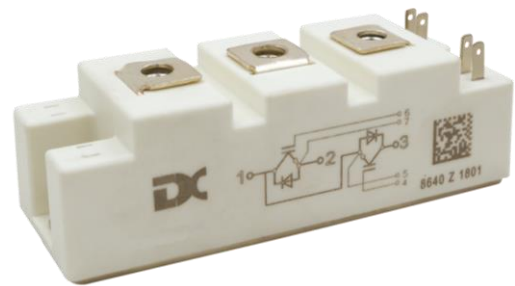


1200V/75A 2 in one-package

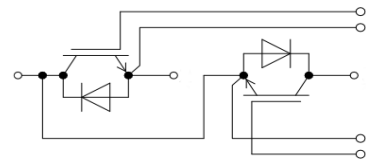
Features:

- 1200V75A, $V_{CE(sat)(typ.)}=2.30V$
- SPT (Soft Punch Through) technology
- Lower losses
- Higher system efficiency
- Excellent short-circuit capability
- Square RBSOA



General Applications:

Daxin's IGBTs offer ultrafast switching speed for application such as welding, inductive heating, UPS and other high frequency applications



Equivalent Circuit Schematic

Absolute Maximum Ratings of IGBT

V_{CES}	Collector to Emitter Voltage		1200	V
V_{GES}	Continuous Gate to Emitter Voltage		± 30	V
I_C	Continuous Collector Current	$T_C = 25^\circ C$	150	A
		$T_C = 100^\circ C$	75	
I_{CM}	Pulse Collector Current	$T_J = 150^\circ C$	150	A
P_D	Maximum Power Dissipation (IGBT)	$T_C = 25^\circ C,$ $T_J = 150^\circ C$	320	W
t_{sc}	Short Circuit Withstand Time		> 10	μs
T_J	Maximum IGBT Junction Temperature		150	$^\circ C$
T_{JOP}	Maximum Operating Junction Temperature Range		-40 to +150	$^\circ C$
T_{stg}	Storage Temperature Range		-40 to +125	$^\circ C$

Absolute Maximum Ratings of Freewheeling Diode

V_{RRM}	Repetitive Peak Reverse Voltage Preliminary Data		1200	V
I_F	Diode Continuous Forward Current	$T_C = 25^\circ C$	150	A
	Diode Continuous Forward Current	$T_C = 100^\circ C$	75	
I_{FM}	Diode Maximum Forward Current		150	A

Electrical Characteristics of IGBT at T_J = 25°C (Unless Otherwise Specified)

Parameter		Test Conditions	Min	Typ	Max	Unit	
BV _{CES}	Collector to Emitter Breakdown Voltage	V _{GE} = 0V, I _C = 1mA	1200			V	
I _{CES}	Collector to Emitter Leakage Current	V _{GE} = 0V, V _{CE} = V _{CES}			1	mA	
I _{GES}	Gate to Emitter Leakage Current	V _{GE} = ±30V, V _{CE} = 0V			200	nA	
V _{GE(th)}	Gate Threshold Voltage	I _C = 1mA, V _{CE} = V _{GE}	4.5		5.7	V	
V _{CE(sat)}	Collector to Emitter Saturation Voltage (Module Level)	I _C = 75A, V _{GE} = 15V	T _J = 25°C		2.30	2.50	V
			T _J = 125°C		2.70		

Switching Characteristics of IGBT

t _{d(on)}	Turn-on Delay Time	V _{CC} = 600V I _C = 75A R _G = 7.5Ω V _{GE} = ±15V Inductive Load	T _J = 25°C		20		ns
			T _J = 125°C		25		
t _r	Turn-on Rise Time		T _J = 25°C		30		ns
			T _J = 125°C		40		
t _{d(off)}	Turn-off Delay Time		T _J = 25°C		230		ns
			T _J = 125°C		240		
t _f	Turn-off Fall Time		T _J = 25°C		110		ns
			T _J = 125°C		190		
E _{on}	Turn-on Switching Loss		T _J = 25°C		3.40		mJ
			T _J = 125°C		4.30		
E _{off}	Turn-off Switching Loss	T _J = 25°C		1.90		mJ	
		T _J = 125°C		3.40			
Q _g	Total Gate Charge	T _J = 25°C		490		nC	
R _{gint}	Integrated gate resistor	f = 1M; V _{pp} = 1V	T _J = 25°C		2.3		Ω
C _{ies}	Input Capacitance	V _{CE} = 25V V _{GE} = 0V f = 1MHz	T _J = 25°C		5.20		nF
C _{oes}	Output Capacitance		T _J = 25°C		0.69		
C _{res}	Reverse Transfer Capacitance		T _J = 25°C		0.45		
R _{θJC}	Thermal Resistance, Junction-to-Case (IGBT)				0.39		°C/W

Electrical and Switching Characteristics of Freewheeling Diode

V _F	Diode Forward Voltage	I _F = 75A , V _{GE} = 0V	T _J = 25°C	1.90	2.20	V	
			T _J = 125°C	1.90			
t _{rr}	Diode Reverse Recovery Time	I _F = 75A, di/dt=1400A/μs, V _{rr} = 600V,	T _J = 25°C	120		ns	
			T _J = 125°C	260			
I _{rr}	Diode Peak Reverse Recovery Current		T _J = 25°C	80		A	
			T _J = 125°C	90			
Q _{rr}	Diode Reverse Recovery Charge		T _J = 25°C	6.00		nC	
			T _J = 125°C	10.5			
E _{rr}	Diode Reverse Recovery Energy		T _J = 25°C	2.00		mJ	
			T _J = 125°C	3.90			
R _{θJC}	Thermal Resistance, Junction-to-Case (Diode)				0.63	°C/W	

Module Characteristics

Parameter		Min.	Typ.	Max.	Unit
V _{iso}	Isolation Voltage (All Terminals Shorted), f = 50Hz, 1minute	2500			V
R _{θCS}	Case-To-Sink(Conductive Grease Applied)		0.1		°C/W
M	Power Terminals Screw: M5	3.0		5.0	N·m
M	Mounting Screw: M6	4.0		6.0	N·m
G	Weight		160		g

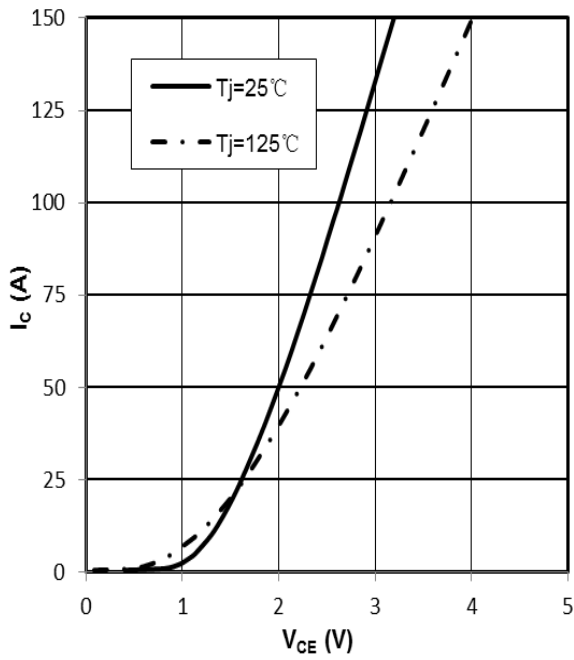


Fig 1. output characteristic IGBT,
 $I_c=f(V_{CE}), V_{GE}=15V$

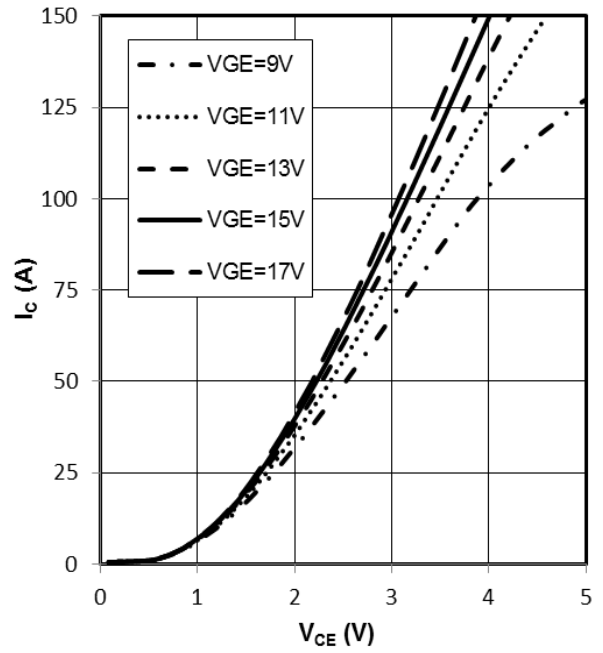


Fig 2. output characteristic IGBT,
 $I_c=f(V_{CE}), T_j=125^\circ C$

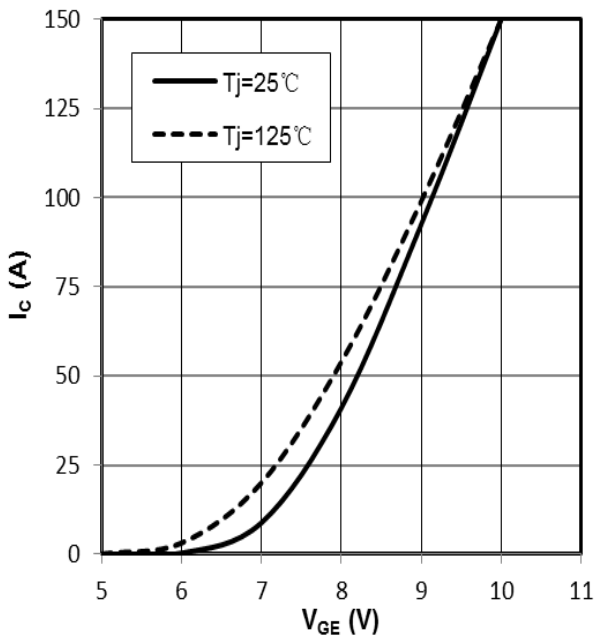


Fig 3. transfer characteristic IGBT,
 $I_c=f(V_{GE}), V_{CE}=20V$

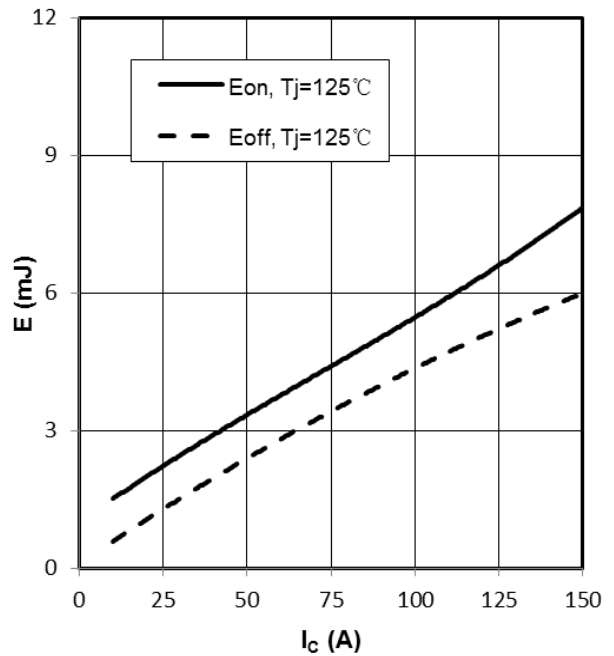


Fig 4. switching losses IGBT, $E_{on}=f(I_c), E_{off}=f(I_c)$,
 $V_{GE}=\pm 15V, R_{Gon}=7.5\Omega, R_{Goff}=7.5\Omega, V_{CE}=600V$

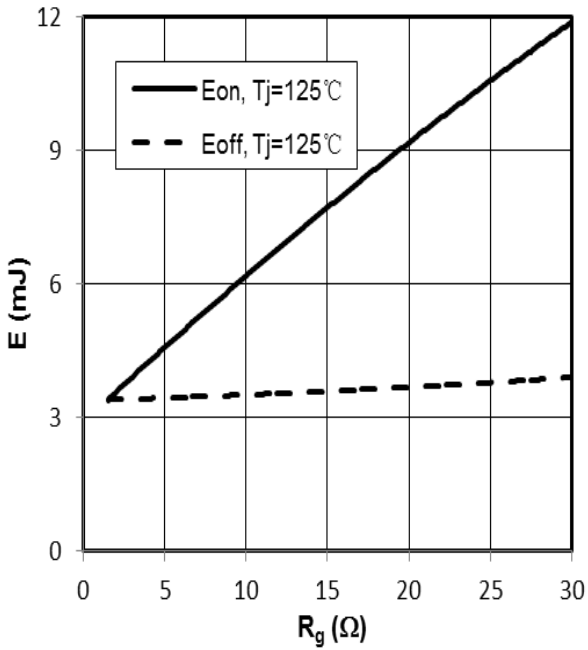


Fig 5. switching losses IGBT, $E_{on}=f(R_g), E_{off}=f(R_g)$, $V_{GE}=\pm 15V, I_C=75A, V_{CE}=600V$

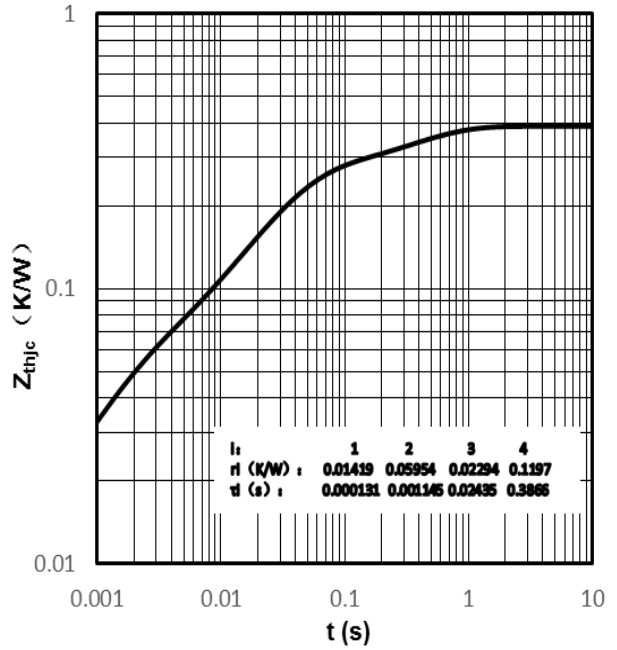


Fig 6. transient thermal impedance IGBT, $Z_{thjc}=f(t)$

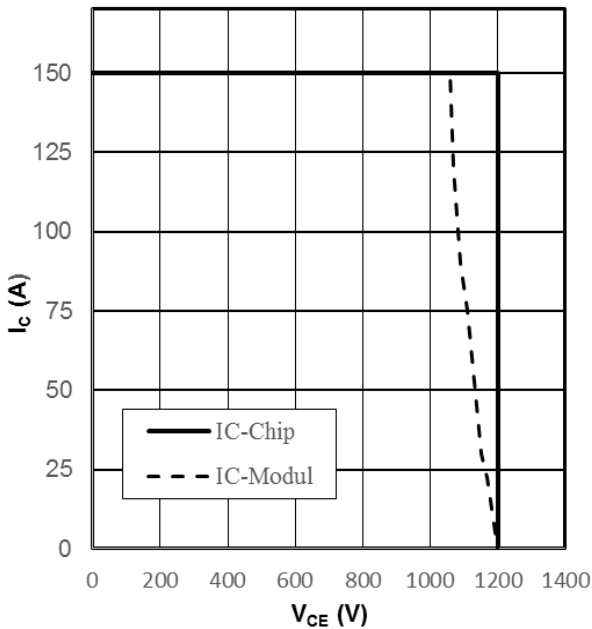


Fig 7. reverse bias safe operating area IGBT, $I_C=f(V_{CE})$, $V_{GE}=\pm 15V, R_{Goff}=7.5\Omega, T_{vj}=125^\circ C$

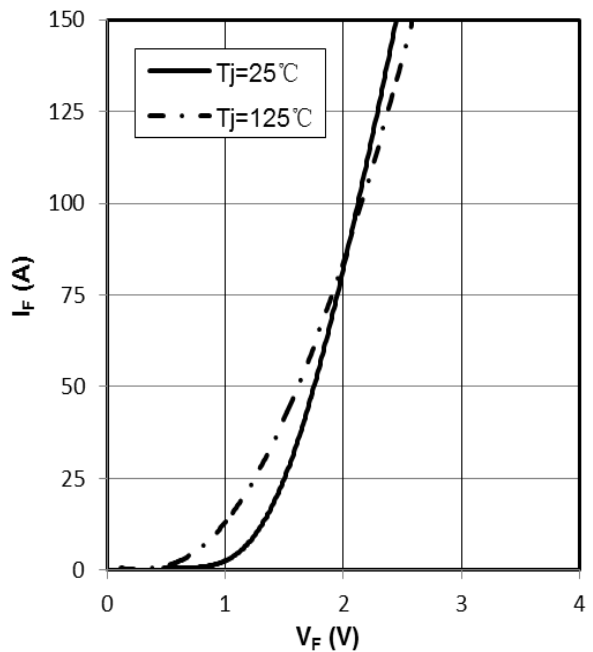


Fig 8. forward characteristic of Diode, $I_F=f(V_F)$

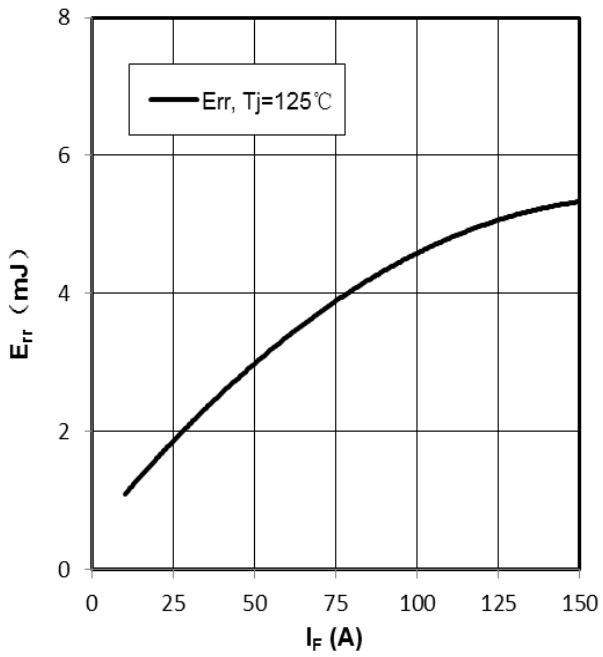


Fig 9. switching losses Diode,
 $E_{rr}=f(I_F)$, $R_{Gon}=7.5\Omega$, $V_{CE}=600V$

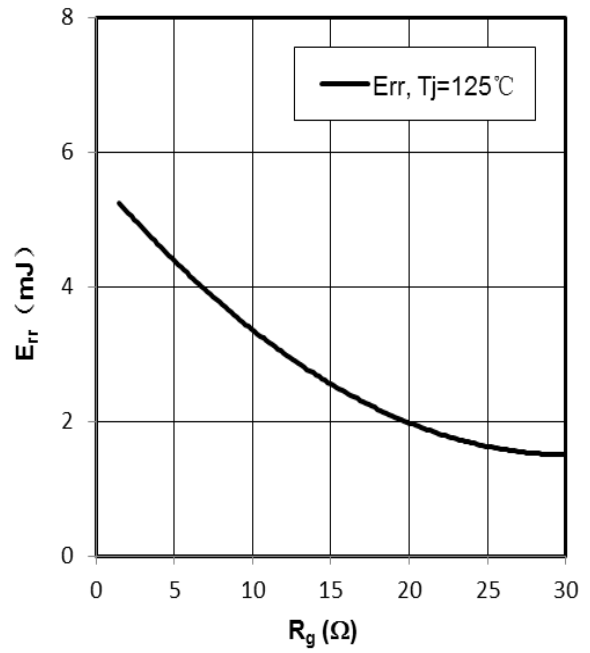
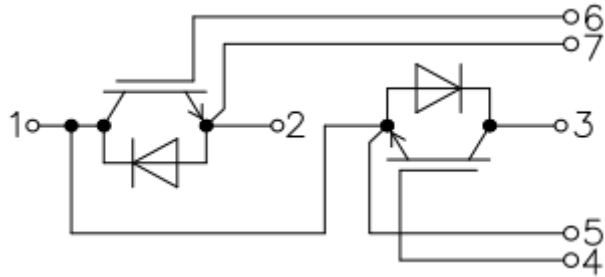
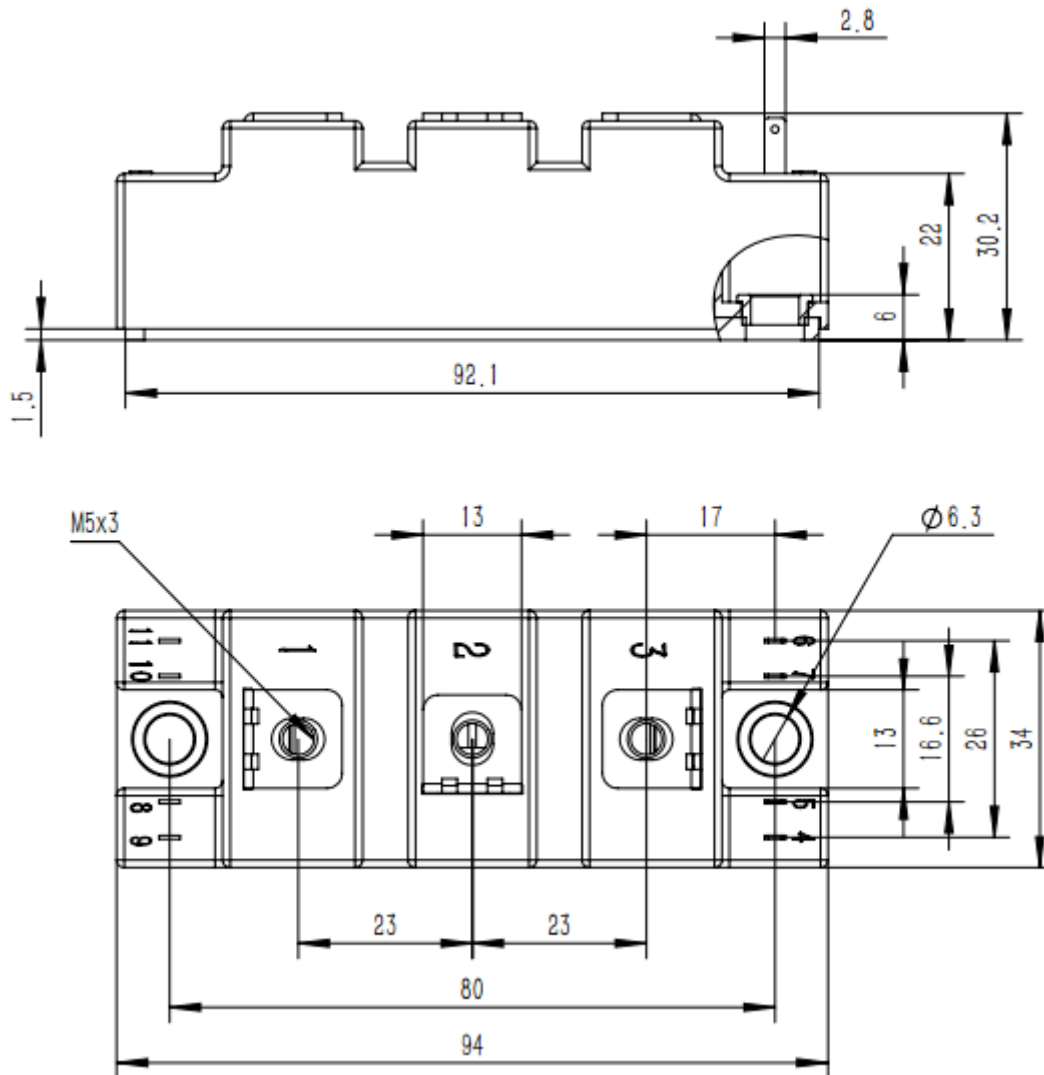


Fig 10. switching losses Diode,
 $E_{rr}=f(R_g)$, $I_F=75A$, $V_{CE}=600V$

Internal Circuit:



Package Dimension
Dimensions in Millimeters



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[SGB15N120ATMA1](#) [NGTB50N60L2WG](#) [STGB10H60DF](#) [STGB20V60F](#) [STGB40V60F](#) [STGFW80V60F](#) [IGW40N120H3FKSA1](#)
[RJH60D7BDPQ-E0#T2](#) [APT40GR120B](#)