**Features:**

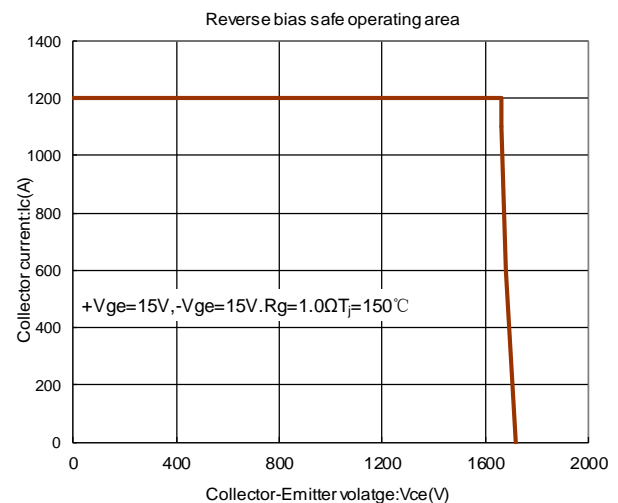
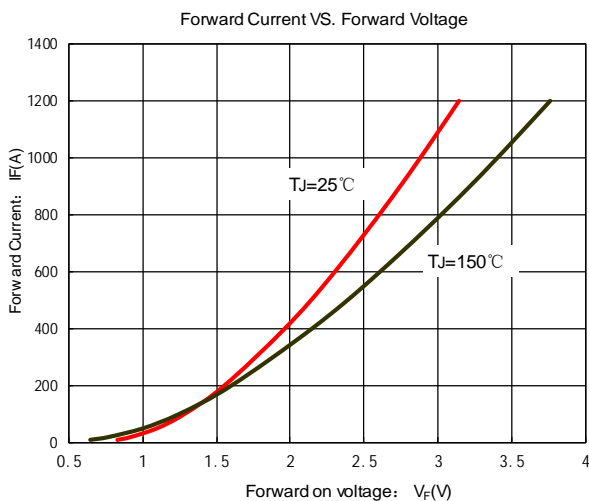
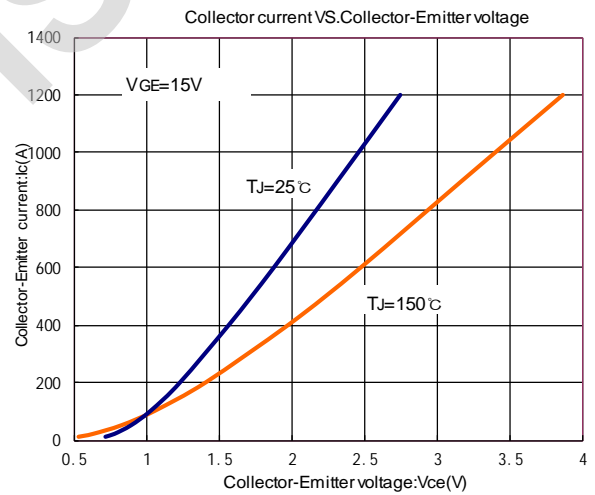
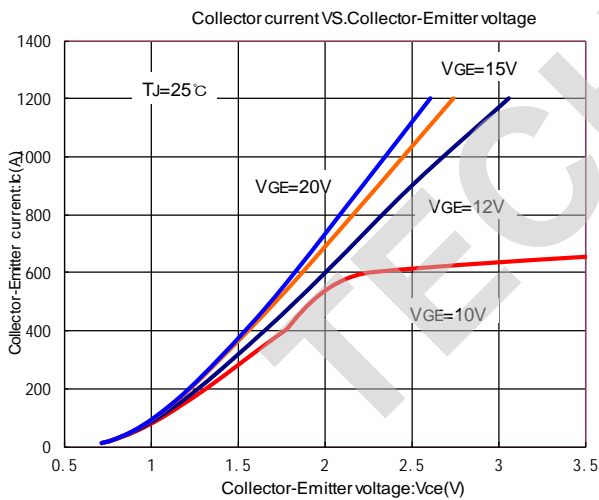
- n Low  $V_{CE(sat)}$  Trench IGBT technology
- n  $V_{CE(sat)}$  with positive temperature coefficient
- n Low inductance case
- n Fast & soft reverse recovery anti-parallel FWD
- n Isolated copper baseplate using DBC technology

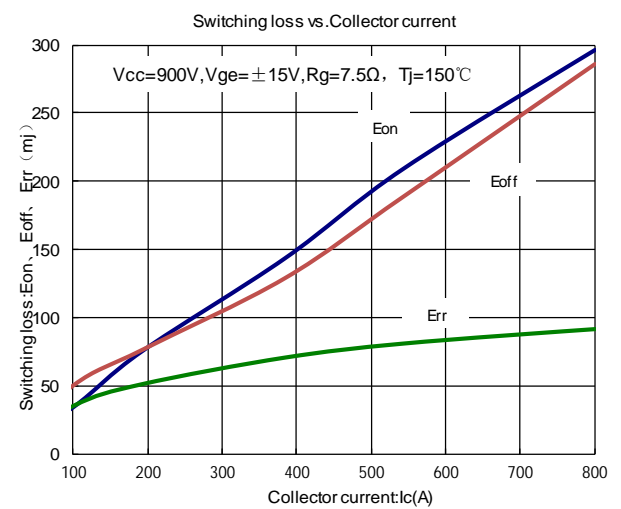
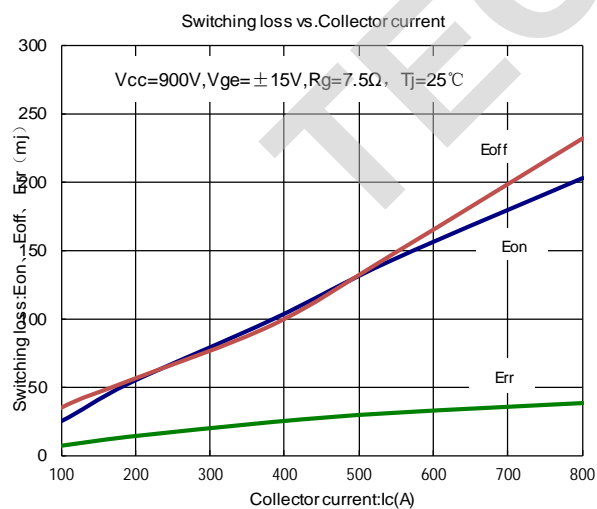
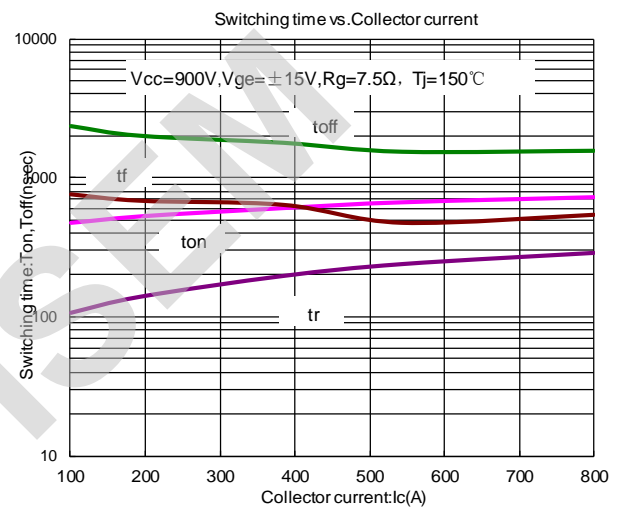
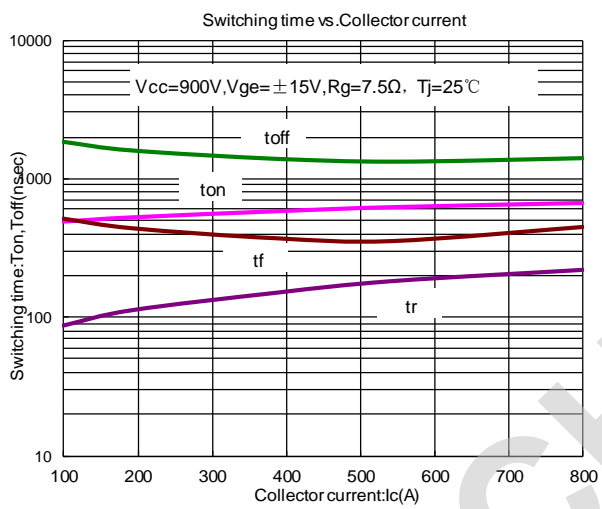
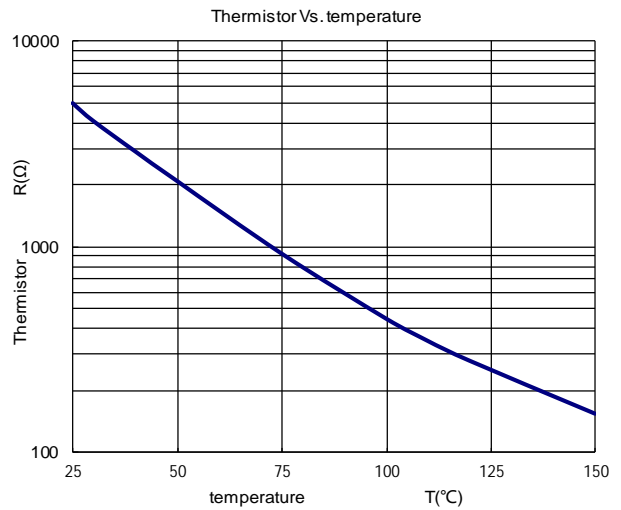
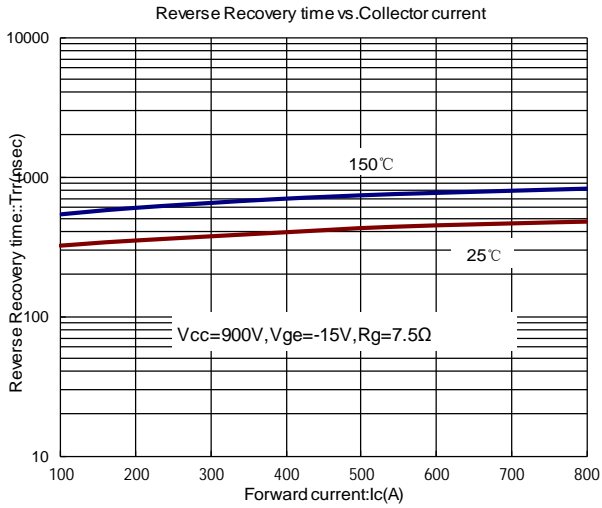
**Typical Applications:**

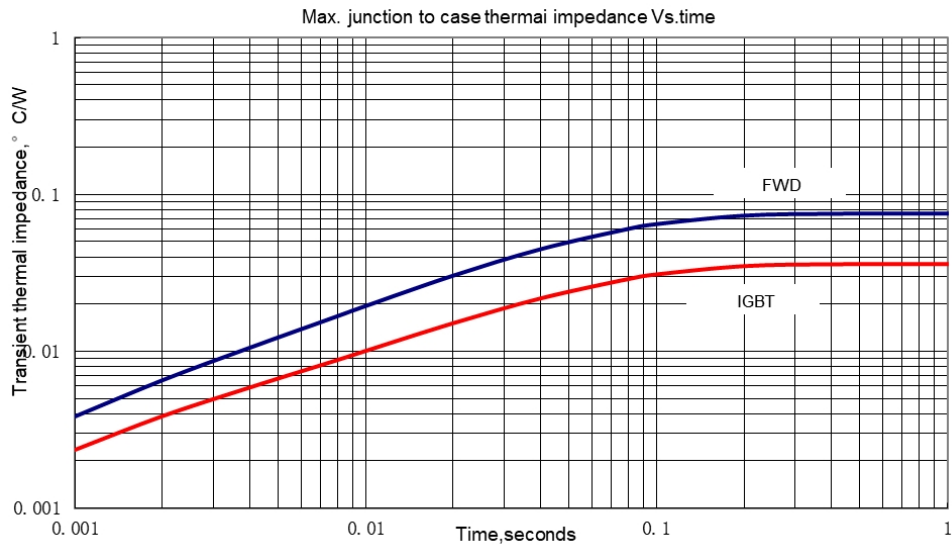
- n Inverter for motor drive
- n AC and DC servo drive amplifier
- n Uninterruptible power supply

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
$V_{CES}$	Collector-Emitter voltage	$T_j=25^\circ\text{C}$			1700	V
$V_{GES}$	Gate-Emitter voltage	$T_j=25^\circ\text{C}$			$\pm 20$	V
$I_C$	Collector current	Continuous @ $T_C=100^\circ\text{C}$			600	A
$I_{CM}$		$T_P=1\text{ms}$			1200	A
$P_D$	Collector power dissipation	$T_j=175^\circ\text{C}$ , 1 device			4166	W
$T_j$	Junction temperature	/			175	$^\circ\text{C}$
$T_{stg}$	Storage temperature	/	-40		125	$^\circ\text{C}$
$V_{iso}$	Isolation between terminal and copper base	$T_j=25^\circ\text{C}$ , AC: 1minute	4000			V
$I_{CES}$	Zero gate voltage collector current	$T_j=25^\circ\text{C}$ , $V_{CE}=1700\text{V}$ , $V_{GE}=0\text{V}$			5.0	mA
$I_{GES}$	Gate-Emitter leakage current	$T_j=25^\circ\text{C}$ , $V_{CE}=0\text{V}$ , $V_{GE}=\pm 20\text{V}$			400	nA
$V_{GE(th)}$	Gate-Emitter threshold voltage	$T_j=25^\circ\text{C}$ , $V_{CE}=20\text{V}$ , $I_C=12\text{mA}$	5.6	6.2	6.8	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	$T_j=25^\circ\text{C}$ , $V_{GE}=15\text{V}$ , $I_C=600\text{A}$		1.85	2.20	V
		$T_j=125^\circ\text{C}$ , $V_{GE}=15\text{V}$ , $I_C=600\text{A}$		2.35		V
		$T_j=150^\circ\text{C}$ , $V_{GE}=15\text{V}$ , $I_C=600\text{A}$		2.45		V
$Q_G$	Gate charge	$V_{GE}=\pm 15\text{V}$		4.50		$\mu\text{C}$
$R_{Gint}$	Internal Gate Resistance			1.3		$\Omega$
$C_{ies}$	Input capacitance	$T_j=25^\circ\text{C}$ , $V_{CE}=10\text{V}$ , $V_{GE}=0\text{V}$ , $f=1\text{MHz}$		45.9		nF
$C_{res}$	Reverse transfer capacitance			1.4		nF
$t_{on}$	Turn-on Delay time	$T_j=150^\circ\text{C}$ , $V_{CC}=900\text{V}$ , $I_C=600\text{A}$ , $V_{GE}=\pm 15\text{V}$ , $R_G=7.5\Omega$		650		ns
$t_r$	Rise Time			240		ns
$t_{off}$	Turn-off Delay time			1500		ns
$t_f$	Fall Time			480		ns
$E_{on}$	Turn-on Switching Loss			230		mJ
$E_{off}$	Turn-off Switching Loss			210		mJ
$I_{sc}$	SC Date	$T_P \leq 10\mu\text{s}$ , $V_{GE}=15\text{V}$ , $T_j=150^\circ\text{C}$ , $V_{CC}=1000\text{V}$ , $V_{CEM} \leq 1700\text{V}$		2300		A
$t_{sc}$	Short circuit withstand time	$T_j=150^\circ\text{C}$ , $V_{CC}=720\text{V}$ , $V_{GE}=\pm 15\text{V}$ , $R_G=7.5\Omega$	10			$\mu\text{s}$

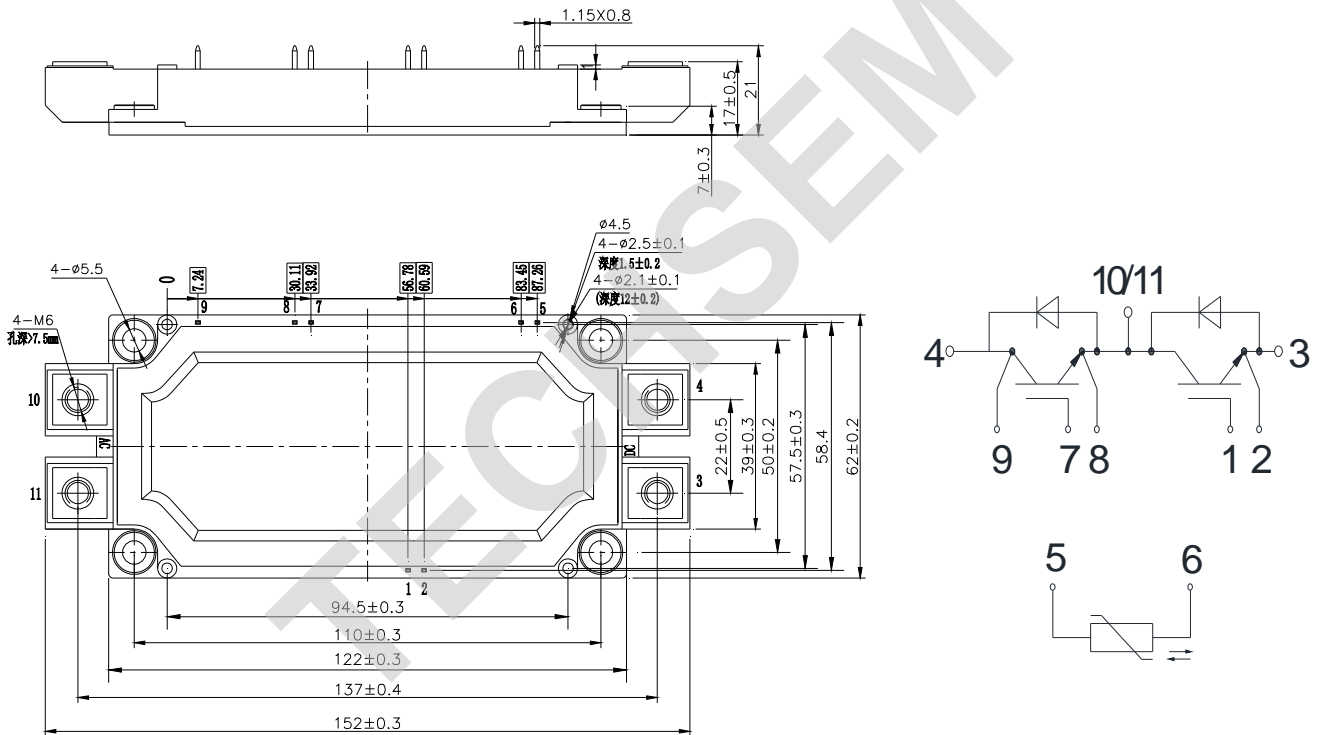
V <sub>F</sub>	Forward on voltage	T <sub>j</sub> =25°C ,I <sub>F</sub> =600A,V <sub>GE</sub> =0V		2.30	2.50	V
		T <sub>j</sub> =125°C ,I <sub>F</sub> =600A,V <sub>GE</sub> =0V		2.50		V
		T <sub>j</sub> =150°C ,I <sub>F</sub> =600A,V <sub>GE</sub> =0V		2.60		V
I <sub>RM</sub>	Peak Reverse Recovery Current	V <sub>R</sub> =900V,I <sub>F</sub> =600A, V <sub>GE</sub> =-15V,T <sub>j</sub> =150°C		670		A
Q <sub>r</sub>	Recovered Charge			314		μC
E <sub>rec</sub>	Reverse Recovery Energy			80		mJ
t <sub>rr</sub>	Reverse recovery time	T <sub>j</sub> =150°C ,I <sub>F</sub> =600A		760		ns
R <sub>th(j-c)</sub>	Thermal resistance	per IGBT			0.036	°C/W
		per Diode			0.075	°C/W
R <sub>th(c-f)</sub>	Contact thermal resistance (per module)	With thermal compound		0.009		°C/W
R <sub>25</sub>	Rated Resistance	T <sub>j</sub> =25°C		5.0		kΩ
ΔR/R	Deviation of R <sub>100</sub>	T <sub>C</sub> =100°C,R <sub>100</sub> =493.3Ω	-5		5	%
P <sub>25</sub>	Power Dissipation	Continuous@ T <sub>C</sub> =100°C			20.0	mW
B <sub>25/50</sub>	B-value	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298.15K))]$		3375		K
B <sub>25/80</sub>	B-value	$R_2=R_{25}\exp[B_{25/80}(1/T_2-1/(298.15K))]$		3411		K
B <sub>25/100</sub>	B-value	$R_2=R_{25}\exp[B_{25/100}(1/T_2-1/(298.15K))]$		3433		K
Screw torque	Mounting(M5)	/	3		6.0	N·m
	Terminals(M6)	/	3		6.0	N·m
W <sub>t</sub>	Weight				345	g
Outline			465H3			







Outline & Circuit Diagram



Unmarked dimensional tolerance: ±0.5mm

TECHSEM reserves the right to change specifications without notice.