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.

SMAF

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
H1D02065AF	SMAF	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	6 3 2	A	T_C=25˚C T_C=135˚C T_C=152˚C
I_{FRM}	Repetitive Peak Forward Surge Current	12 8	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	18 14	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	12 8	W	T_C=25˚C T =110˚C
$\int i^2dt$	i^2t value	1.62 0.98	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=2A, T_j=25°C
		-	1.5			T_j=175°C
Reverse Current	I_R	-	2	50	μA	V_R=650V, T_j=25°C
		-	40	150		T_j=175°C
Total Capacitive Charge	Q_C	-	3.7	-	nC	V_R=400V，T_j=25°C $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	181	-	pF	T_j=25°C, f=1MHz
		-	10	-		V_R=0V
		-	8	-		V_R=200V
						V_R=400V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	7.7	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

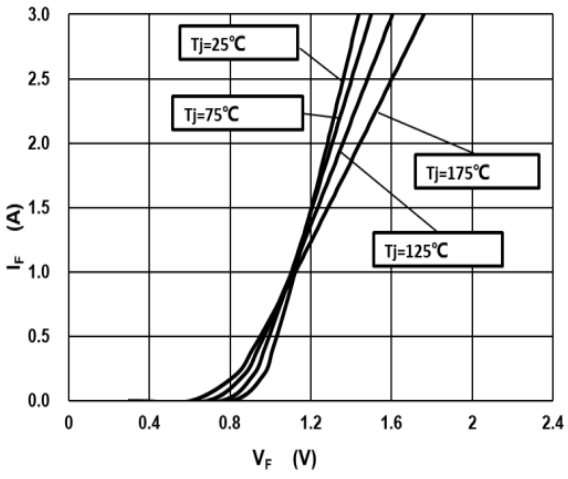


Fig 2: Reverse Characteristics

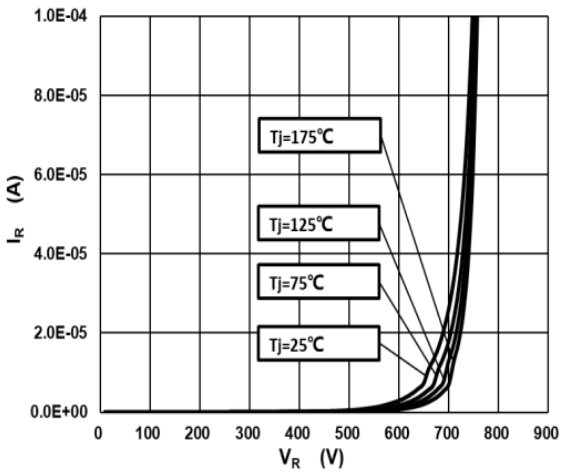


Fig 3: Current Derating

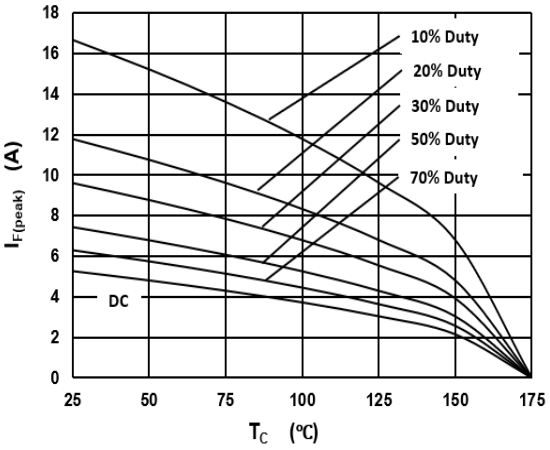


Fig 4: Power Derating

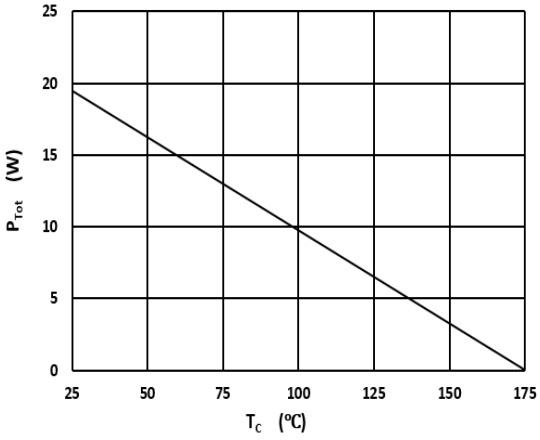


Fig 5: Capacitance vs. Reverse Voltage

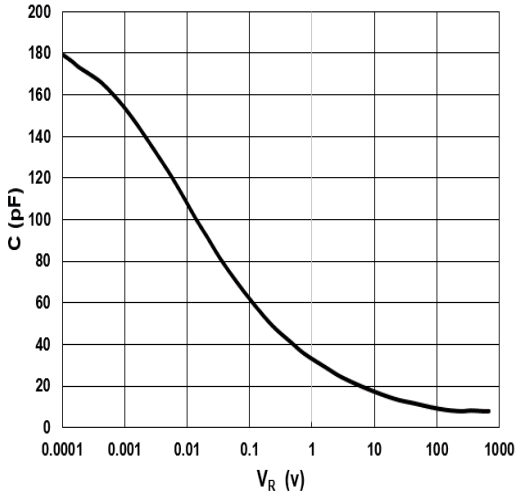


Fig 6: Reverse Charge vs. Reverse Voltage

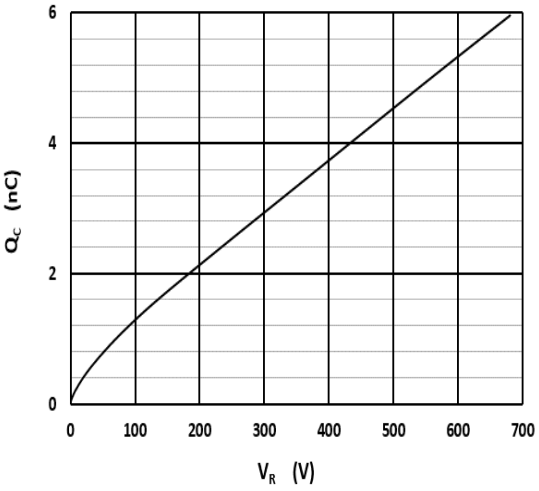


Fig 7: Typical Capacitance Stored Energy

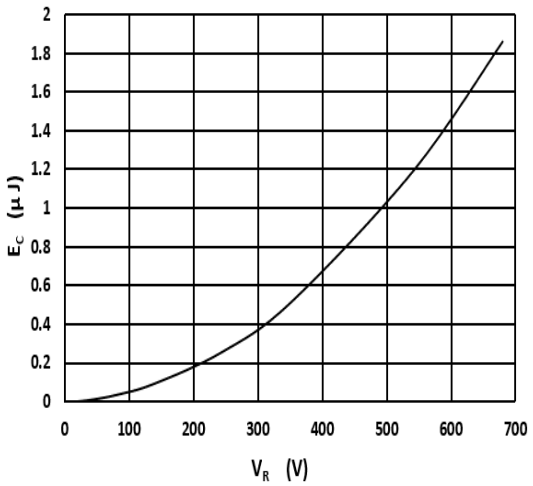
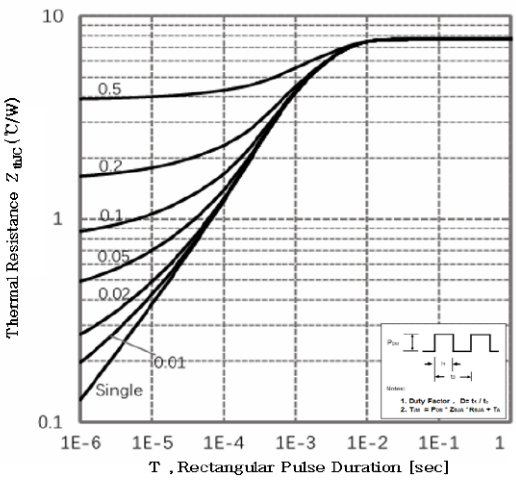
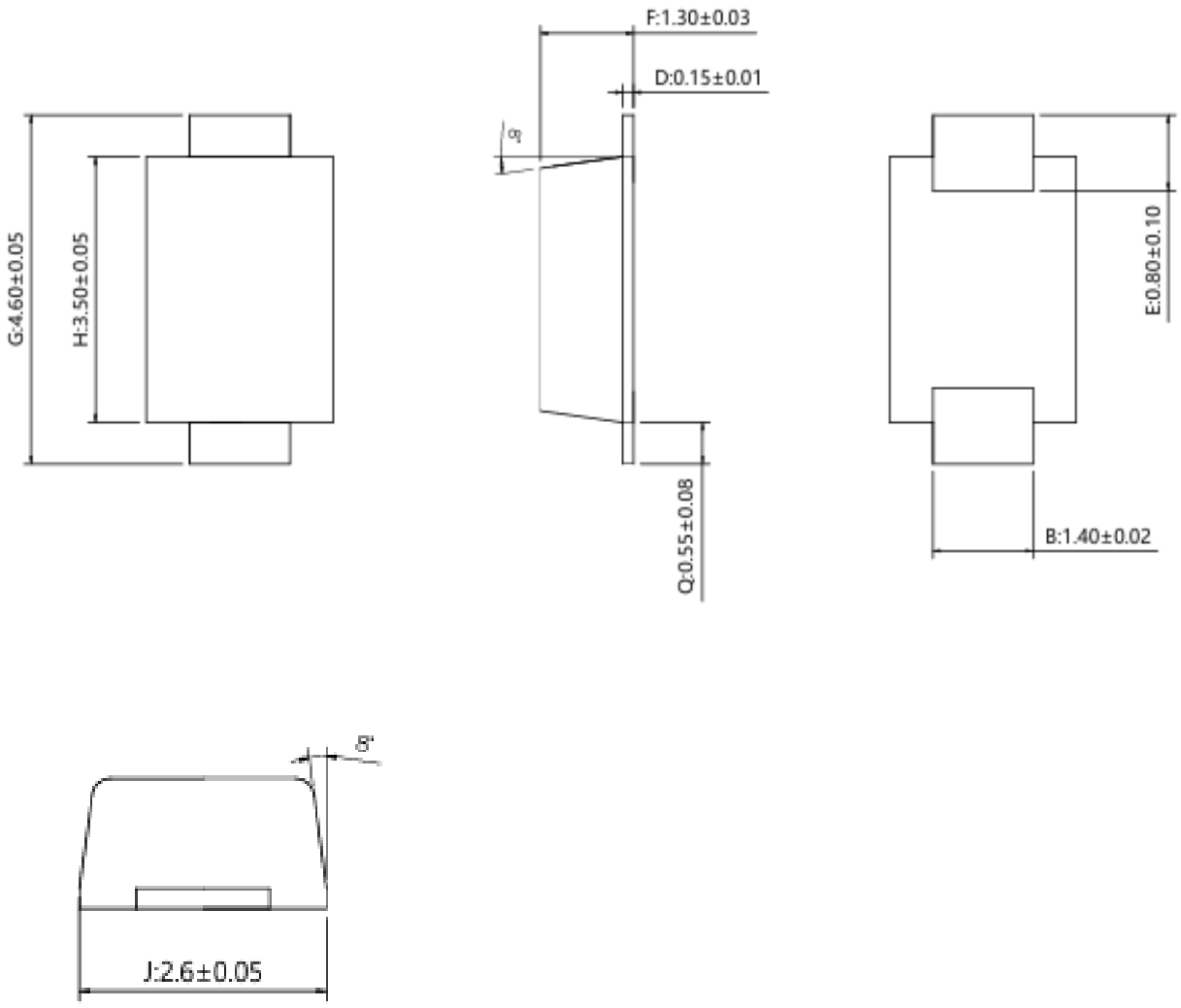


Fig 8: Transient Thermal Impandance



Package Information
SMAF



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