Features

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on V_F
- Temperature Independent Switching Behavior
- High surge current capability



TO-247-2

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection

Applications

- Server/Telecom Power Supplies
- Solar Inverters
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies



Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	T_j = 25˚C	650	V
Surge Peak Reverse Voltage	V_{RSM}	T_j = 25˚C	650	V
DC Blocking Voltage	V_R	T_C = 25˚C	650	V
Forward Current	I_F	T_C ≤ 135˚C T_C ≤ 150˚C	35 30	A
Non-Repetitive Forward Surge Current	I_{FSM}	T_C = 25˚C, t_p = 8.3ms, Half Sine Wave	210	A
Power Dissipation	P_{tot}	T_C = 25˚C	234	W
Maximum Case Temperature	T_C		143	˚C
Operating Junction and Storage Temperature	T_J, T_{STG}		-55 to 175	˚C
TO-247 Mounting Torque		M3 Screw	1	Nm

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SC6D30065H	TO-247-2	SC6D30065H	-55 to 175°C	1	TUBE,450	Rohs

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 30A, T_J = 25°C I_F = 30A, T_J = 175°C	1.5 1.78	1.8 2.3	V
Reverse Current	I_R	V_R = 650V, T_J = 25°C V_R = 650V, T_J = 175°C	2 15	20 200	μA
Total Capacitance	C	V_R = 0V, T_J = 25°C, f = 1MHz V_R = 200V, T_J = 25°C, f = 1MHz V_R = 400V, T_J = 25°C, f = 1MHz	1805 176 145	/	pF
Total Capacitive Charge	Q_C	V_R = 650V, I_F = 30A di/dt = 200A/μs, T_J = 25°C	66	/	nC

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.64	°C/W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	80	°C/W
Soldering Temperature	T_{sold}	260	°C

Typical Performance

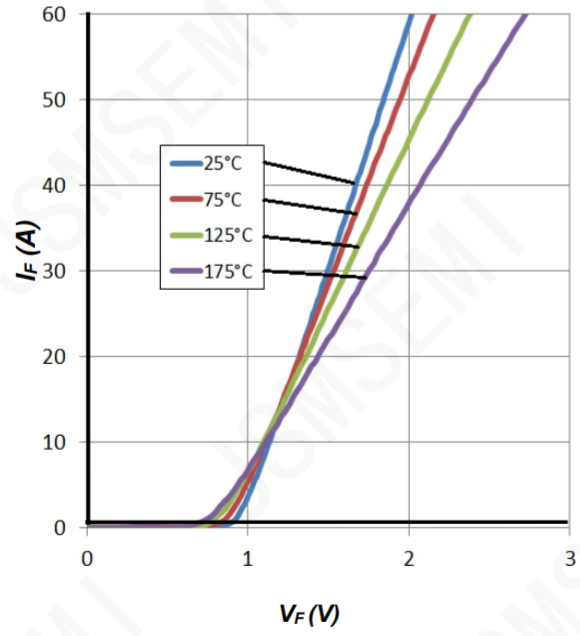


Figure 1. Forward Characteristics

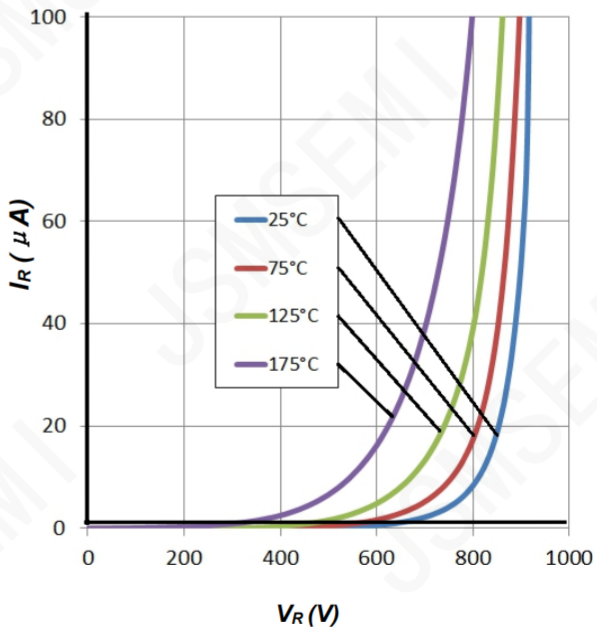


Figure 2. Reverse Characteristics

Typical Performance

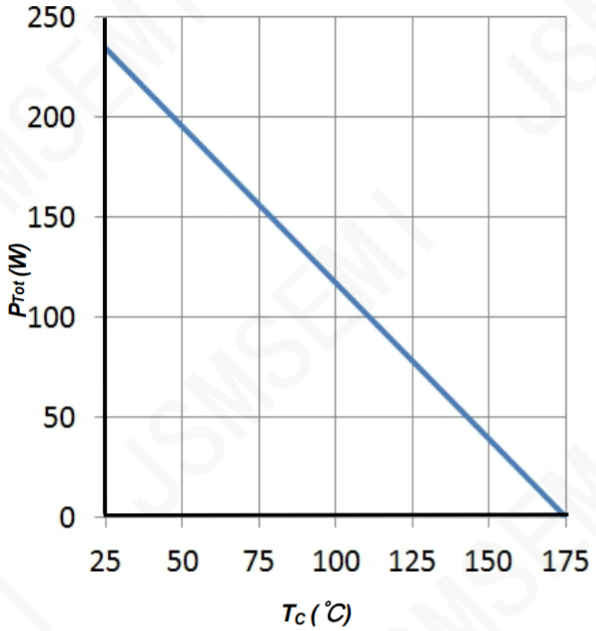


Figure 3. Power Derating

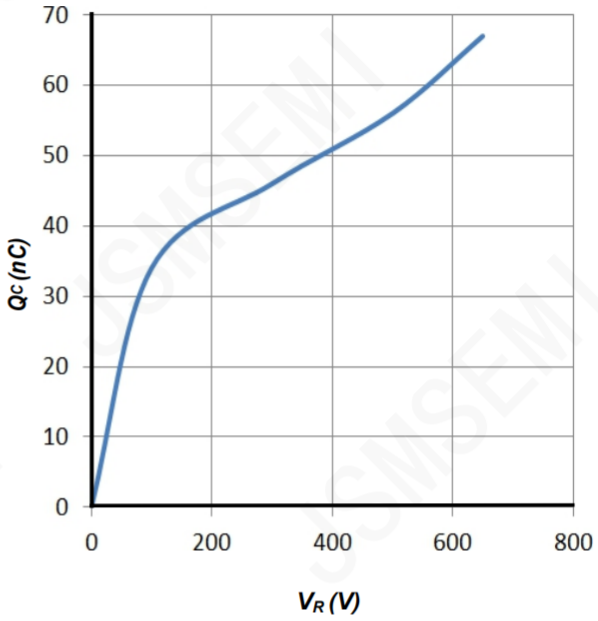


Figure 4. Total Capacitive Charge vs. Reverse Voltage

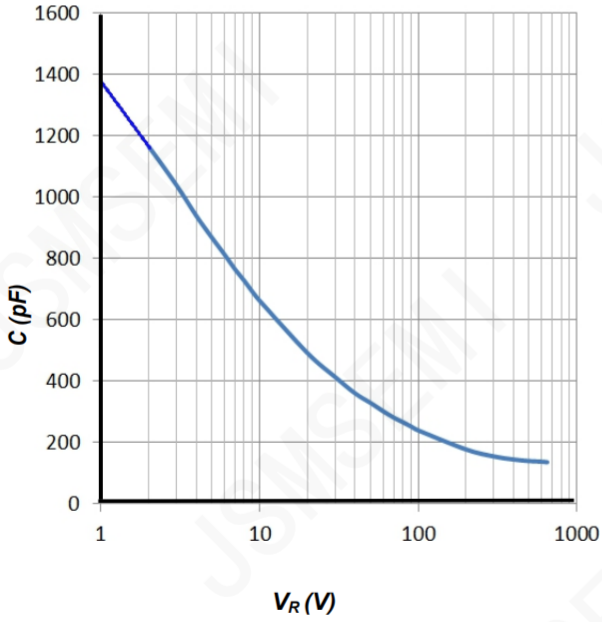


Figure 5. Total Capacitance vs. Reverse Voltage

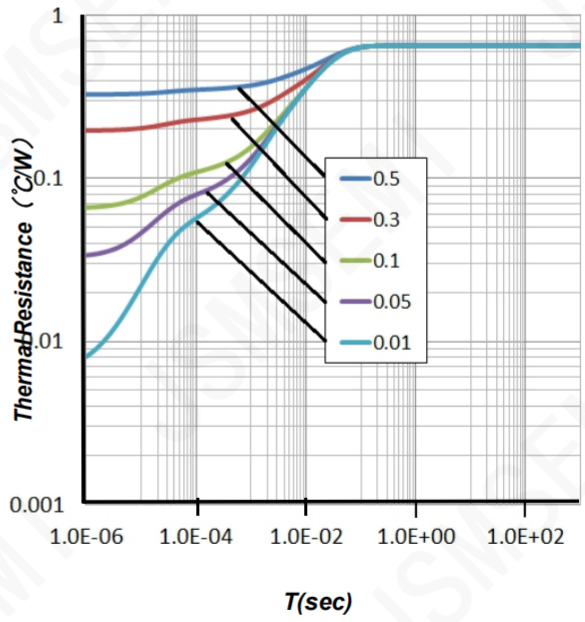
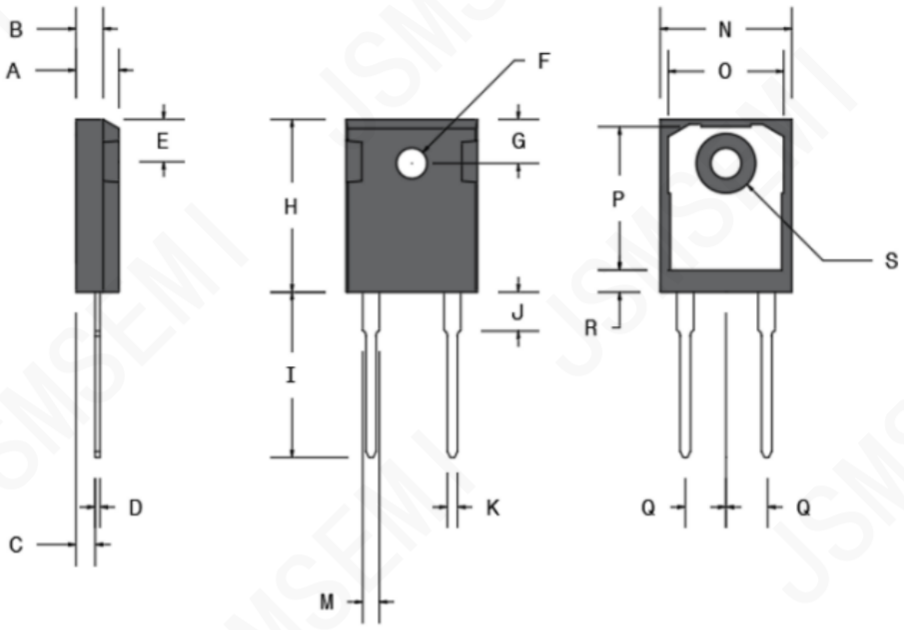


Figure 6. Transient Thermal Impedance

Package Dimensions

(TO-247-2 Package)



SYMBOL	MIN	MAX	MIN	MAX
	[mm]	[mm]	[INCH]	[INCH]
A	4.69	5.31	0.185	0.209
B	1.49	2.49	0.059	0.098
C	2.21	2.59	0.087	0.102
D	0.40	0.79	0.016	0.031
E	5.38	6.20	0.212	0.244
F	3.50	3.81	0.138	0.150
G	6.15BSC		0.242BSC	
H	20.80	21.46	0.819	0.845
I	19.81	20.32	0.780	0.800
J	4.00	4.50	0.157	0.177
K	1.01	1.40	0.040	0.055
L	2.87	3.12	0.113	0.123
M	1.65	2.13	0.065	0.084
N	15.49	16.26	0.610	0.640
O	13.50	14.50	0.531	0.571
P	16.50	17.50	0.650	0.689
Q	5.45BSC		0.215BSC	
R	2.00	2.75	0.079	0.108
S	7.10	7.50	0.280	0.295

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2022

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