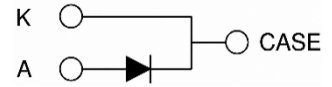
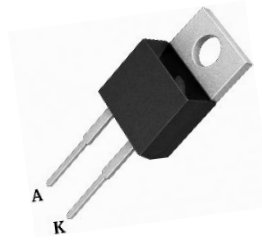


THS20C65SAC2

650V 20A 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-Speed Switching
- Positive Temperature Coefficient on V_F
- Temperature-Independent Switching Behavior
- High Surge Current Capability
- Zero Reverse Recovery

Applications

- SMPS, Solar Inverter, UPS
- Power Switching Circuits
- Solar Inverters
- PFC

Key Performance Parameters

Parameter	Value	Unit
V_{RRM} , min @ $T_J = 25^\circ\text{C}$	650	V
T_J , maximum junction temperature	175	$^\circ\text{C}$
I_F @ $T_C = 150^\circ\text{C}$ (Per Leg/Per Device)	20	A
I_{FSM} @ $T_C = 25^\circ\text{C}$, $t_p = 8.3\text{ ms}$	160	A
V_F typ. @ $I_F = 20\text{A}$	1.3	V
Q_C , typ.	41	nC



Marking Information

Product Name	Package	Marking
THS20C65SAC2	TO-220C-2L	THS20C65SAC2

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Maximum Ratings ($T_J = 25^\circ\text{C}$, 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	$T_C=25^\circ\text{C}$	I_F	66	A
	$T_C=135^\circ\text{C}$		30	
	$T_C=155^\circ\text{C}$		20	
Non-Repetitive Forward Surge Current	$T_J=25^\circ\text{C}, t=8.3\text{ms}$ sine half wave	I_{FSM}	160	A
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_{tot}	170	W
	$T_C=100^\circ\text{C}$		85	
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	R_{thJC}	0.88	$^\circ\text{C/W}$

Electrical Characteristics ($T_J = 25^\circ\text{C}$, 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	$I_F=20\text{A}$	$T_J=25^\circ\text{C}$	-	1.3	1.5	V
			$T_J=175^\circ\text{C}$	-	1.4	1.7	
Reverse Current	I_R	$V_R=650\text{V}$	$T_J=25^\circ\text{C}$	-	10	100	μA
			$T_J=175^\circ\text{C}$	-	40	400	
Total Capacitance	C	f=1MHZ	$V_R=0\text{V}$	-	1210	-	pF
		f=1MHZ	$V_R=200\text{V}$	-	124	-	
		f=1MHZ	$V_R=400\text{V}$	-	90	-	
Total Capacitive Charge	Q_C	$V_R=400\text{V}$		-	41	-	nC
Capacitance Stored Energy	E_C	$V_R=400\text{V}$		-	6	-	μJ

Typical Performance Characteristics

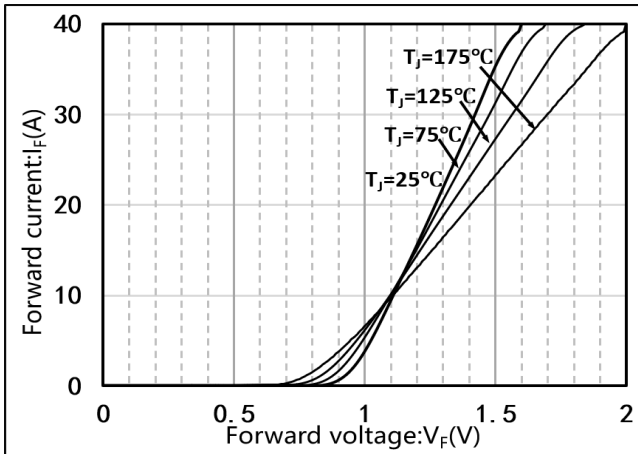


Fig 1. Forward Characteristics

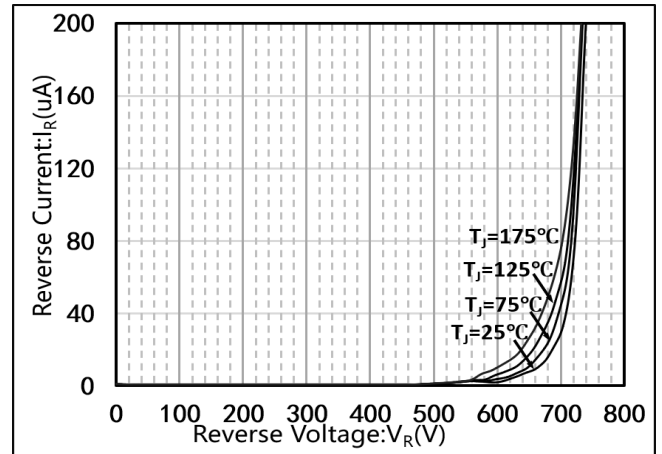


Fig 2. Reverse Characteristics

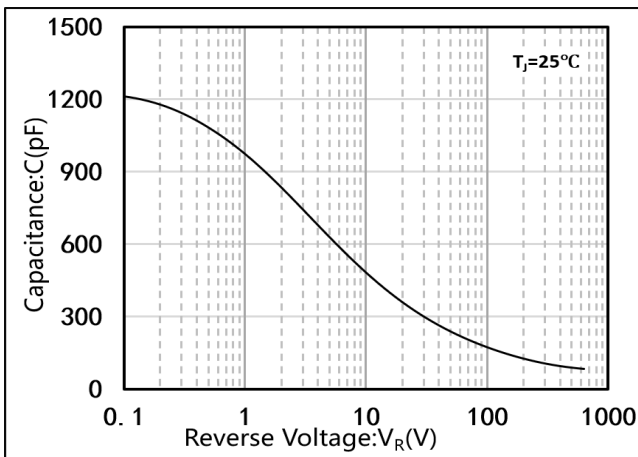


Fig 3. Capacitance Charge vs. Reverse Voltage

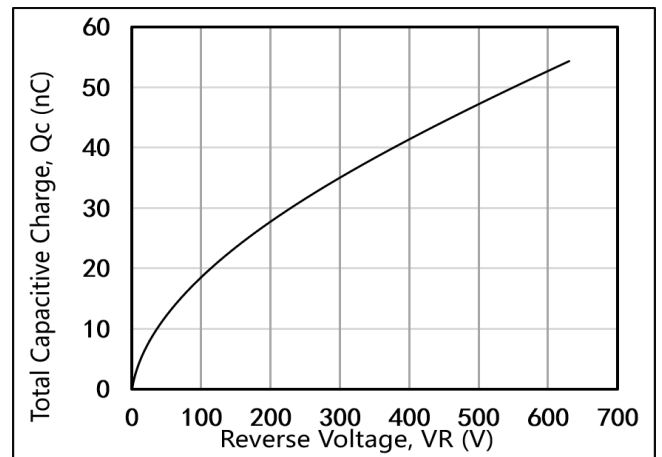


Fig 4. Capacitance vs. Reverse Voltage

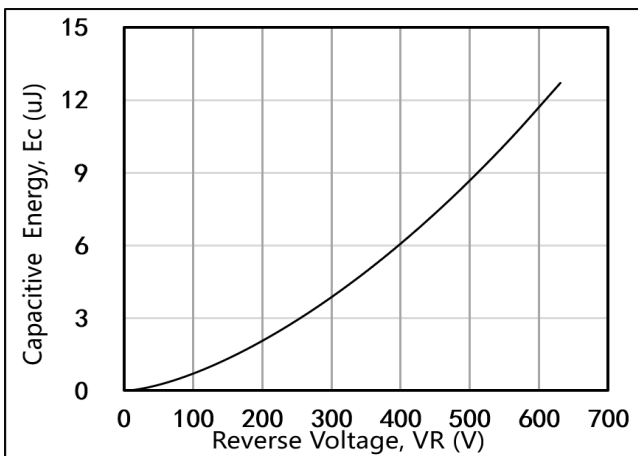


Fig 5. Capacitance Energy vs. Reverse Voltage

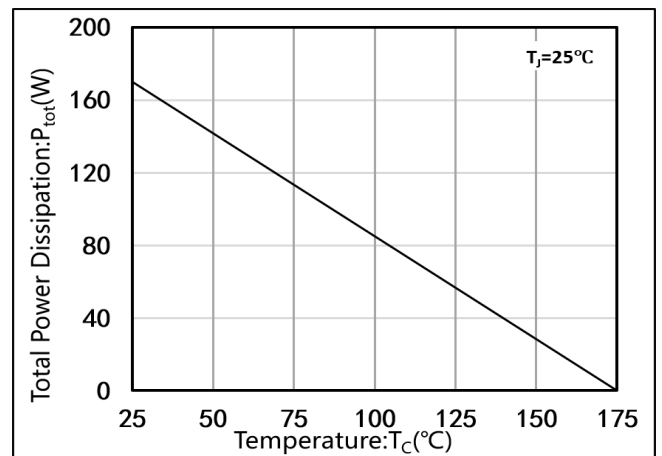


Fig 6. Power Dissipation vs. Temperature

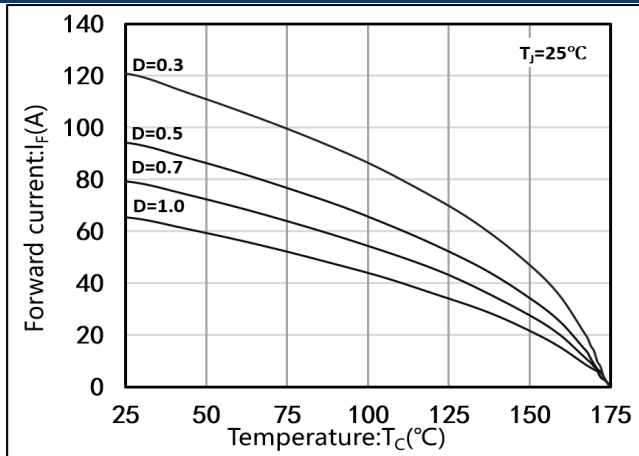


Fig 7. Current Derating

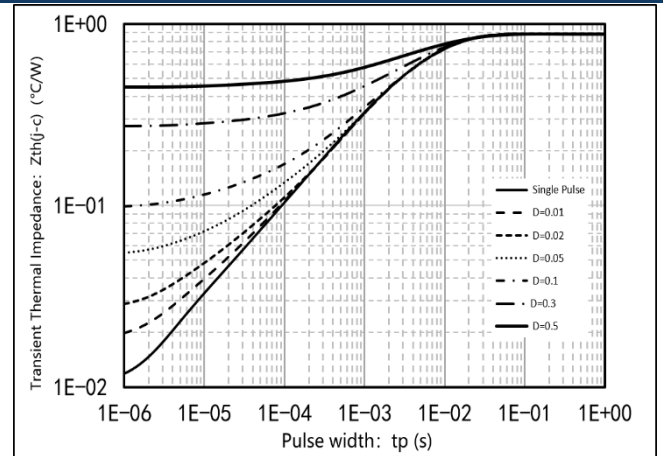
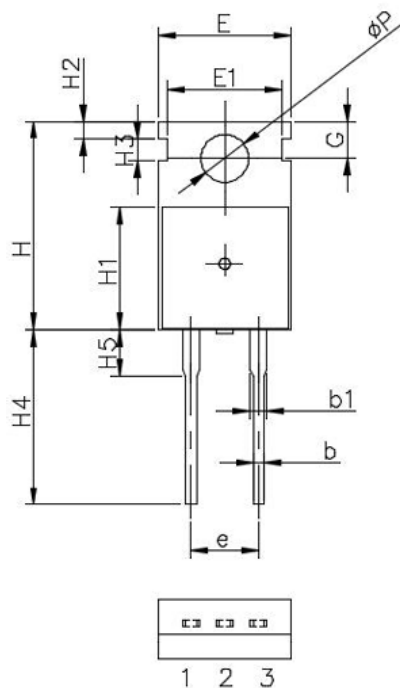


Fig 8. Transient Thermal Impedance

Package Information



Symbol	单位 mm		
	Min	Nom	Max
A	4.30	4.5	4.70
A1	1.20	1.30	1.40
A2	2.20	2.4	2.60
b	0.60	0.8	1.00
b1	1.20	1.30	1.40
c	0.40	0.5	0.60
e	4.98	5.08	5.18
E	9.80	10.0	10.2
E1	8.50	8.70	8.90
H	15.5	15.7	15.9
H1	9.00	9.2	9.40
H2	1.10	1.34	1.50
H3	1.50	1.7	1.90
H4	12.9	13.3	13.7
H5	2.80	3.0	3.20
G	2.60	2.8	3.00
ΦP	3.40	3.6	3.80

Notice

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