



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.

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



SMAF

Applications

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



Part Number	Package	Brand
PNU65020EPX	SMAF	HXY MOSFET

Maximum Ratings ($T_C=25^{\circ}\text{C}$ 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	$T_C=25^{\circ}\text{C}$ $T_C=135^{\circ}\text{C}$ $T_C=152^{\circ}\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	12 8	A	$T_C=25^{\circ}\text{C}$, $t_p=10$ ms, Half Sine Pulse $T_C=110^{\circ}\text{C}$, $t_p=10$ ms, Half Sine Pulse
I_{FSM}	Non-Repetitive Forward Surge Current	18 14	A	$T_C=25^{\circ}\text{C}$, $t_p=10$ ms, Half Sine Pulse $T_C=110^{\circ}\text{C}$, $t_p=10$ ms, Half Sine Pulse
P_{tot}	Power Dissipation	12 8	W	$T_C=25^{\circ}\text{C}$ $T=110^{\circ}\text{C}$
$\int i^2 dt$	$i^2 t$ value	1.62 0.98	A^2s	$T_C=25^{\circ}\text{C}$, $t_p=10$ ms $T_C=110^{\circ}\text{C}$, $t_p=10$ ms
T_J	Operating Junction Range	-55 to +175	$^{\circ}\text{C}$	
T_{slg}	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$	



Electrical Characteristics

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.3	1.5	V	$I_F=2A$ $T_J=25^{\circ}C$ $T_J=175^{\circ}C$
Reverse Current	I_R	-	2	50	μA	$V_R=650V$ $T_J=25^{\circ}C$ $T_J=175^{\circ}C$
Total Capacitive Charge	Q_C	-	3.7	-	nC	$V_R=400V, T_J=25^{\circ}C$ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	181	-	pF	$T_J=25^{\circ}C, f=1MHz$ $V_R=0V$ $V_R=200V$ $V_R=400V$

Thermal Characteristics

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

Characteristics Curve

Fig 1: Forward Characteristics

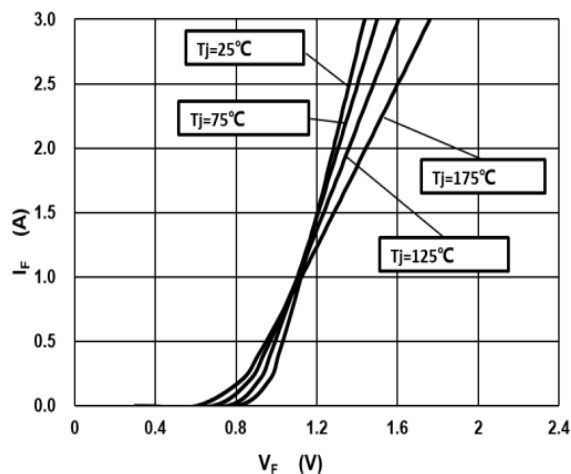


Fig 2: Reverse Characteristics

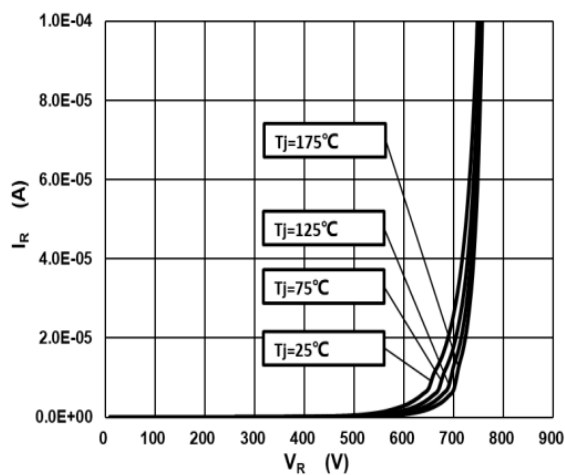




Fig 3: Current Derating

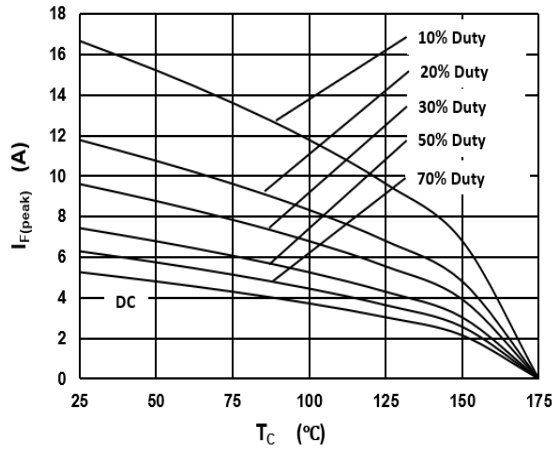


Fig 4: Power Derating

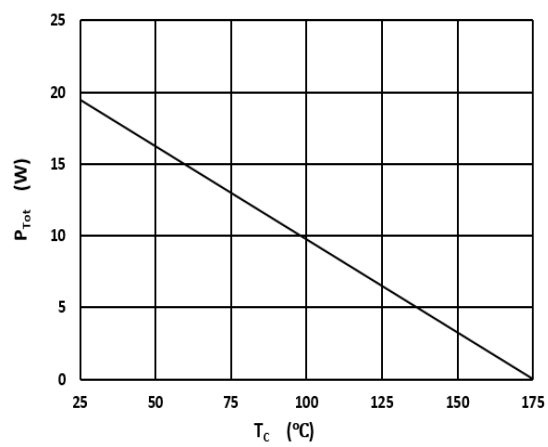


Fig 5: Capacitance vs. Reverse Voltage

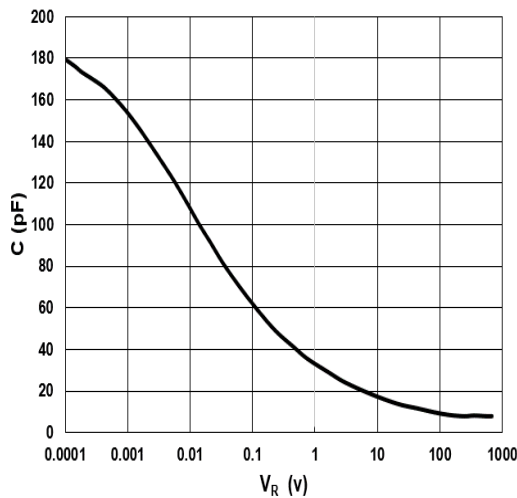


Fig 6: Reverse Charge vs. Reverse Voltage

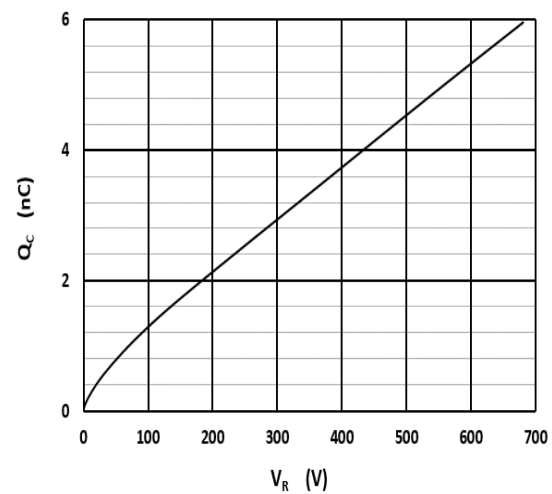


Fig 7: Typical Capacitance Stored Energy

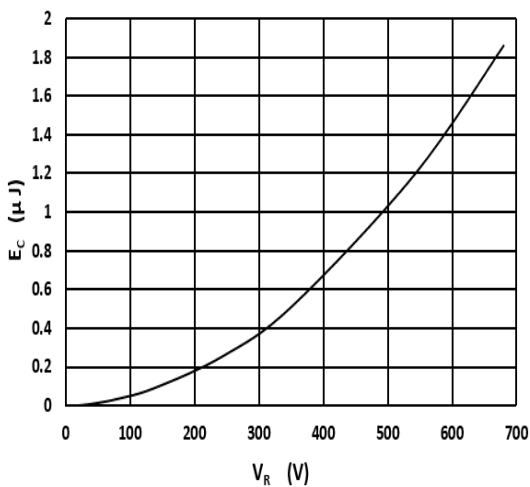
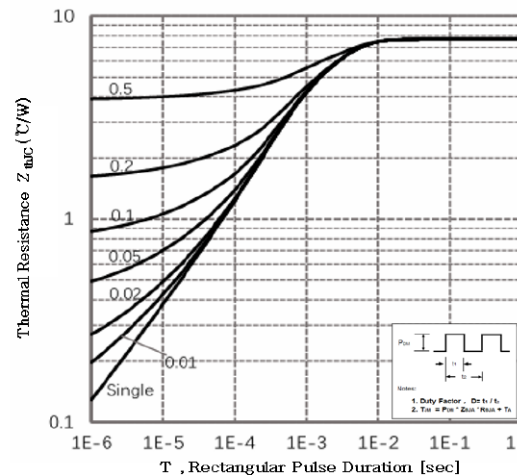
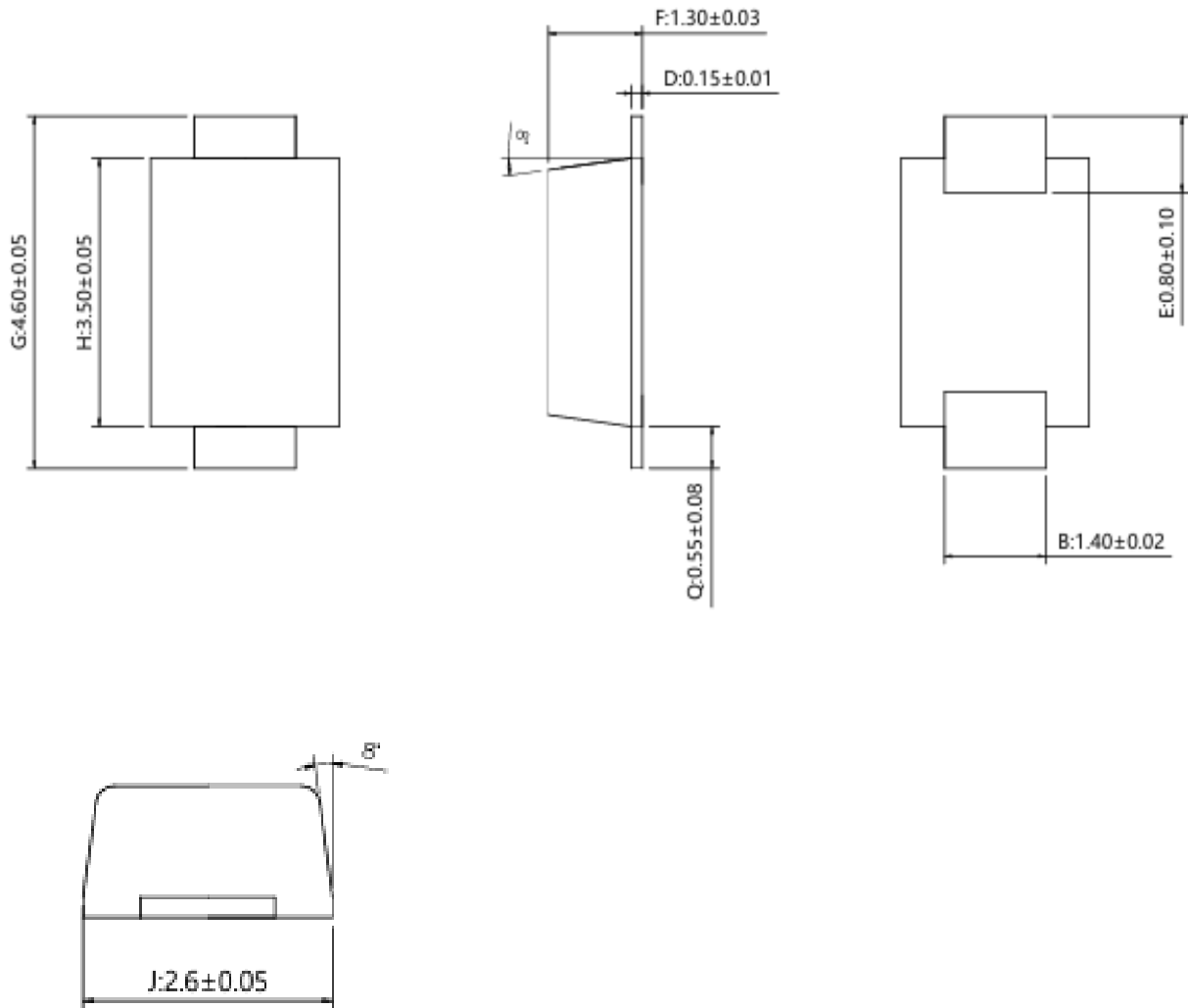


Fig 8: Transient Thermal Impedance





Package Information SMAF





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