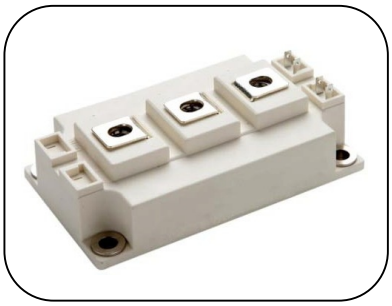


Features：

- **n** Low VCE(sat) Trench IGBT technology
- **n** 10μs short circuit capability
- **n** $V_{CE(sat)}$ with positive temperature coefficient
- **n** Low inductance case
- **n** Fast & soft reverse recovery anti-parallel FWD

Typical Applications：

- **n** Inverter for motor drive
- **n** AC and DC servo drive amplifier
- **n** Motion/servo control
- **n** Uninterruptible power supply

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
V_{CES}	Collector-Emitter voltage	T_j=25°C			1700	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±20	V
I_C	Collector current	T_C=25°C			280	A
		T_C=100°C			150	A
I_{CP}		t_P= 1ms			300	A
P_C	Collector power dissipation	T_j=175°C			1127	W
T_j	Junction temperature	/			175	℃
T_{stg}	Storage temperature	/	-40		125	℃
V_{iso}	Isolation between terminal and copper base	T_j=25°C , AC：1minute	4000			V
I_{CES}	Zero gate voltage collector current	T_j=25°C ,V_{CE}=1700V，V_{GE}=0V			5.0	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V	-400		400	nA
$V_{GE(th)}$	Gate-Emitter threshold voltage	V_{CE}= V_{GE}，I_C=6mA	5.6	6.2	6.8	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=150A		1.80	2.20	V
		T_j=125°C ,V_{GE}=15V，I_C=150A		2.25		V
		T_j=150°C ,V_{GE}=15V，I_C=150A		2.35		V
R_{Gint}	Internal Gate Resistance			4.3		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V,V_{GE}=0V,f=1MHz		10.2		nF
$t_{d(on)}$	Turn-on delay time	V_{CC}=900V，I_C=150A，V_{GE}=±15V，R_G=4.8Ω，T_j=150°C		240		ns
t_r				55		ns
$t_{d(off)}$	Turn-off delay time			624		ns
t_f				180		ns
E_{on}	Turn-on switching loss			72.5		mJ
E_{off}	Turn-off switching loss			51.5		mJ
I_{SC}	SC data	V_{GE}≤15 V, V_{CC}=1000V, t_P≤10μs, T_{vj}=150°C		600		A
tsc	Short circuit withstand time	T_j=150°C ,V_{CC}=1000V, V_{GE}=±15V，R_g=4.8Ω	10			μs
V_F	Forward on voltage	T_j=25°C ,I_F=150A		1.80	2.25	V
		T_j=125°C ,I_F=150A		1.90		V
		T_j=150°C ,I_F=150A		1.95		V
Qr	Recovered charge	T_j=150°C, V_R=900V,I_F=150A, -di/dt=3300A/μs,V_{GE}=-15V		93.5		μC
I_{RM}	Peak reverse recovery current			240		A
E_{rec}	Reverse recovery energy			52.8		mJ
t_{rr}	Reverse recovery time	T_j=150°C ,I_F=150A		950		ns
$R_{th(j-c)}$	Thermal resistance(1 device)	IGBT			0.133	℃/W
		FWD			0.240	℃/W
Screw torque	Mounting(M6)	/	3.0		5.0	N·m
	Terminals(M6)	/	2.5		5.0	N·m
W_t	Weight				300	g
Outline	454H3P					

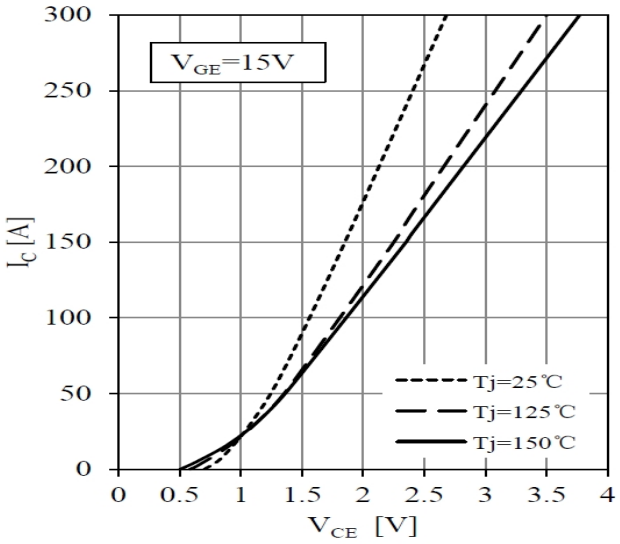


Fig 1. IGBT Output Characteristics

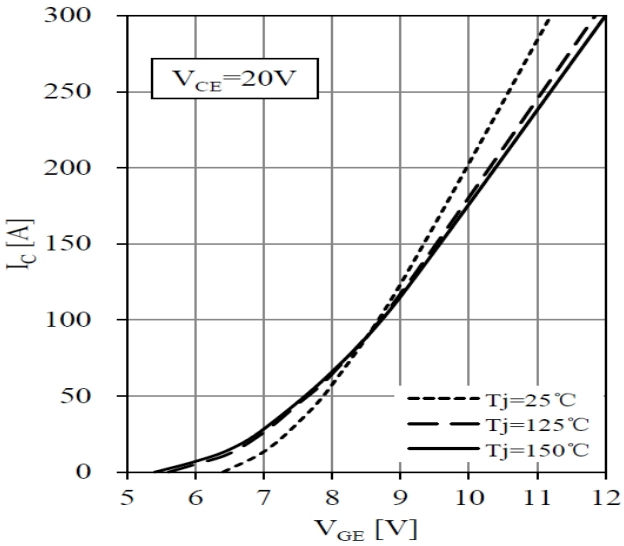


Fig 2. IGBT Transfer Characteristics

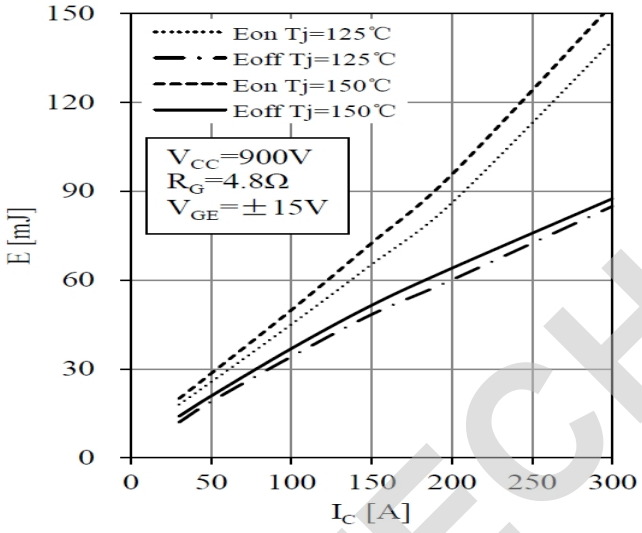


Fig 3. IGBT Switching Loss vs. IC

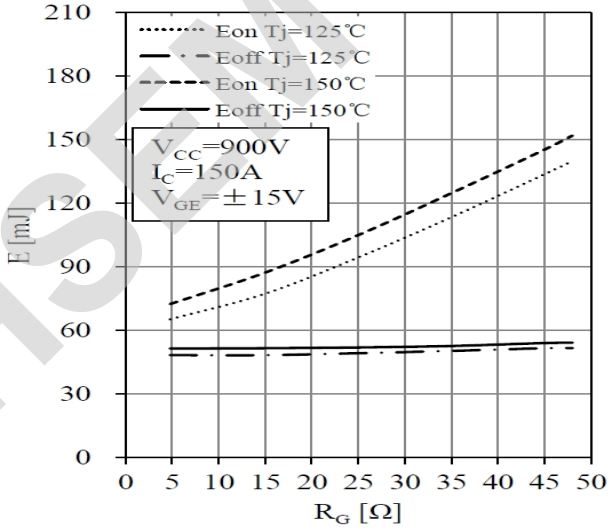


Fig 4. IGBT Switching Loss vs. RG

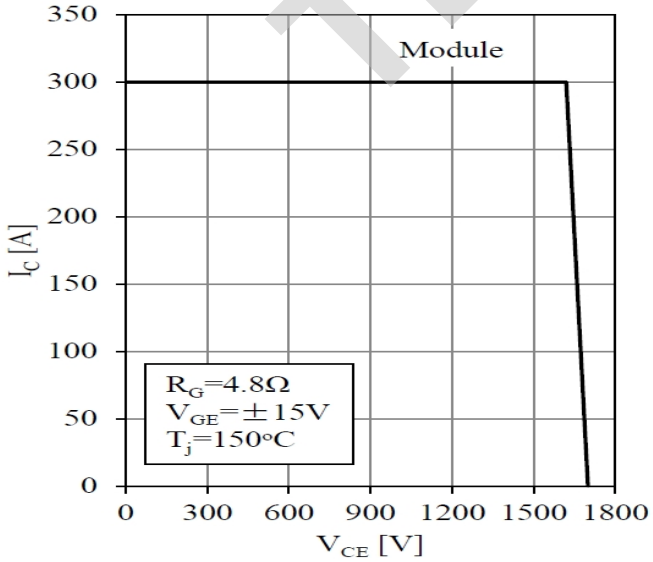
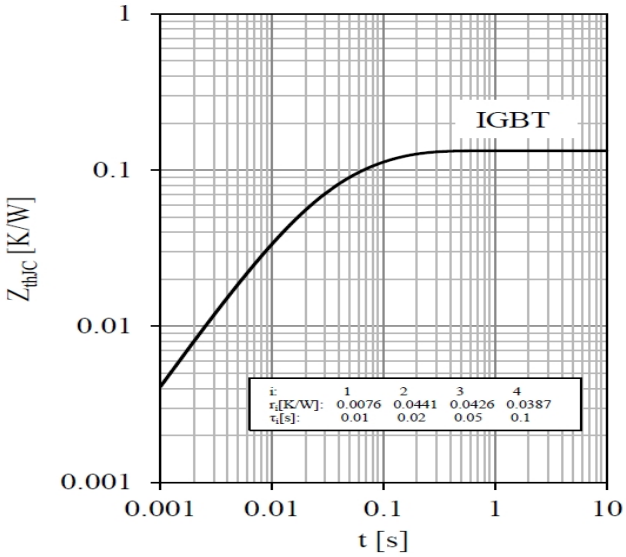


Fig 5. RBSOA Fig



6. IGBT Transient Thermal Impedance

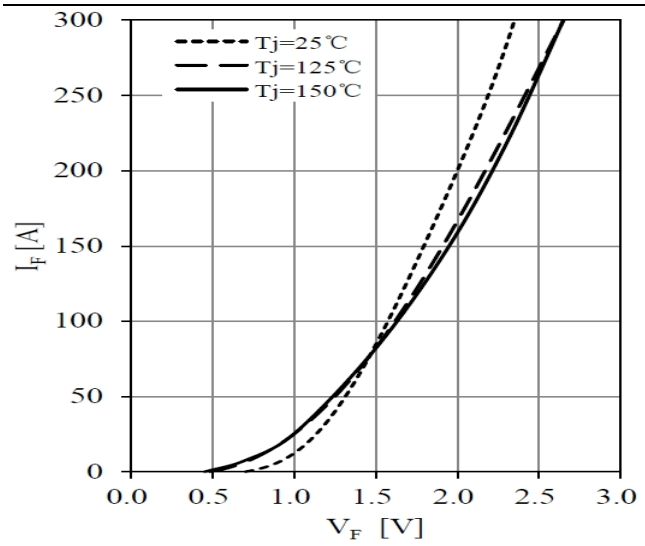


Fig 7. Diode Forward Characteristics

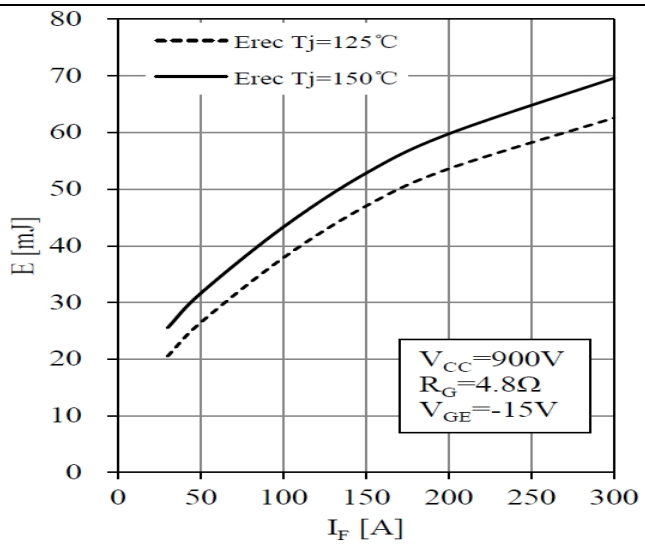


Fig 8. Diode Switching Loss vs. IF

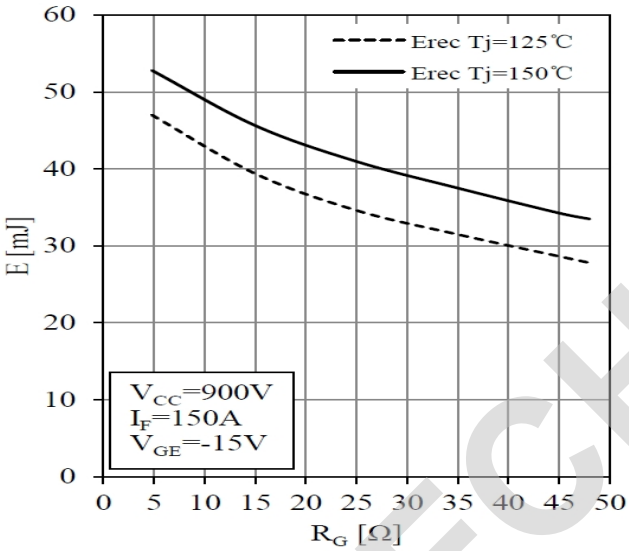


Fig 9. Diode Switching Loss vs. RG

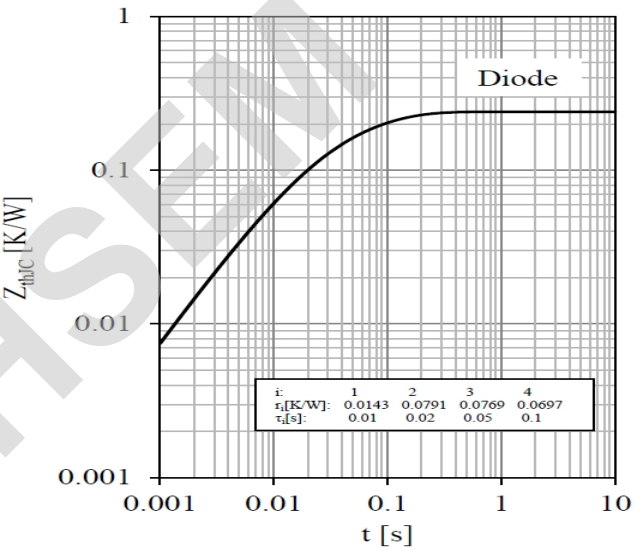


Fig 10. Diode Transient Thermal Impedance

Outline & Circuit Diagram