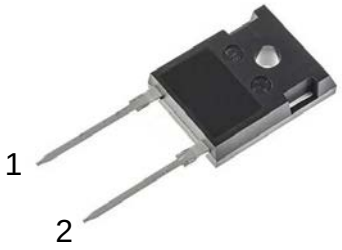
General Description

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



TO-247-2L
Package

Features

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

Application

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

Part Number	Package	Marking
HGD30MPS06H	TO-247-2L	H3006GDTS

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
V_{DC}	DC Peak Reverse Voltage	650	V	
I_F	Continuous Forward Current	50	A	T_C=135˚C
I_{FRM}	Repetitive Peak Forward Surge Current	160 115	A	T_C=25˚C, t_P=10 ms, Half Sine Wave, D=1 T_C=110˚C, t_P=10 ms, Half Sine Wave, D=1
I_{FSM}	Non-Repetitive Peak Forward Surge Current	270 220	A	T_C=25˚C, t_P=10ms, Half Sine Wave, D=1 T_C=110˚C, t_P=10 ms, Half Sine Wave, D=1
P_{tot}	Power Dissipation	267 116	W	T_C=25˚C T_C=110˚C
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	-	1.35	1.5	V	I_F=40A T_j=25°C
		-	1.68	1.8		T_j=175°C
Reverse Current	I_R	-	4	80	μA	V_R=650V T_j=25°C
		-	20	200		T_j=175°C
Total Capacitive Charge	Q_C	-	64	-	nC	V_R=400V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	2140	-	pF	T_j=25℃, f=1MHz V_R=0V
		-	187	-		V_R=200V
		-	158	-		V_R=400V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.56	°C/W

Characteristics Curve

Fig 1: Forward Characteristics

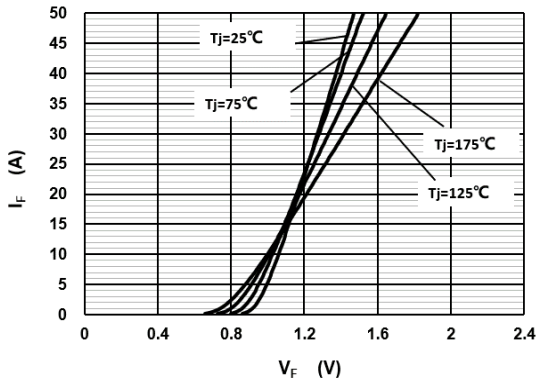


Fig 2: Reverse Characteristics

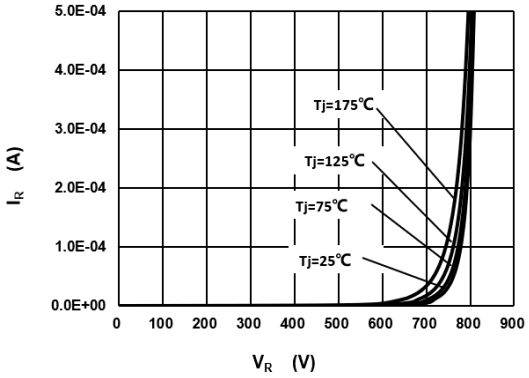


Fig 3: Current Derating

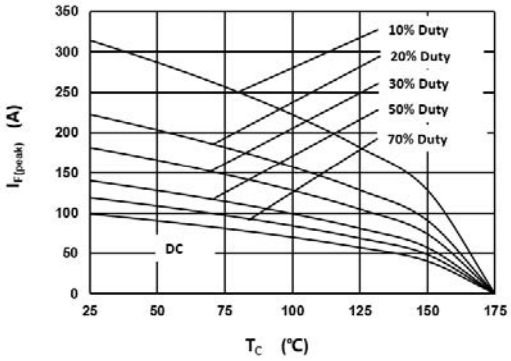


Fig 4: Power Derating

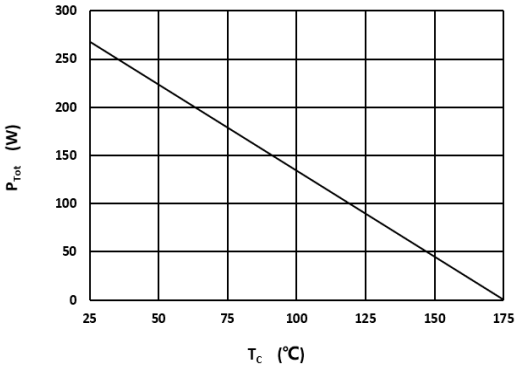


Fig 5: Capacitance vs. Reverse Voltage

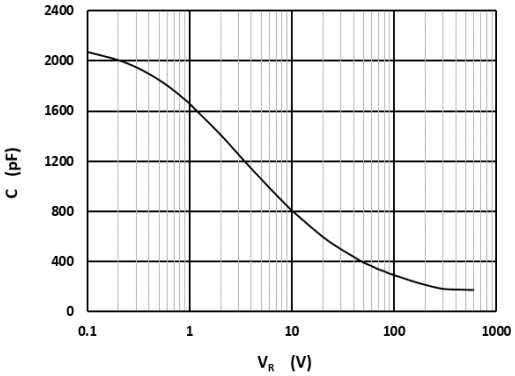


Fig 6: Reverse Charge vs. Reverse Voltage

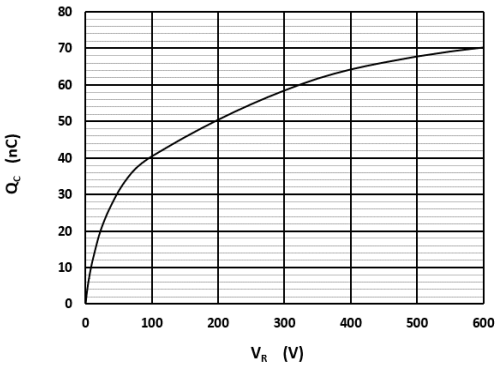


Fig 7: Typical Capacitance Stored Energy

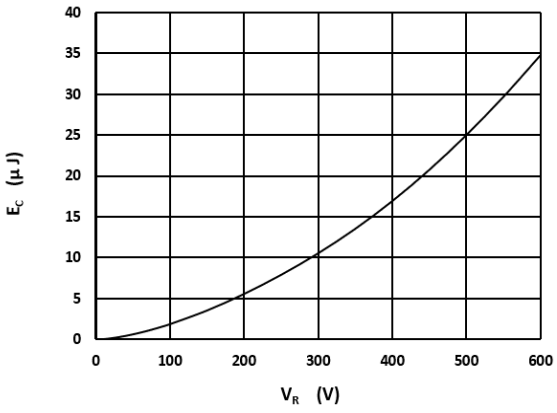
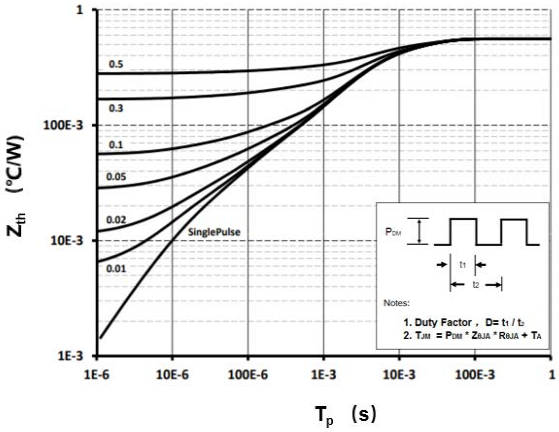


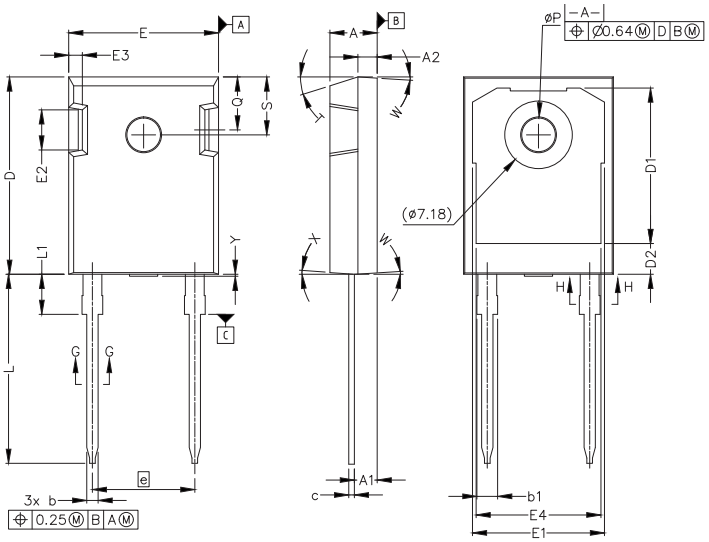
Fig 8: Transient Thermal Impandance



Package Dimensions

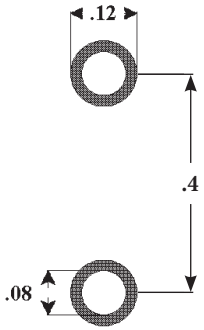
Package: TO-247-2L

All dimensions in mm.



SYM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.83	5.21	.190	.205
A1	2.29	2.54	.090	.100
A2	1.91	2.16	.075	.085
b'	1.07	1.28	.042	.050
b	1.07	1.33	.042	.052
b1	1.91	2.41	.075	.095
b2	1.91	2.16	.075	.085
c'	0.55	0.65	.022	.026
c	0.55	0.68	.022	.027
D	20.80	21.10	.819	.831
D1	16.25	17.35	.640	.683
D2	2.86	3.16	.112	.124
E	15.75	16.13	.620	.635
E1	13.10	14.15	.516	.557
E2	3.68	5.10	.145	.201
E3	1.00	1.90	.039	.075
E4	12.38	13.43	.487	.529
e	10.88 BSC		.428 BSC	
L	19.81	20.32	.780	.800
L1	4.10	4.40	.161	.173
øP	3.51	3.65	.138	.144
Q	5.49	6.00	.216	.236
S	6.04	6.30	.238	.248
T	17.5° REF.			
W	3.5° REF.			
X	4° REF.			
Y	0	0.50	0	0.020

Recommended Solder Pad Layout



TO247-2L

all units are in inches

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