STPSC4G065UFY

Silicon Carbide Schottky Diode

General Description

This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.



SMBF

Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction



Part Number	Package	Brand
STPSC4G065UFY	SMBF	HXY MOSFET

Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
V_R	DC Peak Reverse Voltage	650	V	
I_F	Continuous Forward Current	8 4.5 4	A	T_C=25˚C T_C=135˚C T_C=145˚C
I_{FRM}	Repetitive Peak Forward Surge Current	23 15	A	T_C=25˚C, t_P=10 ms, Half Sine Pulse T_C=110˚C, t_P=10 ms, Half Sine Pulse
I_{FSM}	Non-Repetitive Forward Surge Current	36 28	A	T_C=25˚C, t_P=10 ms, Half Sine Pulse T_C=110˚C, t_P=10 ms, Half Sine Pulse
P_{tot}	Power Dissipation	28 11	W	T_C=25˚C T =110˚C
$\int i^2dt$	i^2t value	6.5 3.9	A^2s	T_C=25˚C, t_P=10 ms T_C=110˚C, t_P=10 ms
T_J	Operating Junction Range	-55 to +175	˚C	
T_{stg}	Storage Temperature Range	-55 to +150	˚C	

Electrical Characteristics

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	I_F= 4A T_j=25°C
		-	1.5			T_j=175°C
Reverse Current	I_R	-	10	50	μA	V_R=650V T_j=25°C
		-	40	150		T_j=175°C
Total Capacitive Charge	Q_C	-	10.6	-	nC	V_R=400V，T_j=25°C $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	203	-	pF	T_j=25°C, f=1MHz V_R=0V
		-	21	-		V_R=200V
		-	16	-		V_R=400V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	6.0	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

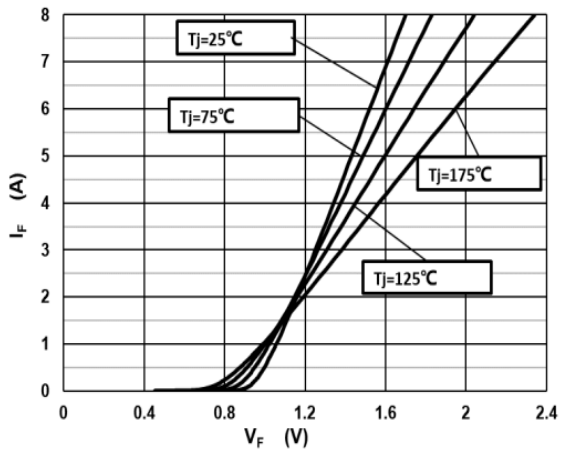


Fig 2: Reverse Characteristics

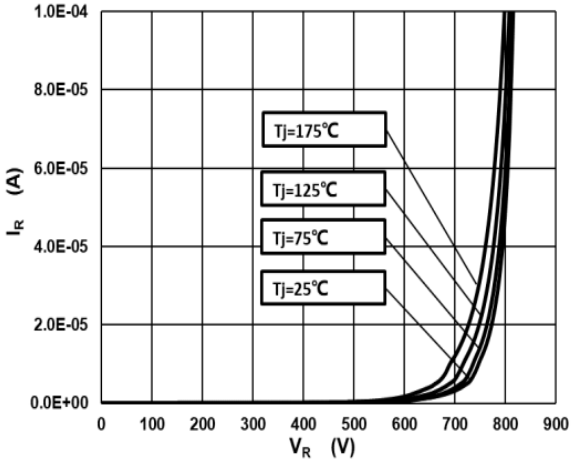


Fig 3: Current Derating

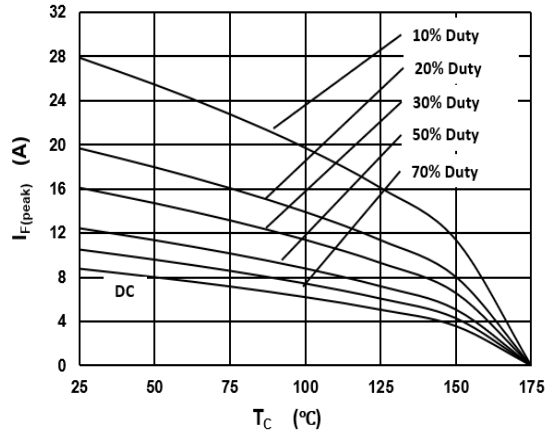


Fig 4: Power Derating

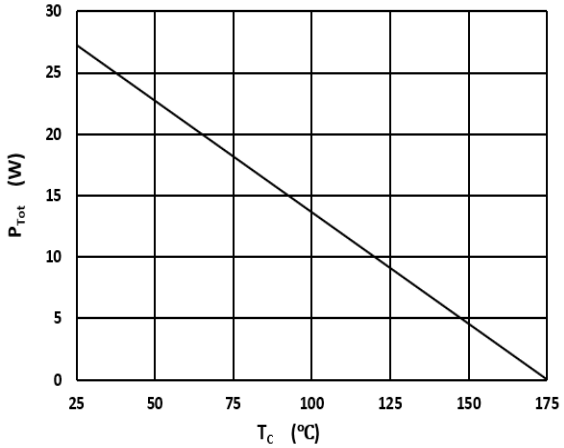


Fig 5: Capacitance vs. Reverse Voltage

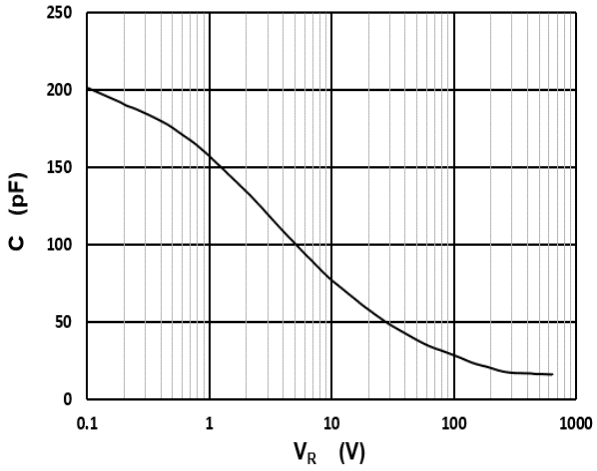


Fig 6: Reverse Charge vs. Reverse Voltage

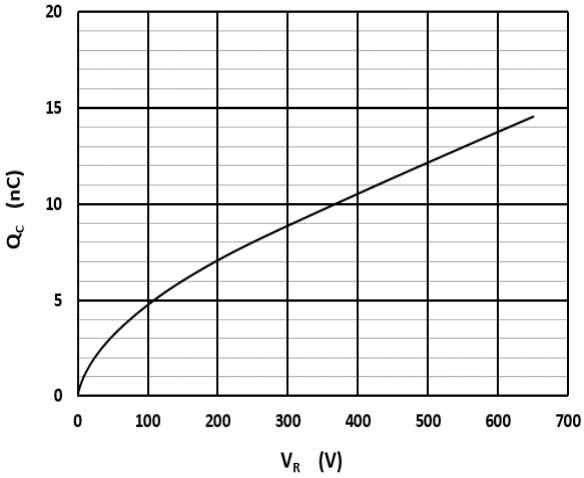


Fig 7: Typical Capacitance Stored Energy

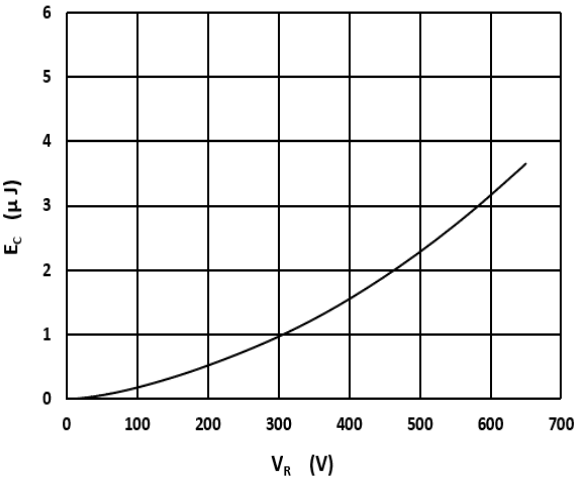
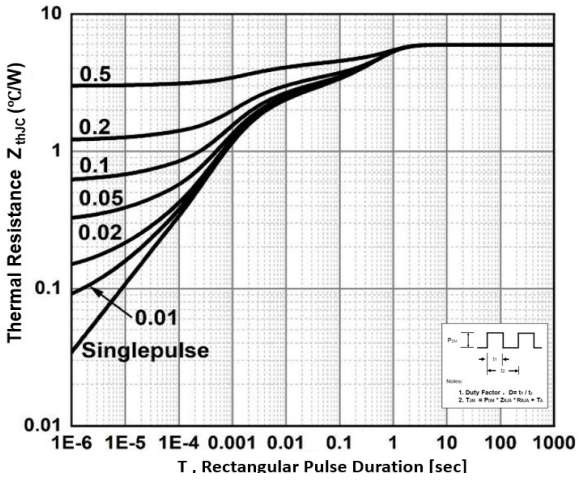
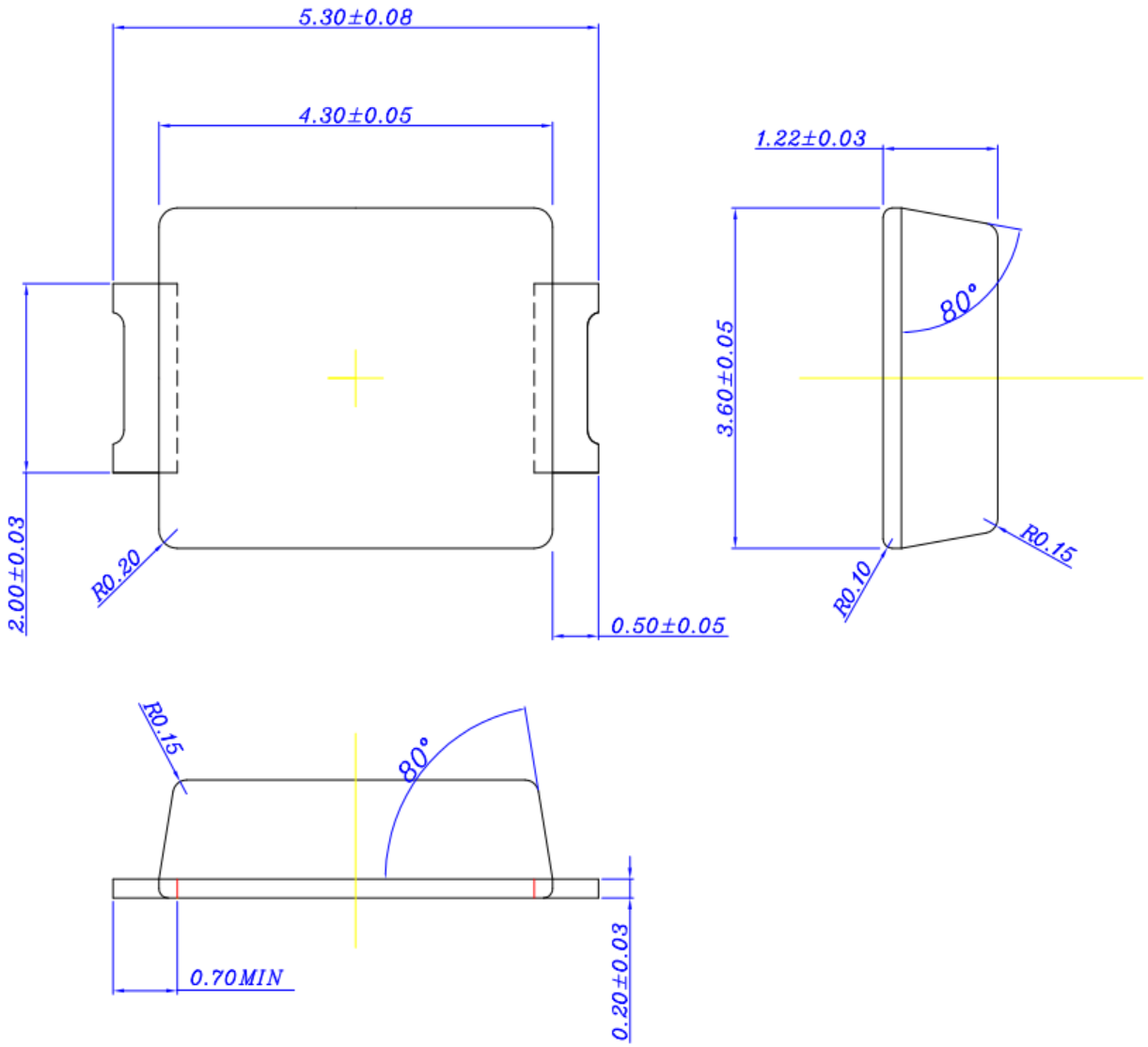


Fig 8: Transient Thermal Impandance



Package Information
SMBF



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