

V_{RRM}	=	650	V
$I_F (AVG)$	=	30	A
Q_C	=	63	nC

Silicon Carbide Schottky Diode

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching
- 175°C Operating Junction Temperature

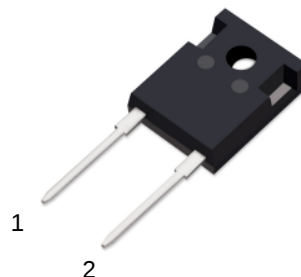
Benefits

- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor drive, PV Inverter, Wind Power Station

Package



TO-247-2L



Part Number	Package	Marking
THS30C65SK2	TO-247-2L	THS30C65SK2

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	$T_C = 25^\circ\text{C}$	
V_{RSM}	Surge Peak Reverse Voltage	650	V	$T_C = 25^\circ\text{C}$	
V_R	DC Blocking Voltage	650	V	$T_C = 25^\circ\text{C}$	
$I_F (AVG)$	Average Forward Current	50 40 30	A	$T_C \leq 115^\circ\text{C}$ $T_C \leq 130^\circ\text{C}$ $T_C \leq 145^\circ\text{C}$	
I_{FSM}	Non-Repetitive Forward Surge Current	225	A	$T_C = 25^\circ\text{C}$, $t_p = 8.3\text{ms}$, Half Sine Wave	
P_{tot}	Power Dissipation	230	W	$T_C = 25^\circ\text{C}$	
T_C	Maximum Case Temperature	144	$^\circ\text{C}$		
T_J, T_{STG}	Operating Junction and Storage Temperature	-55 to 175	$^\circ\text{C}$		
	TO-247 Mounting Torque	1	Nm	M3 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.3 1.4	1.5 1.8	V	$I_F = 30A, T_J = 25^{\circ}C$ $I_F = 30A, T_J = 175^{\circ}C$	Fig.1
I_R	Reverse Current	20 100	200 1000	μA	$V_R = 650V, T_J = 25^{\circ}C$ $V_R = 650V, T_J = 175^{\circ}C$	Fig.2
C	Total Capacitance	1720 175 130	/	pF	$V_R = 0.1V, T_J = 25^{\circ}C, f = 1MHz$ $V_R = 200V, T_J = 25^{\circ}C, f = 1MHz$ $V_R = 400V, T_J = 25^{\circ}C, f = 1MHz$	Fig.3
Q_C	Total Capacitive Charge	63	/	nC	$V_R = 400V, I_F = 30A$ $di/dt = 200A/\mu s, T_J = 25^{\circ}C$	Fig.4

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.62	$^{\circ}C/W$	

Typical Performance

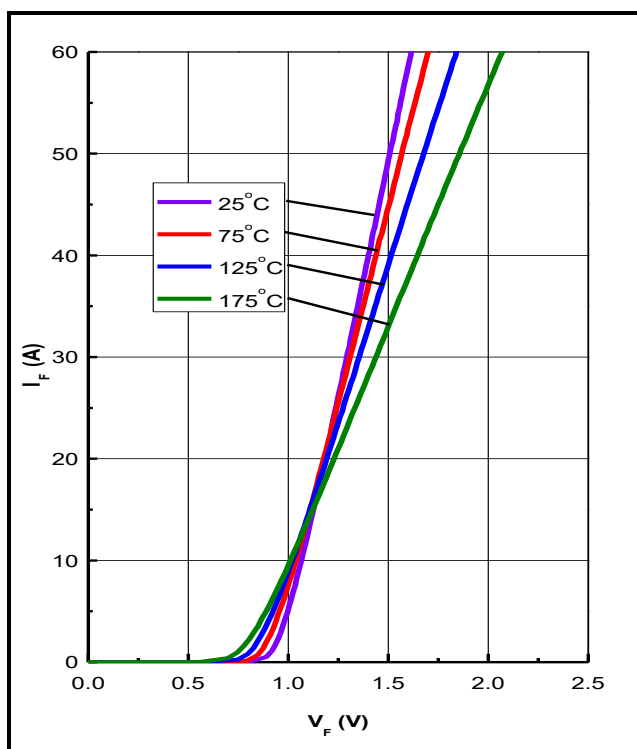


Figure 1. Forward Characteristics

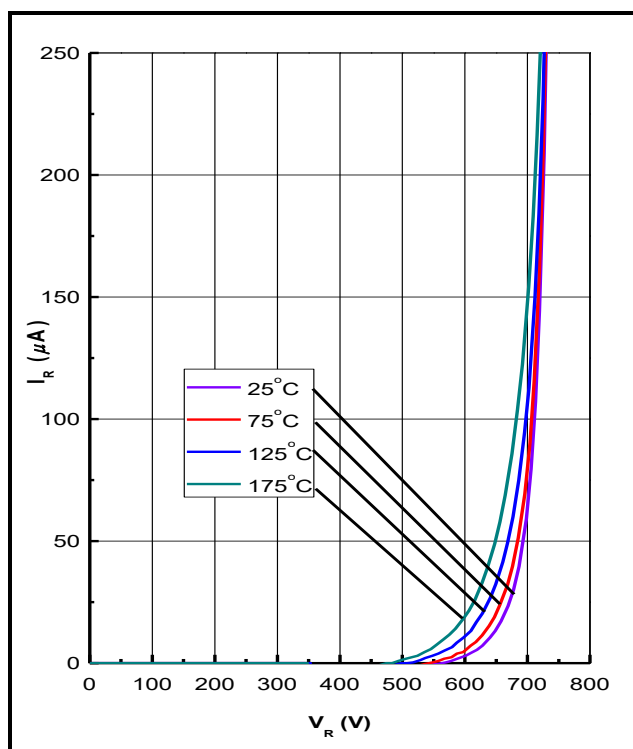


Figure 2. Reverse Characteristics

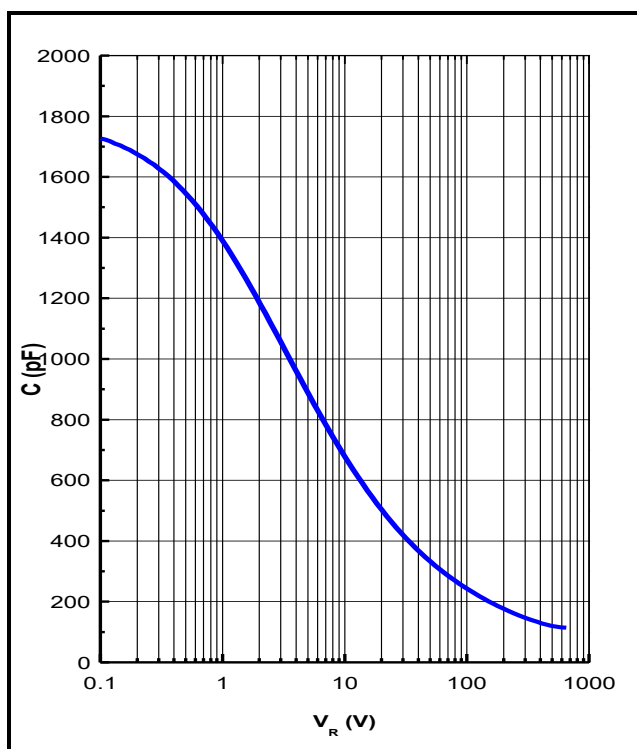


Figure 3. Total Capacitance vs. Reverse Voltage

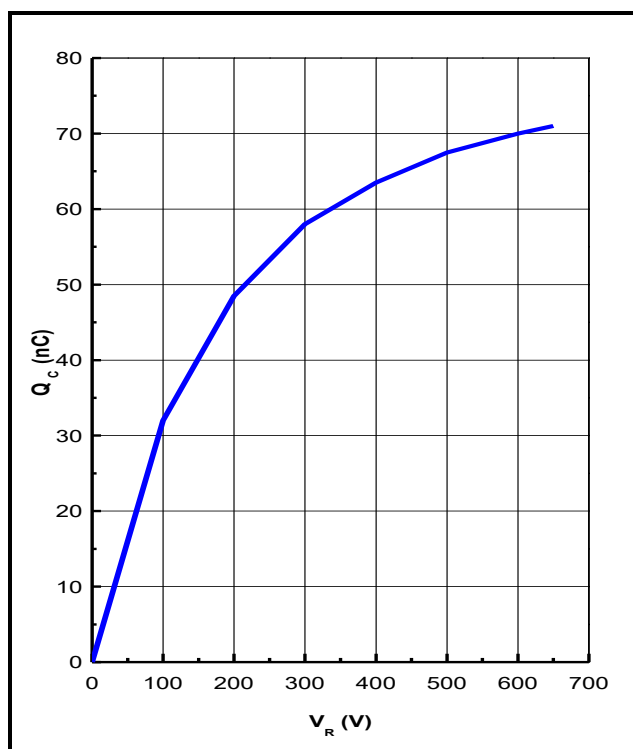
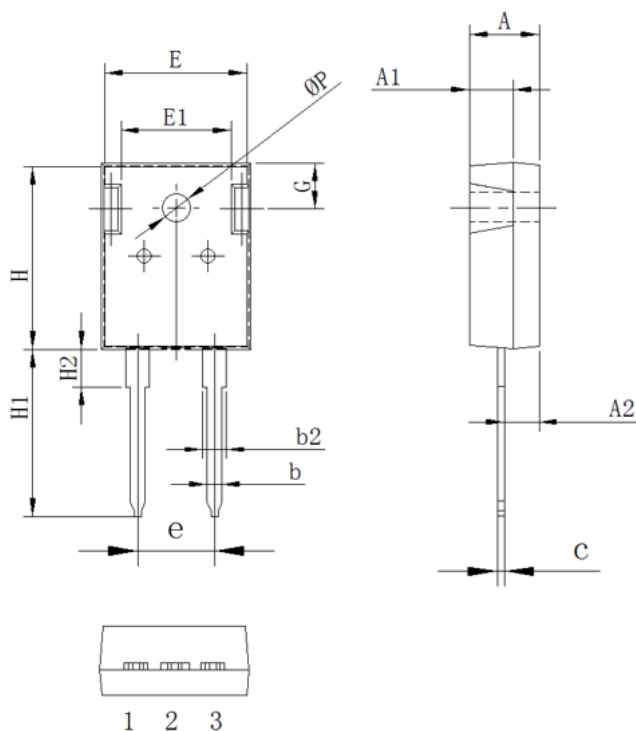


Figure 4. Total Capacitive Charge vs. Reverse Voltage

Package Information

TO-247-2L PACKAGE



symbol	单位mm		
	Min	Nom	Max
A	4.8	5.00	5.20
A1	3.3	3.5	3.7
A2	2.20	2.40	2.60
b	1.00	1.2	1.40
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
c	0.50	0.60	0.70
e	10.5	10.9	11.3
E	15.2	15.7	16.2
E1	10.2	10.7	11.2
H	20.8	21	21.2
H1	19.5	20.0	20.5
H2	4.00	4.20	4.40
G	5.60	5.80	6.00
ΦP	3.50	3.70	3.90

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