Features：

- **n** Low $V_{CE(sat)}$ trench IGBT technology
- **n** 10μs short circuit capability
- **n** $V_{CE(sat)}$ with positive temperature coefficient
- **n** Maximum junction temperature 175°C

Typical Applications：

- **n** Inverter for motor drive
- **n** AC and DC servo drive amplifier
- **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	Continuous@ T_C=100°C			300	A
I_{CP}		T_P= 1ms			600	A
P_D	Maximum Power Dissipation	T_j=175°C ,1 device			1829	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
Screw torque	Mounting(M6)	/	2.5		5.0	N·m
	Terminals(M6)	/	3.0		5.0	N·m
I_{CES}	Zero gate voltage collector current	T_j=25°C ,V_{CE}=1700V，V_{GE}=0V			1.0	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V			±0.4	μA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=20V，I_C=12mA	5.6	6.2	6.8	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=300A		1.85	2.20	V
		T_j=125°C ,V_{GE}=15V，I_C=300A		2.25		V
		T_j=150°C ,V_{GE}=15V，I_C=300A		2.35		V
R_{Gint}	Internal gate resistor	T_j=25°C		2.5		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=1MHz		36.1		nF
C_{res}	Reverse transfer capacitance			0.88		nF
t_{on}	Turn-on time	T_j=125°C ,V_{CC}=900V，I_C=300A，V_{GE}=±15V，R_g=2.4Ω，Inductive load		224		ns
t_r				55		ns
t_{off}	Turn-off time			611		ns
t_f				159		ns
E_{on}	Turn-on energy loss per pulse			96.8		mJ
E_{off}	Turn-off energy loss per pulse			99.0		mJ
I_{SC}	SC data	t_{SC}≤10 μs, V_{GE}=15V, T_j=150℃, V_{CC}=1000V, V_{CEM}≤1700V		1200		A

V_F	Forward on voltage	T_j=25°C ,I_F=300A, V_{GE}=0V		1.80	2.25	V
		T_j=125°C ,I_F=300A, V_{GE}=0V		1.90		V
		T_j=150°C ,I_F=300A, V_{GE}=0V		1.95		V
I_{RM}	Peak reverse recovery current	I_F=300A, -diF/dt=5400A/μs , V_R=900V, V_{GE}=-15V, T_j=125°C		357		A
Q_r	Recovered charge			116		μC
E_{rec}	Reverse recovery energy			68.2		mJ
$R_{th(j-c)}$	Thermal resistance(1 device)	IGBT			0.082	℃/W
		FWD			0.129	℃/W
$R_{th(c-f)}$	Contact thermal resistance (1 device)	With thermal compound		0.033		℃/W
W_t	Weight				300	g
Outline	454H3P					

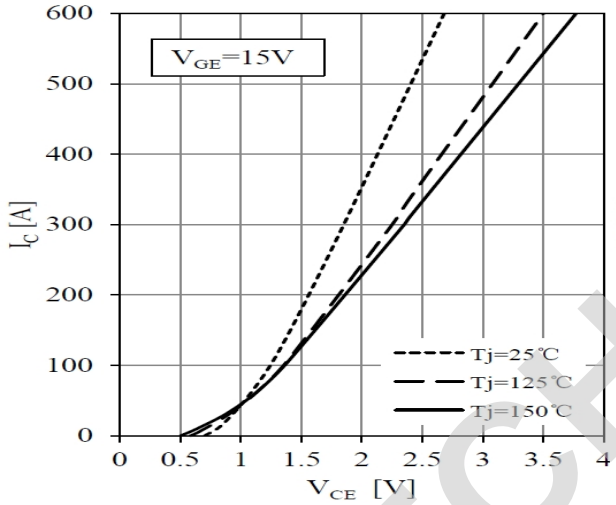

Fig 1. IGBT Typical Output Characteristics

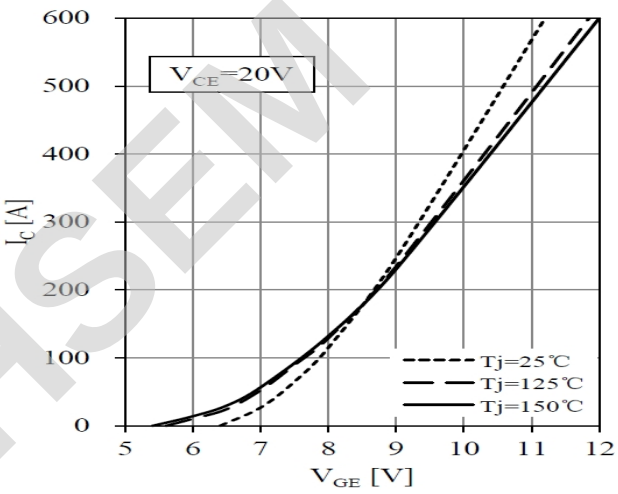

Fig 2. IGBT Typical Transfer Characteristics

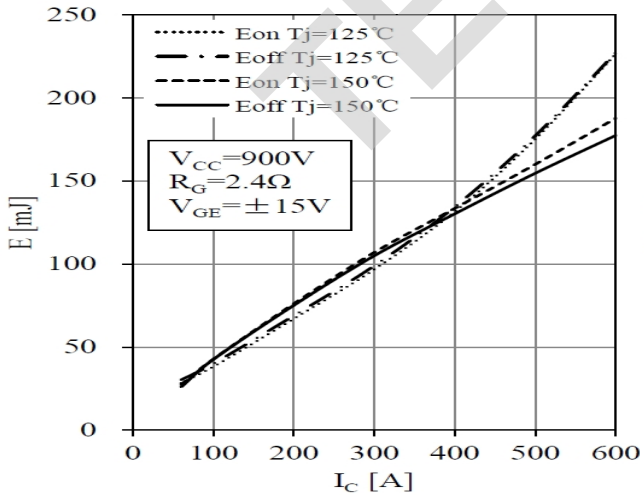

Fig 3. IGBT Switching Loss vs. Ic

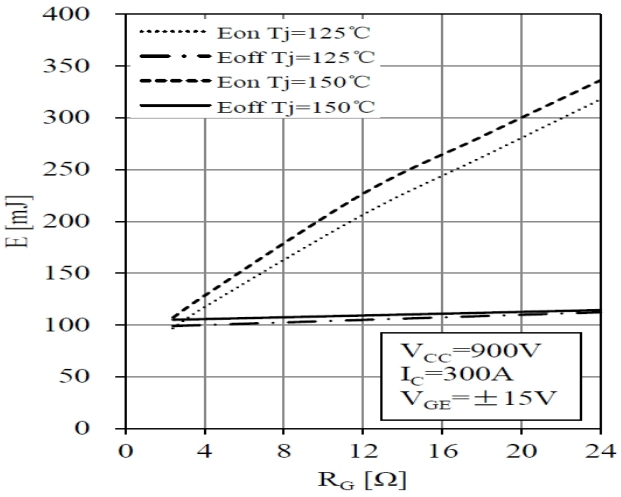

Fig 4. IGBT Switching Loss vs. R_G

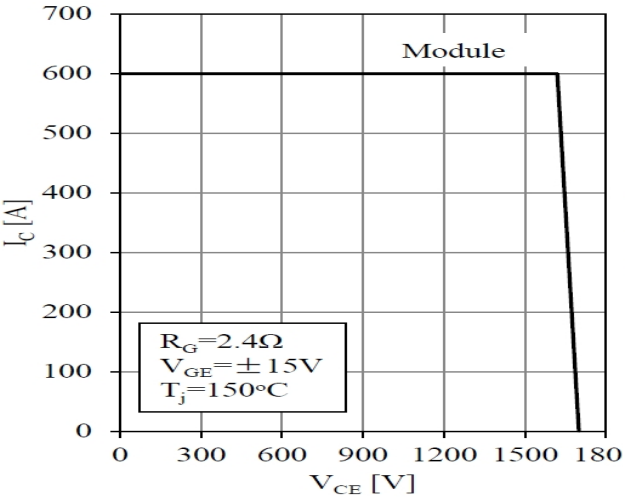

Fig 5. RBSOA

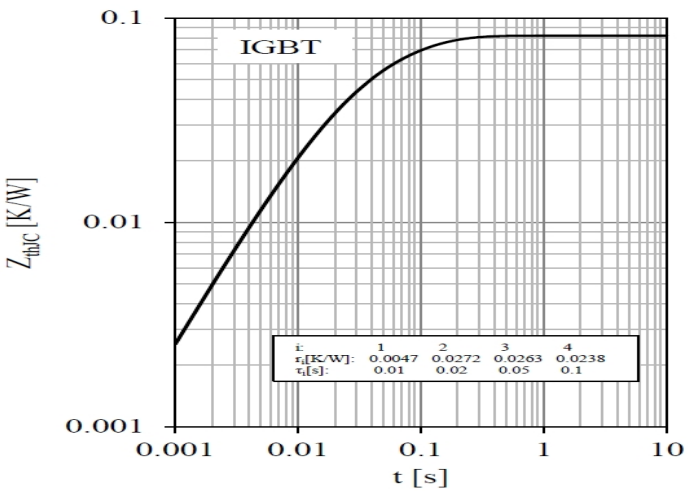

Fig 6. IGBT Transient Thermal Impedance

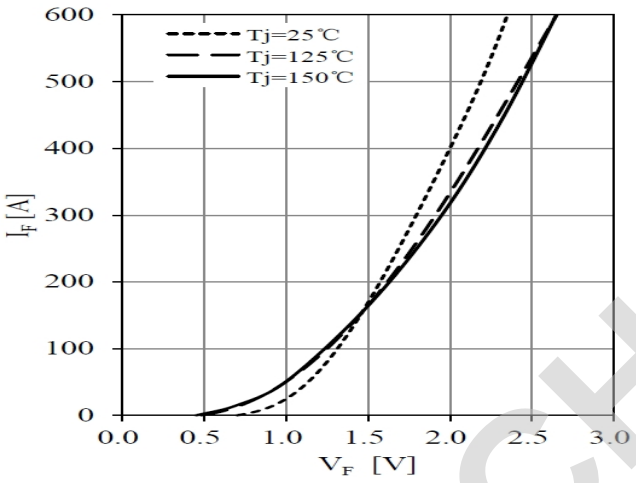

Fig 7. Forward Characteristics of Diode

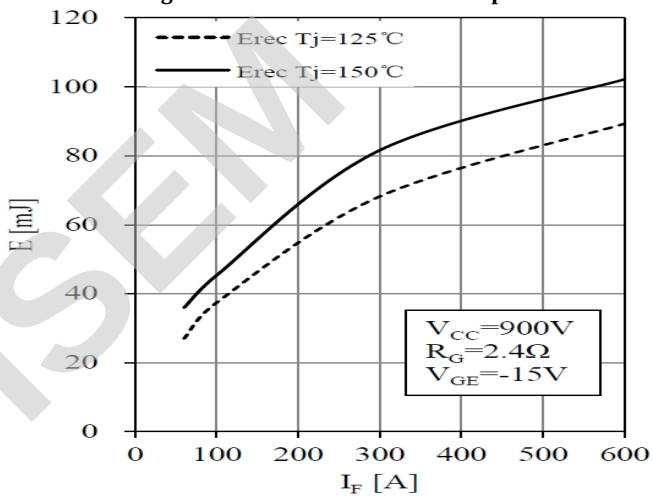

Fig 8. Diode Switching Loss vs. I_F

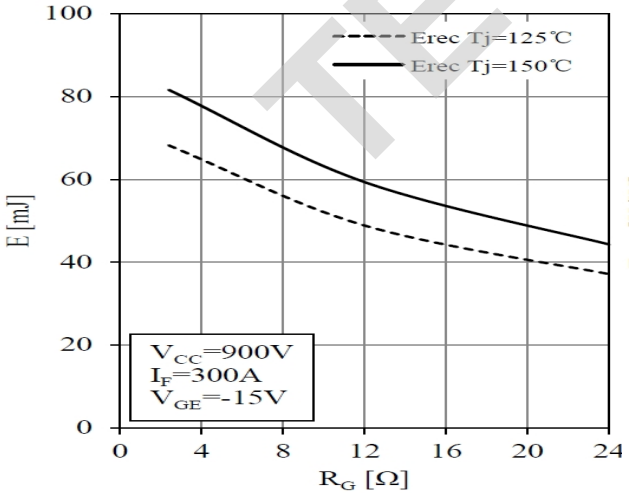

Fig9. Diode Switching Loss vs. R_G

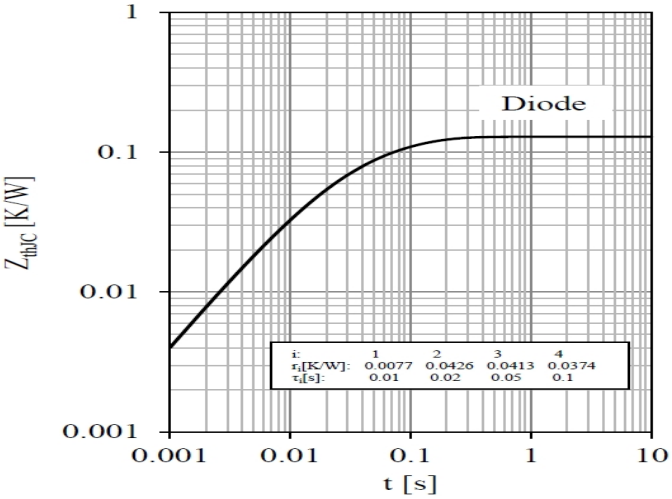

Fig 10. Diode Transient Thermal Impedance

Outline & Circuit Diagram