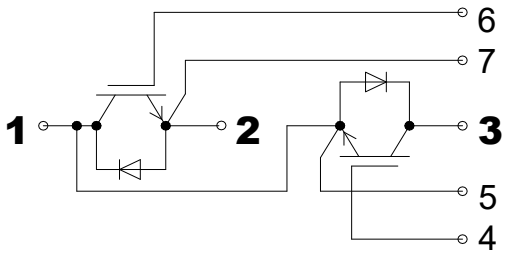
SGG100N125UC1

Ultra Fast IGBT Modules

SGG100N125UC1



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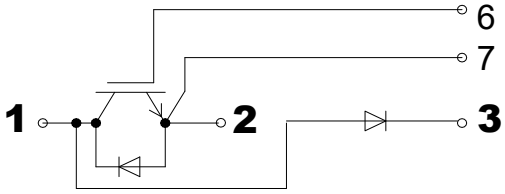

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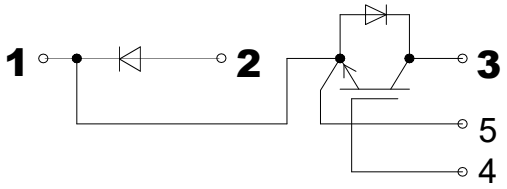

Symbol	Test Condition	Value	Unit
IGBT			
V_{CES}		1200	V
I_C	T_C = 25(100)°C per chip	100(75)	A
V_{GES}		±20	V
T_{vj} (T_{stg})		-40 ~ +150(125)	°C
P_{tot}		450	W
INVERSE DIODE			
I_F	T_C=25(100)°C per chip	100(75)	A
I_{FM}		200	A
V_{RRM}		1200	V
I^2t	T_j=125°C, t=10ms, V_R=0V	2000	A^2s

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Symbol	Test Conditions	Min	Typ	Max	Unit
IGBT			**Tc = 25°C unless otherwise specified**		
$V_{GE(th)}$	$V_{GE}=V_{CE}$, I_C=2mA	4.5	5.5	6.5	V
I_{CES}	V_{GE}=0;$V_{CE}=V_{CES}$;T_j=25(125)°C		0.15	0.5	mA
$V_{CE(TO)}$	T_j=25(125)°C		1.4(1.6)	1.6(1.8)	V
r_{CE}	V_{GE}=15V		11(15)	14(19)	mΩ
$V_{CE(sat)}$	I_C=75A; V_{GE}=15V; chip level		3.3	3.7	V
C_{ies}	V_{GE}=0V, V_{CE}=25V, f=1MHz		6.0		nF
C_{oes}			0.80		
C_{res}			0.40		
LCE				30	nH
RCC'+EE'	Termial to Case， Tc=25°C		0.35		mΩ
$t_{d(on)}$	Vcc = 600V, I_C = 75A R_{GON} = R_{GOFF} = 10Ω T_j=150°C V_{GE}=±15V		79		ns
t_r			40		ns
$t_{d(off)}$			350		ns
t_f			20		ns
E_{on}/E_{off}			8.50/3.30		mJ
INVERSE DIODE			**Tc = 25°C unless otherwise specified**		
V_F	I_F =75A; V_{GE}=0V; T_j = 25°C		1.9	2.5	V
Q_{rr}	I_F=75A; V_R=300V; T_j=25°C di/dt = 600A/us, V_{GE}=-15V		2.5		μC
I_{RRM}			25		A
E_{rec}			2.30		mJ
THERMAL CHARACTERISTICS					
$R_{th(j-c)}$	per IGBT			0.18	K/W
$R_{th(j-c)D}$	per FRD			0.49	K/W
Mechanical Data					
Ms		2.5		4	Nm
Weight			158		g

Features

- NPT Technology IGBT
- Fast Recovery Free Wheeling Diode
- Low Switching Losses
- Vce(sat) with positive temperature coefficient
- Fast Switching and short tail current
- Switched mode power supplies at f_{SW}>25KHz
- Resonant inverters up to 100KHz
- Electronic Welders at f_{SW}>25KHz

Application

- Welding inverters
- Inductive Heating

Advantages

- Space and weight savings
- Reduced protection circuits

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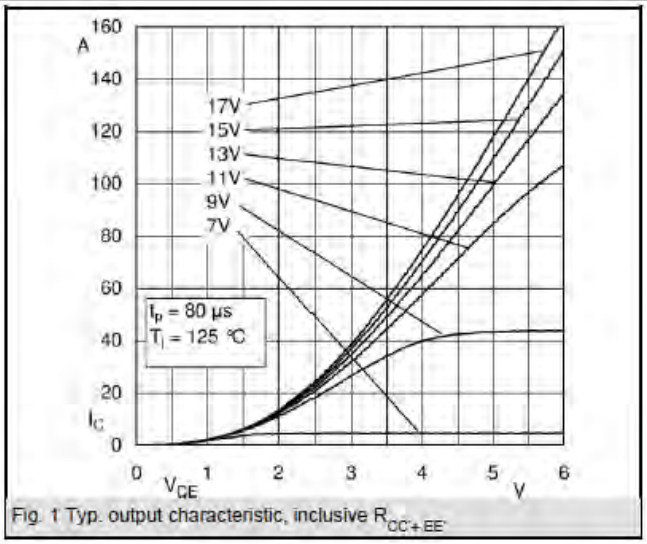

Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

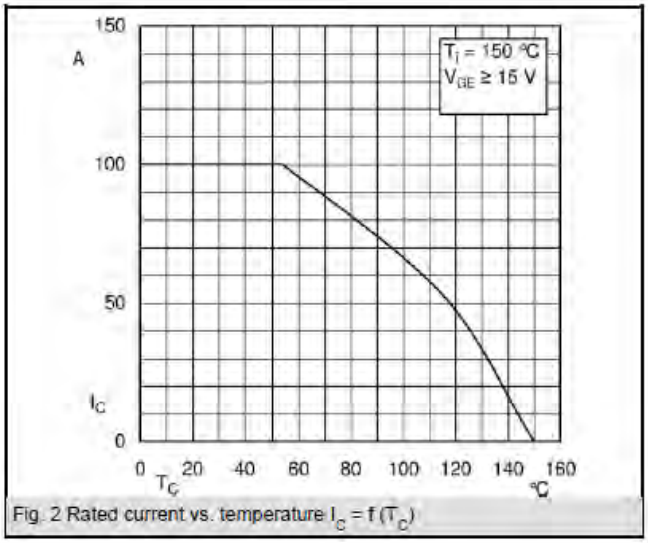

Fig. 2 Rated current vs. temperature $I_C = f(T_C)$

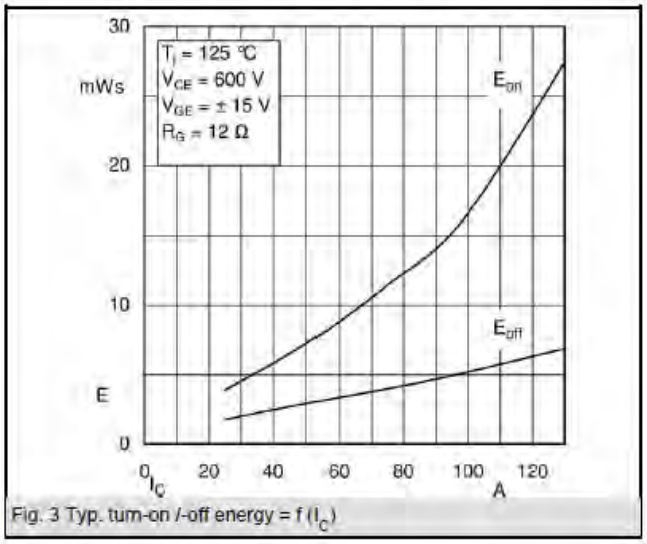

Fig. 3 Typ. turn-on /-off energy = f (I_C)

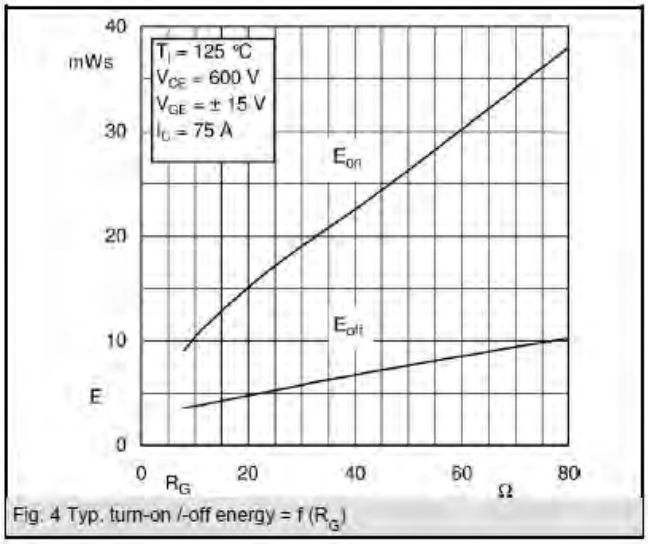

Fig. 4 Typ. turn-on /-off energy = f (R_G)

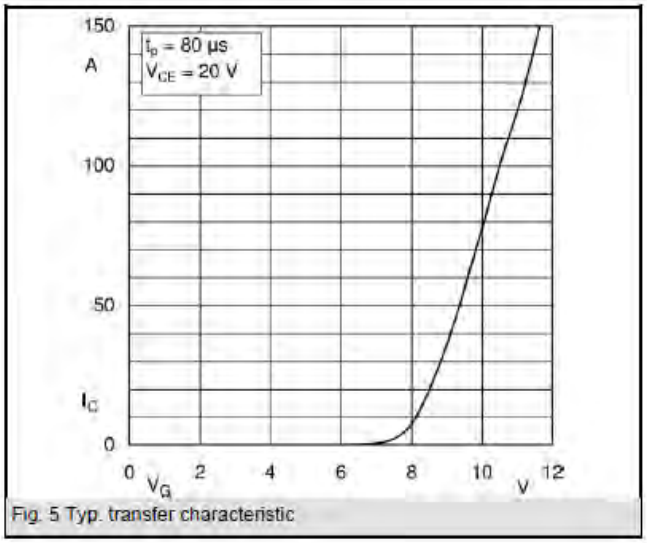

Fig. 5 Typ. transfer characteristic

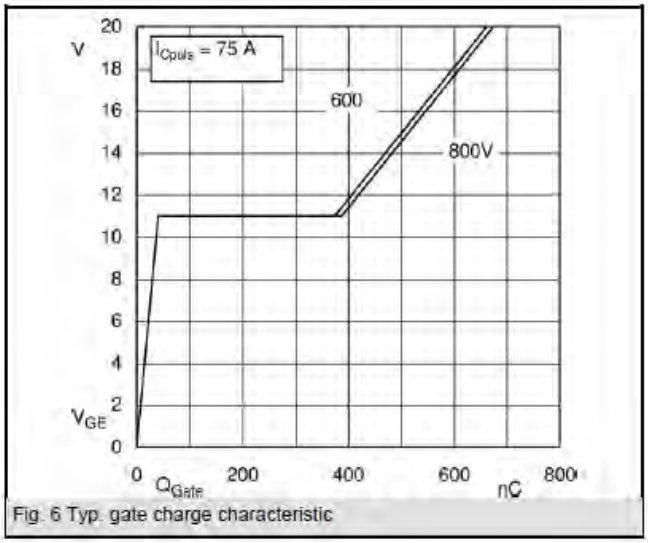

Fig. 6 Typ. gate charge characteristic

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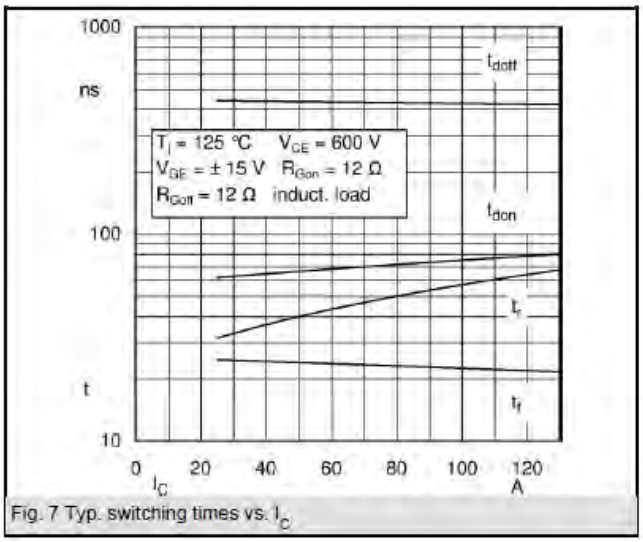

Fig. 7 Typ. switching times vs. I_C

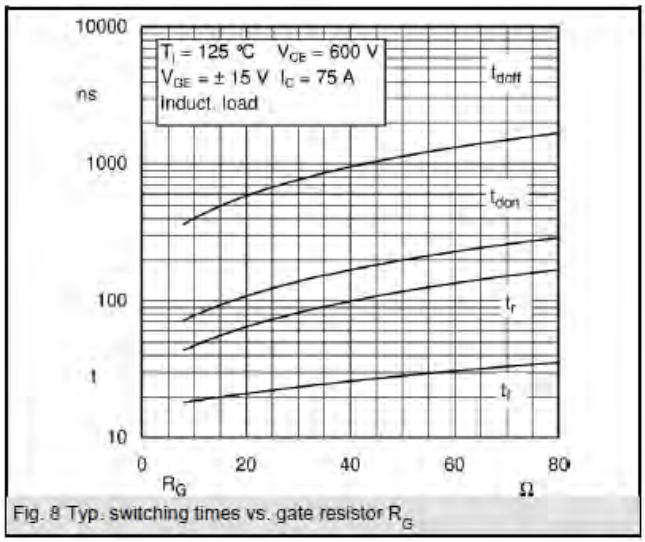

Fig. 8 Typ. switching times vs. gate resistor R_G

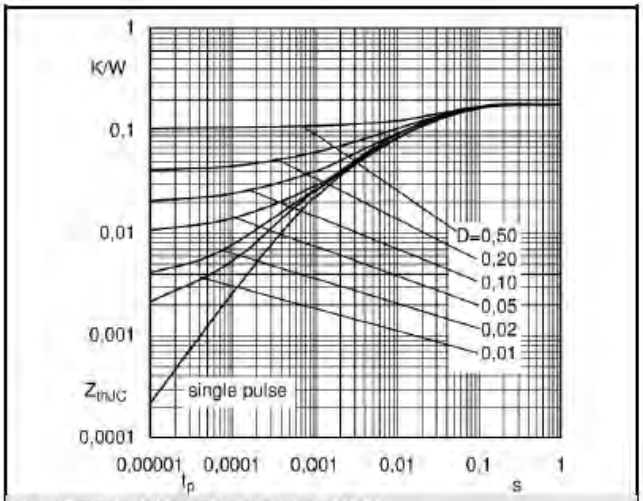

Fig. 9 Transient thermal impedance of IGBT

$Z_{thp(j-c)} = f(t_p)$; $D = t_p/t_c = t_p * f$

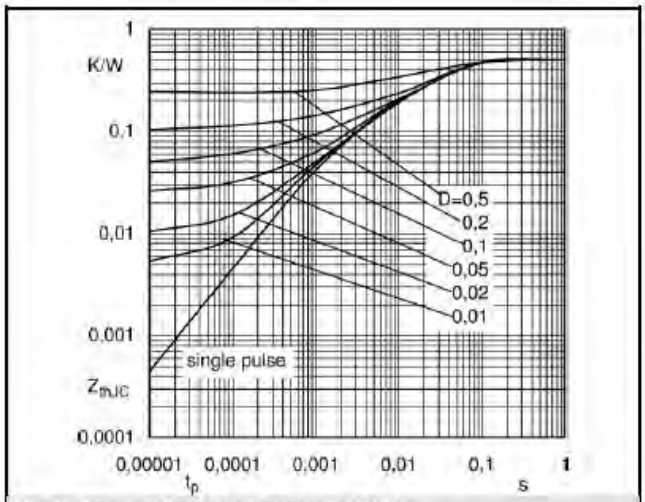

Fig. 10 Transient thermal impedance of FWD

$Z_{thp(j-c)} = f(t_p)$; $D = t_p/t_c = t_p * f$

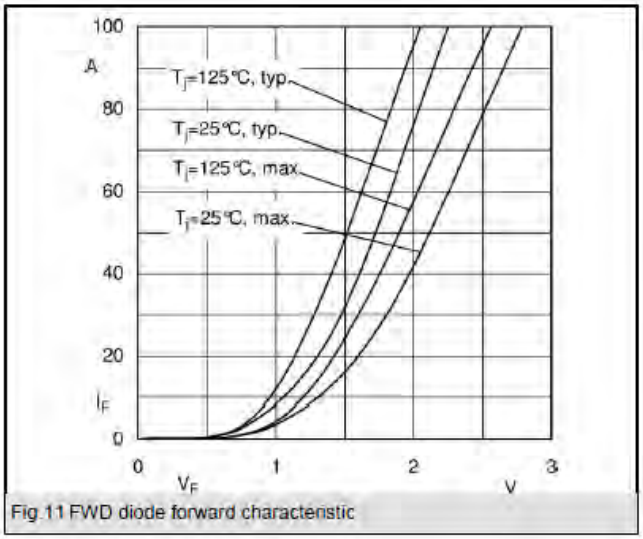

Fig.11 FWD diode forward characteristic

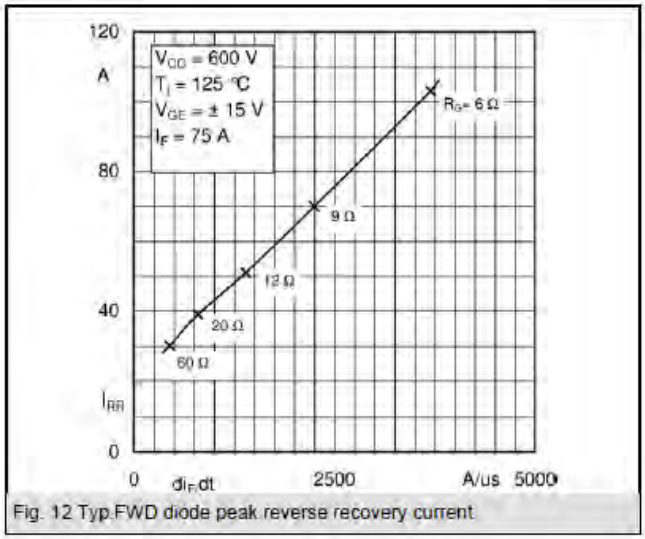

Fig. 12 Typ.FWD diode peak reverse recovery current

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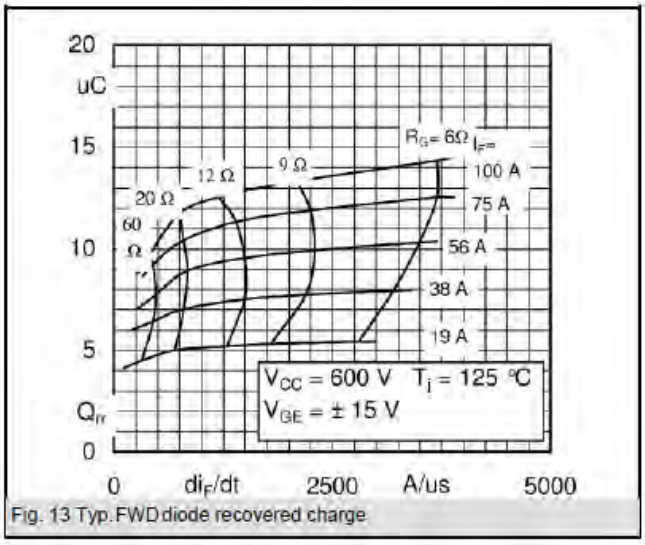
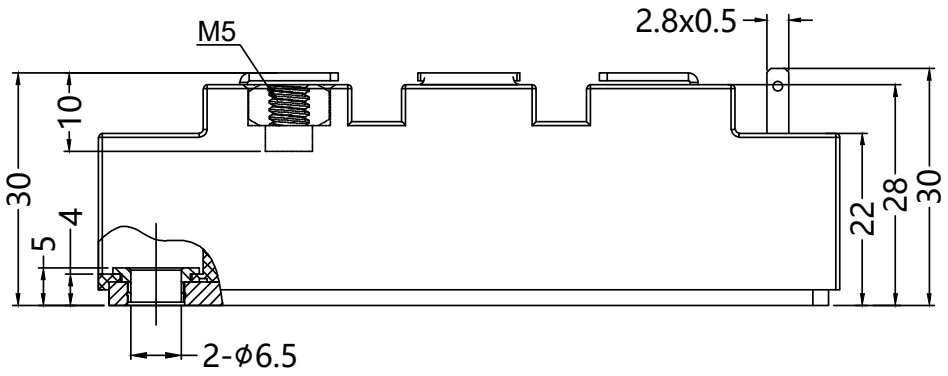
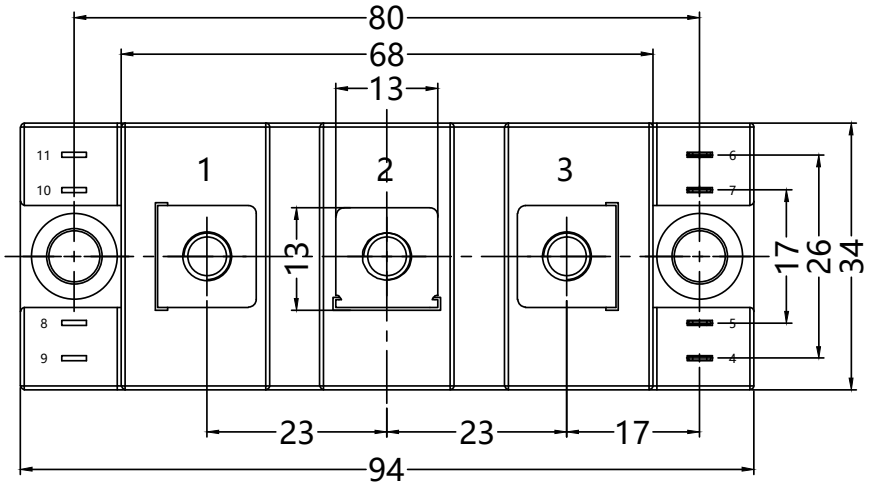


Fig. 13 Typ. FWD diode recovered charge





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