

1700V, 25A 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

KE17DJ25 is a family of high performance 1700V, 25A 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.

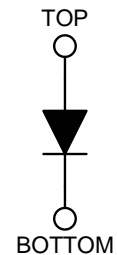
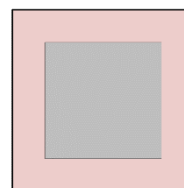
APPLICATIONS

- ▲ Rectification, Voltage Blocking, Boost and Free Wheeling
- ▲ EV Chargers
- ▲ 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	25A
Q_C	155nC

DIE OUTLINE



Top: anode
Bottom : cathode

QUICK ORDERING INFORMATION

Part Number	Package	Marking
KE17DJ25B	Bare die	
KE17DJ25T47	TO-247-2L	KE17DJ25

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	25	A	$T_J=175^\circ\text{C}$
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		1.6 2.8	1.8 3.3	V	$T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$	$I_F=25\text{A}$
Reverse Current	I_R		9 100	50 405	μA	$T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$	$V_R=1700\text{V}$
Total Capacitive Charge	Q_C		155 255		nC	$V_R=800\text{V}$ $V_R=1700\text{V}$	$I_F=25\text{A}$ $di/dt=200\text{A}/\mu\text{s}$ $T_J=25^{\circ}\text{C}$
Total Capacitance	C		2050 127 108		pF	$V_R=0.1\text{V}$ $V_R=500\text{V}$ $V_R=1000\text{V}$	$f=1\text{MHz}$, $T_J=25^{\circ}\text{C}$

TYPICAL PERFORMANCE

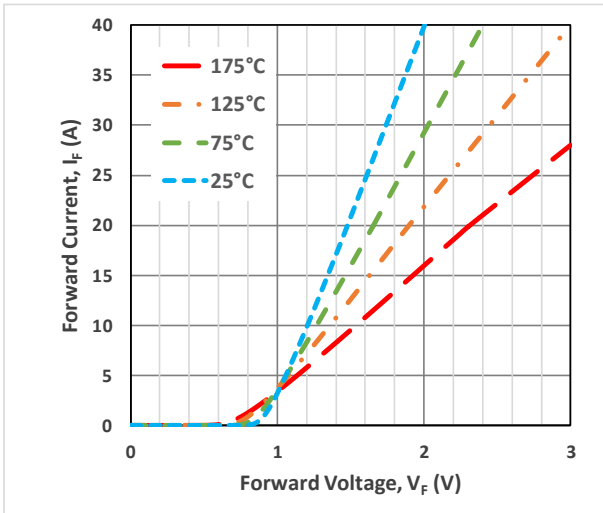


Fig 1. Typical Forward I-V characteristics over Temperature.

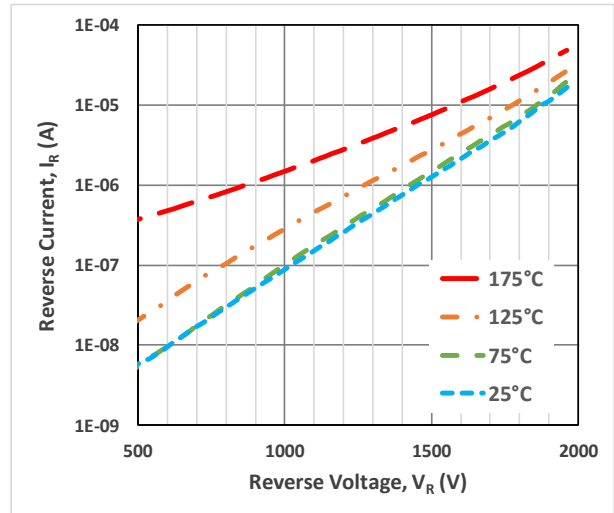


Fig 2. Typical Reverse I-V characteristics over Temperature.

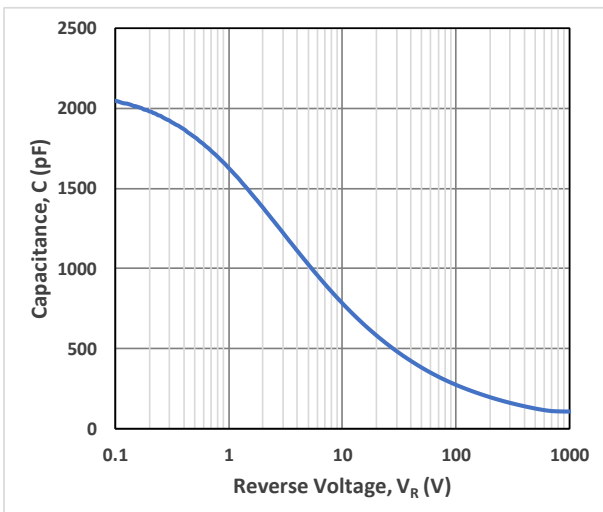


Fig 3. Diode Capacitance C(pF) versus reverse voltage.

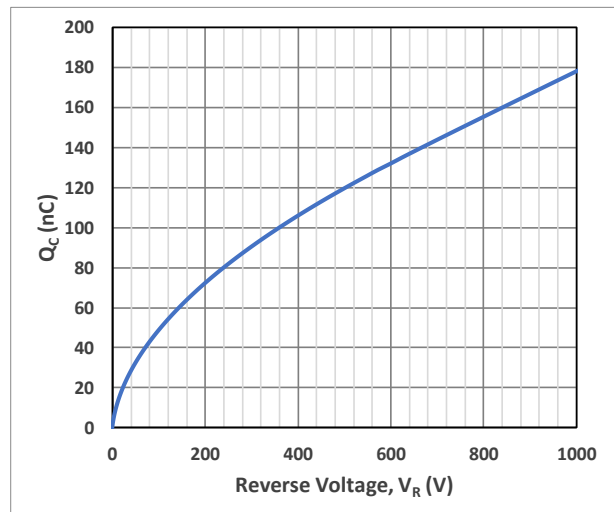


Fig 4. Typical capacitive charge (nC) versus reverse voltage.

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)	25 ↓ Rated Current: 25 = 25A	B ↓ Package: B = Bare Die
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Part Number	Temperature Range	Package	Pin Count	Marking
KE17DJ25B	-55°C to +175°C	Bare die		
KE17DJ25T47	-55°C to +175°C	TO-247-2L	2	KE17DJ25

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

BARE DIE INFORMATION

	Ref.	Dimensions	
		Millimeters	Inches
	A	4.8	0.189
	B	4.8	0.189
	C	3.1	0.122
	D	3.1	0.122
	Top	Al (4 μm)	
Bottom	Ag (1.2 μm)		

REVISION HISTORY

Revision	Date	Description
1A	2019-11-04	First issue
2A	2019-11-06	Updated values and added curves.

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