

THS80C65DKH

650V 80A SiC Schottky Diode

This Silicon Carbide (SiC) Schottky Diode features zero reverse recovery, temperature-independent switching. It maximizes system efficiency and power density while significantly reducing overall size and cost.



Package view and circuit symbol

General Features • Low Forward Voltage Drop • High-SpeedSwitching • Positive Temperature Coefficient on V_F • Temperature-IndependentSwitchingBehavior • High Surge Current Capability • Zero Reverse Recovery	Applications • SMPS, Solar Inverter, UPS • Power Switching Circuits • Solar Inverters • PFC
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Key Performance Parameters

Parameter	Value	Unit
V_{RRM} , min @ $T_J = 25\text{ }^{\circ}\text{C}$	650	V
T_J , maximum junction temperature	175	$^{\circ}\text{C}$
I_F @ $T_C = 150\text{ }^{\circ}\text{C}$ (Per Leg/Per Device)	40/80	A
I_{FSM} @ $T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ ms}$	250	A
V_F typ. @ $I_F=20\text{A}$	1.32	V
Q_C , typ.	120	nC



Marking Information

Product Name	Package	Marking
THS80C65DKH	TO-247H	THS80C65DKH

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Maximum Ratings ($T_J = 25^\circ\text{C}$, Per Leg, unless otherwise noted)

Parameter		Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$T_C=25^\circ\text{C}$	V_{RRM}	650	V
DC Blocking Voltage	$T_C=25^\circ\text{C}$	V_{DC}	650	V
Continuous forward current (Per Leg/Per Device)	$T_C=25^\circ\text{C}$	I_F	100/200	A
	$T_C=150^\circ\text{C}$		40/80	
Non-Repetitive Forward Surge Current	$T_C=25^\circ\text{C}, t=10\text{ms}$ sine half wave	I_{FSM}	250	A
Avalanche Energy, Single Pulse	$T_J=25^\circ\text{C}, V_{DD}=100\text{V}$ $L=10\text{mH}$	EAS	245	mJ
Power Dissipation	$T_C=25^\circ\text{C}$	P_{tot}	187	W
	$T_C=100^\circ\text{C}$		93	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 To +175	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case(Per Leg/Per Device)	R_{thJC}	0.6/0.3	$^\circ\text{C}/\text{W}$

Electrical Characteristics ($T_J = 25^\circ\text{C}$, Per Leg, unless otherwise specified)

Parameter	Symbol	Test Condition		Value			Unit
				min.	typ.	max.	
DC Blocking Voltage	V_R	$T_J=25^\circ\text{C}$		650	-	-	V
Forward Voltage	V_F	$I_F=40\text{A}$	$T_J=25^\circ\text{C}$	-	1.32	1.61	V
			$T_J=125^\circ\text{C}$	-	1.4	-	
			$T_J=175^\circ\text{C}$	-	1.51	-	
Reverse Current	I_R	$V_R=650\text{V}$	$T_J=25^\circ\text{C}$	-	-	50	μA
			$T_J=125^\circ\text{C}$	-	-	100	
			$T_J=175^\circ\text{C}$	-	-	200	
Total Capacitive Charge	Q_C	$V_R=400\text{V}$		-	120	-	nC
Total Capacitance	C	f=1MHZ	$V_R=0\text{V}$	-	1950	-	pF
		f=1MHZ	$V_R=200\text{V}$		230		
		f=1MHZ	$V_R=400\text{V}$		165		

Typical Performance Characteristics

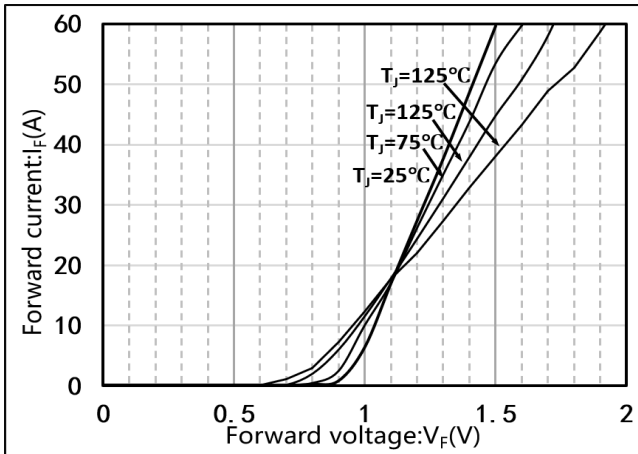


Fig 1. Forward Characteristics

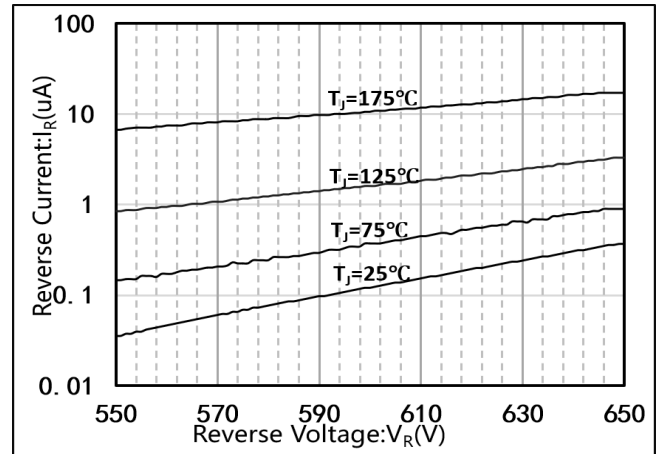


Fig 2. Reverse Characteristics

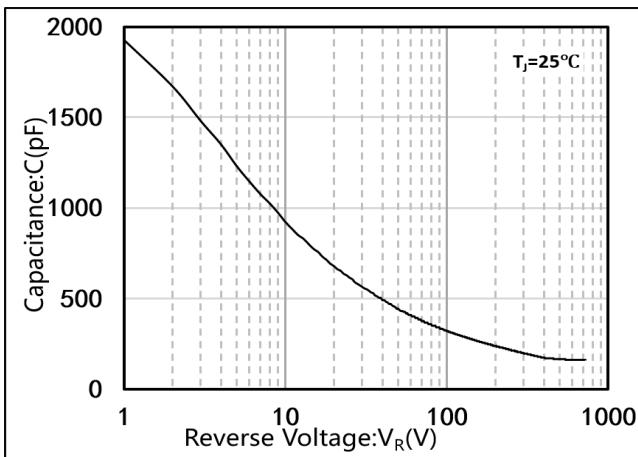


Fig 3. Capacitance Charge vs. Reverse Voltage

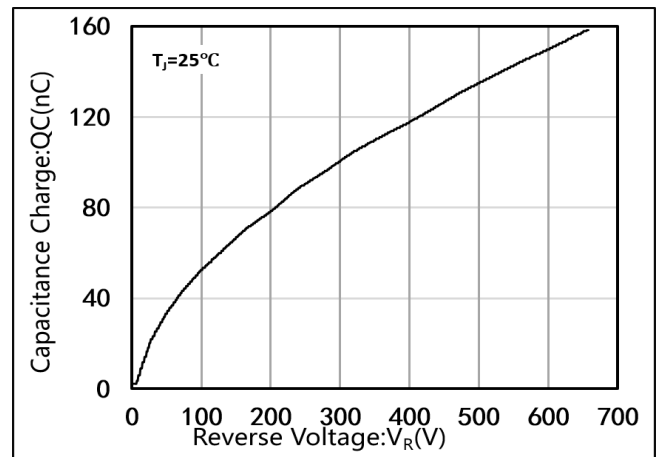
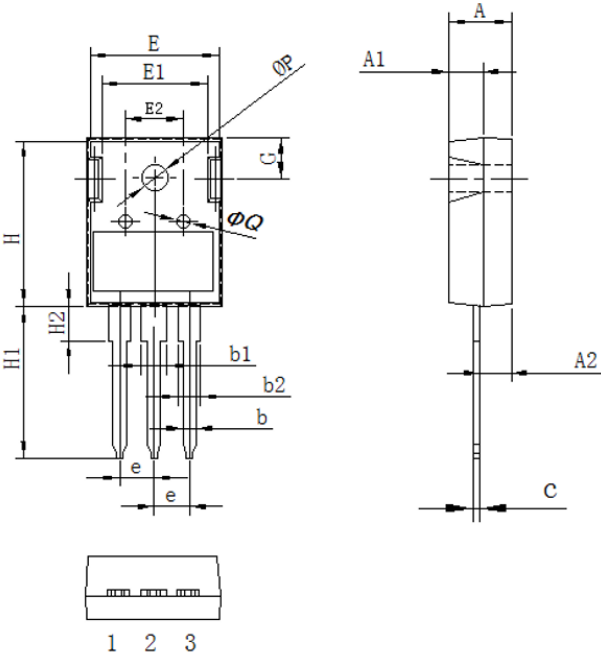


Fig 4. Capacitance vs. Reverse Voltage

Package Information

基本尺寸



Symbol	单位 mm		
	Min	Nom	Max
A	4.80	5.00	5.20
A1	2.80	3.00	3.20
A2	2.20	2.40	2.60
b	1.05	1.20	1.35
b1	2.80	3.00	3.20
b2	1.80	2.00	2.20
c	0.50	0.60	0.70
e	5.35	5.45	5.75
E	15.6	15.80	16.0
E1	12.3	12.50	12.7
E2	6.00	6.20	6.40
H	20.5	21.0	21.5
H1	19.0	20.0	21.0
H2	3.00	4.00	5.00
G	5.70	5.90	6.10
ΦP	3.30	3.50	3.50
ΦQ	2.30	2.50	2.70

Notice

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