text{V}$, $I_F=10\text{A}$ $di/dt=400\text{A}/\mu\text{s}$	$T_J=25^{\circ}\text{C}$
Total Capacitance	C	-	1400 90 66	1600 120 80	pF	$V_R=1\text{V}$ $V_R=560\text{V}$ $V_R=1330\text{V}$	$f=1\text{MHz}$, $T_J=25^{\circ}\text{C}$

TYPICAL PERFORMANCE

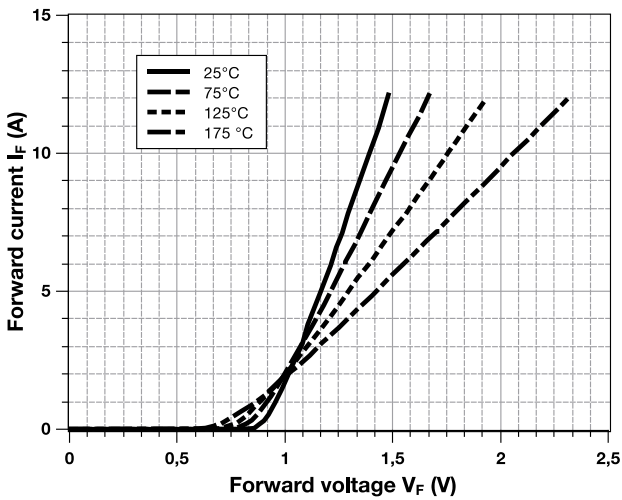


Fig 1. Typical Forward I-V characteristics over Temperature.

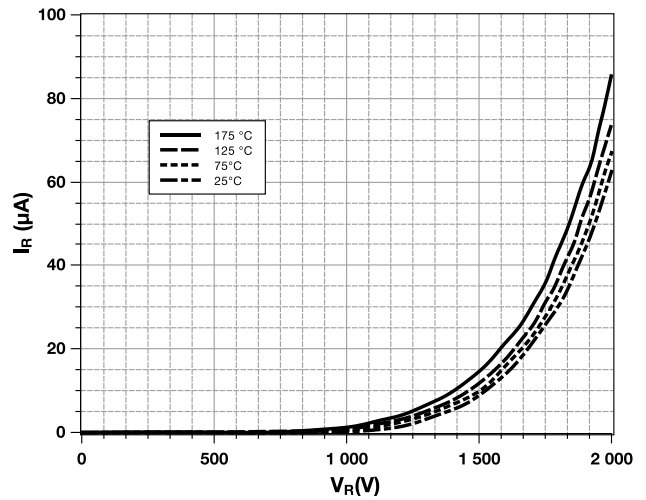


Fig 2. Typical Reverse I-V characteristics over Temperature.

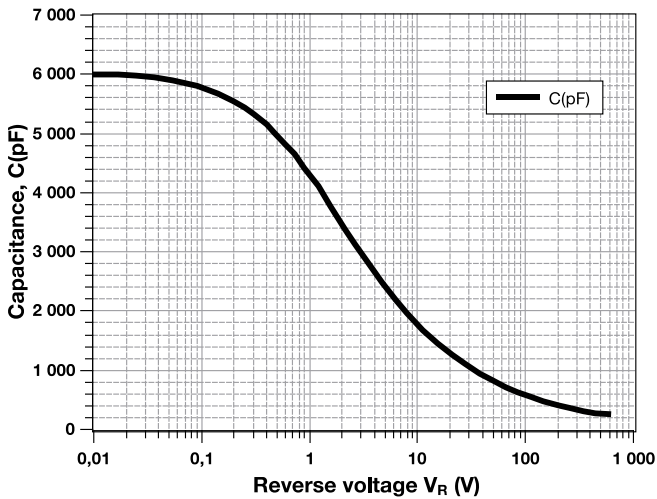


Fig 3. Diode Capacitance C(pF) versus reverse voltage.

DETAILED ORDERING INFORMATION

K ↓ Source K = CALY Technologies	E ↓ Temperature range: E = -55°C to +175°C	17 ↓ Rated Voltage: 17 = 1700V	DJ ↓ Device / Type DJ = Diode / JBS (MPS)	10 ↓ Rated Current: 10 = 10A	B ↓ Package: B = Bare Die
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Part Number	Temperature Range	Package	Pin Count	Marking
KE17DJ10B	-55°C to +175°C	Bare die		
KE17DJ10T47	-55°C to +175°C	TO-247-2L	2	KE17DJ10

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

BARE DIE INFORMATION

	Ref.	Dimensions	
		Millimeters	
	A	3.6	0.14
	B	3.6	0.14
	C	2.5	0.1
	D	2.5	0.1
	Top	Al (4 μm)	
	Bottom	Ag (1.2 μm)	

REVISION HISTORY

Revision	Date	Description
1A	2018-06-25	First issue
1B	2018-Aug-08	Amended links in Contact Us Section

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