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°C			1700	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±20	V
I_C	Collector current	Continuous@ T_C=115°C			600	A
I_{CM}		T_P= 1ms			1200	A
P_D	Collector power dissipation	T_j=175°C ,1 device			3570	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			1.0	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V	-500		500	nA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=20V，I_C=30mA	5.0	6.15	7.5	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=600A		1.65	2.00	V
		T_j=125°C ,V_{GE}=15V，I_C=600A		1.85		V
		T_j=175°C ,V_{GE}=15V，I_C=600A		2.05		V
Q_G	Gate charge	V_{GE}=± 15 V		4.50		μC
R_{Gint}	Internal Gate Resistance			1.4		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=100kHz		45.9		nF
C_{res}	Reverse transfer capacitance			1.40		nF
$t_{d(on)}$	Turn-on Delay time	T_j=175°C ,V_{CC}=900V，I_C=600A，V_{GE}=±15V，R_G=1.5Ω		150		ns
t_r	Rise Time			62		ns
$t_{d(off)}$	Turn-off Delay time			775		ns
t_f	Fall Time			660		ns
E_{on}	Turn-on Switching Loss			261		mJ
E_{off}	Turn-off Switching Loss			216		mJ
Isc	SC Date	Tp≤10μs，V_{GE}=15V，T_j=175°C，Vcc=1200V，V_{CEM}≤1700V		2300		A
tsc	Short circuit withstand time	T_j=150°C ,V_{CC}=720V,V_{GE}=±15V，R_g=7.5Ω	10			μs

V_F	Forward on voltage	T_j=25°C ,I_F=600A,V_{GE}=0V		1.70	2.15	V
		T_j=125°C ,I_F=600A,V_{GE}=0V		1.90		V
		T_j=175°C ,I_F=600A,V_{GE}=0V		1.95		V
I_{RM}	Peak Reverse Recovery Current	V_R=900V, I_F=600A, -di/dt=10200A/μs, V_{GE}=-15V, T_j=175°C		612		A
Q_r	Recovered Charge			272		μC
E_{rec}	Reverse Recovery Energy			153		mJ
t_{rr}	Reverse recovery time	T_j=150°C ,I_F=600A		1420		ns
$R_{th(j-c)}$	Thermal resistance	per IGBT			0.042	℃/W
		per Diode			0.073	℃/W
$R_{th(c-f)}$	Contact thermal resistance (per module)	With thermal compound		0.009		℃/W
R_{25}	Rated Resistance	T_j=25°C		5.0		kΩ
△R/R	Deviation of R_{100}	T_C=100°C,R_{100}=493.3Ω	-5		5	%
P_{25}	Power Dissipation	Continuous@ T_C=100°C			20.0	mW
$B_{25/50}$	B-value	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298.15K))]$		3375		K
$B_{25/80}$	B-value	$R_2=R_{25}\exp[B_{25/80}(1/T_2-1/(298.15K))]$		3411		K
$B_{25/100}$	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_t	Weight				350	g
Outline	465H3P					

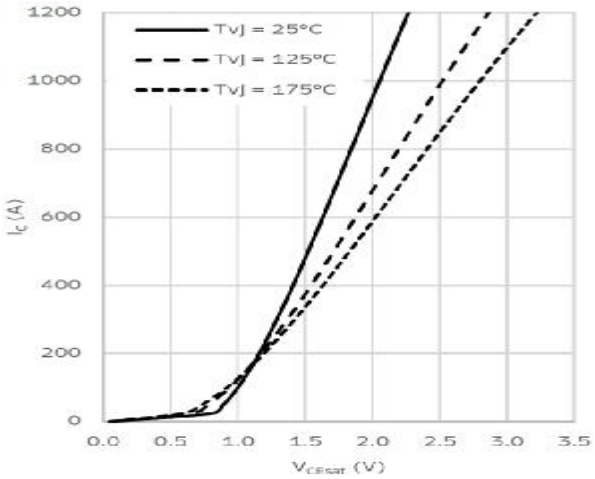


Fig 1. IGBT on-state characteristics

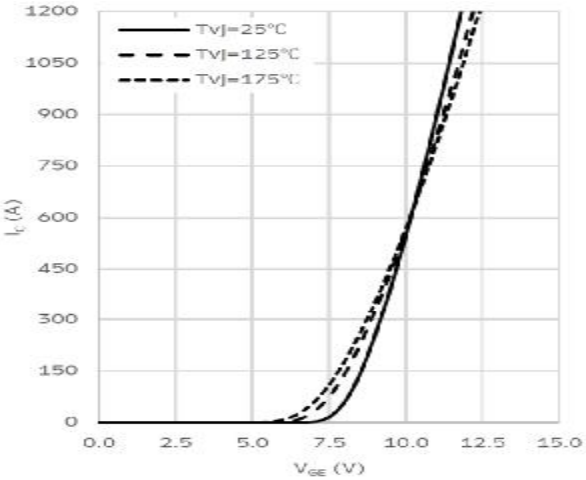


Fig 2. IGBT Transfer Characteristics

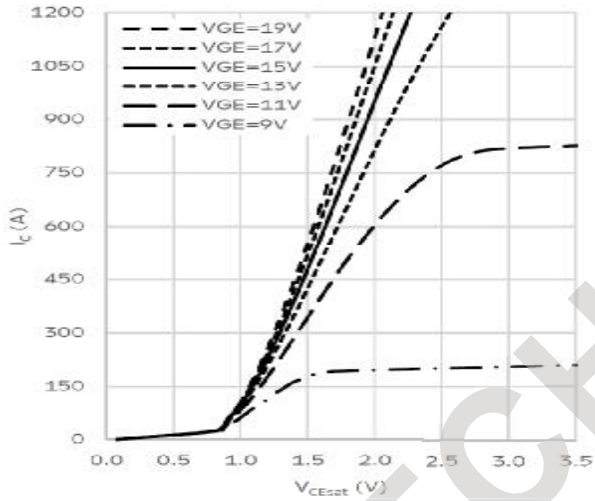


Fig 3. IGBT output characteristics

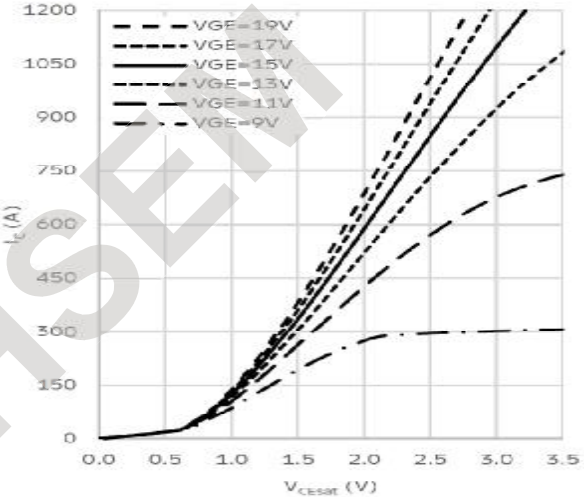


Fig 4. IGBT output characteristics

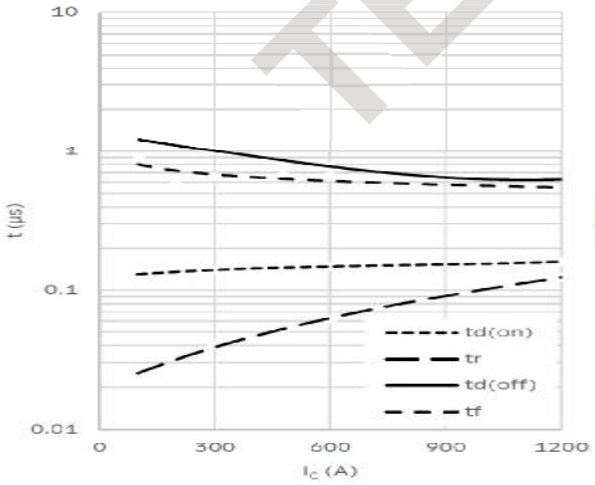


Fig 5. IGBT switching losses

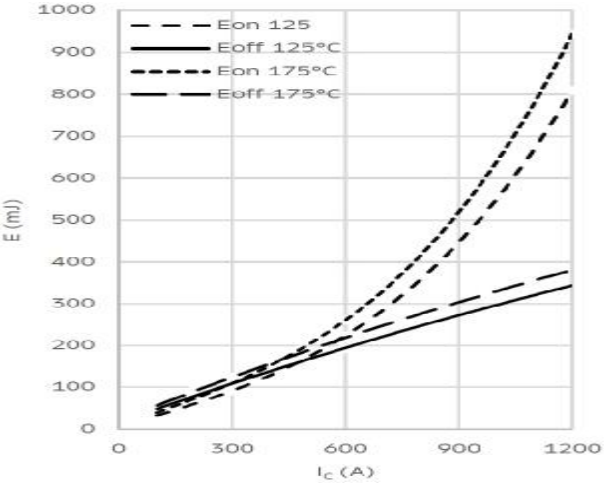


Fig 6. IGBT switching times

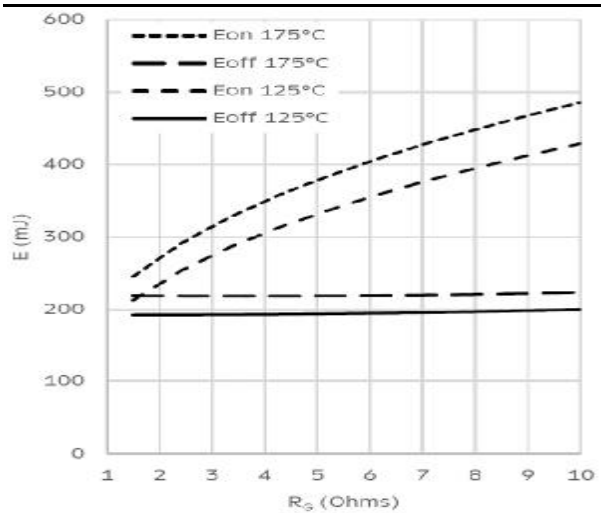


Fig 7. IGBT switching losses

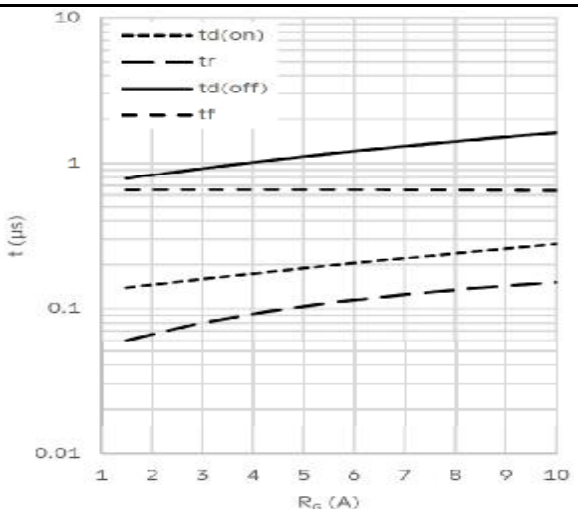


Fig 8. IGBT switching times

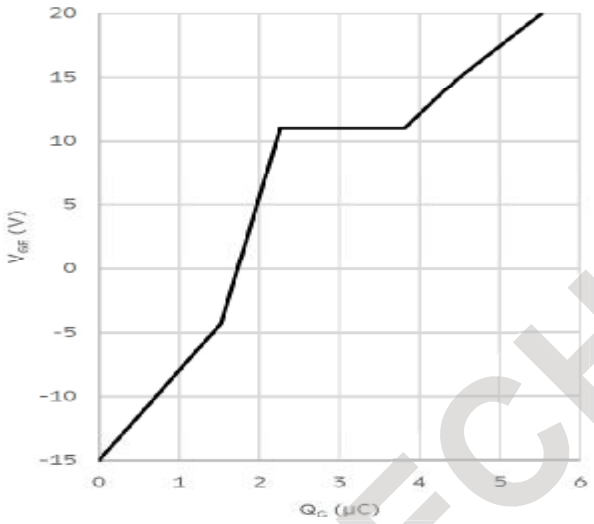


Fig 9. IGBT gate charge

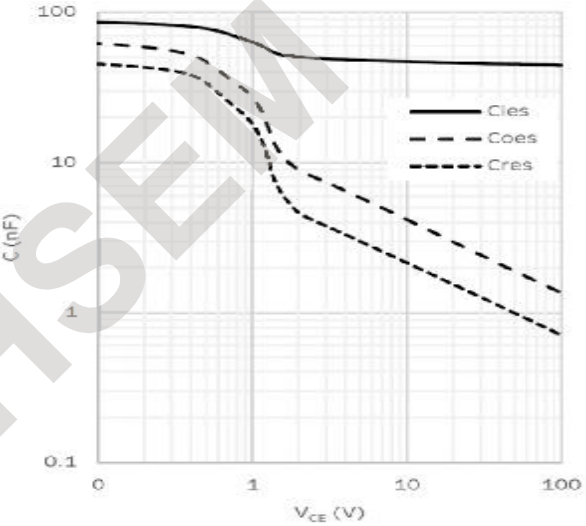


Fig 10. Capacitance characteristics

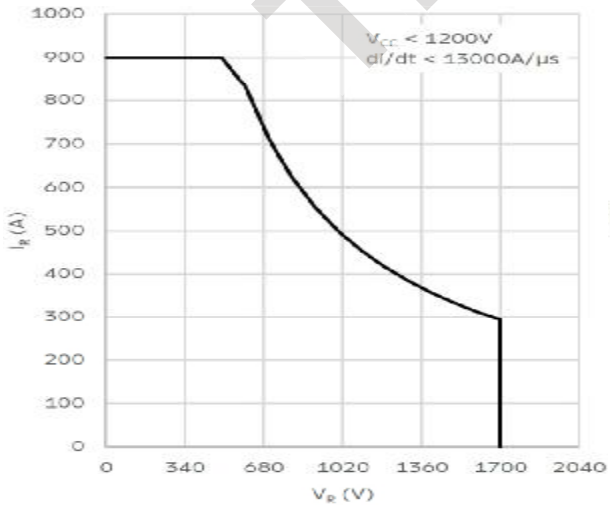


Fig 11. IGBT RBSOA

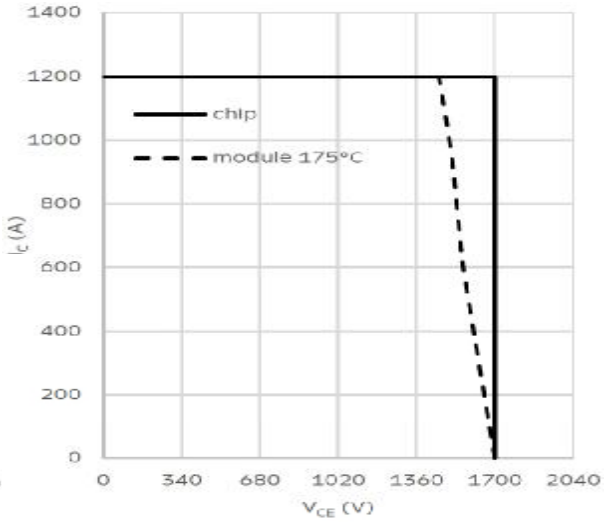


Fig 12. Diode SOA

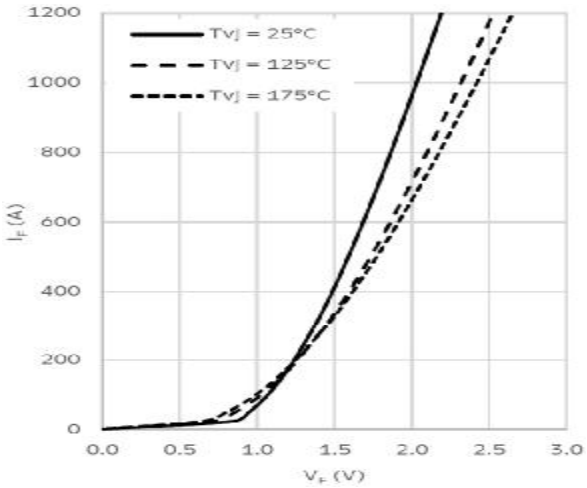


Fig 13. Diode forward characteristic

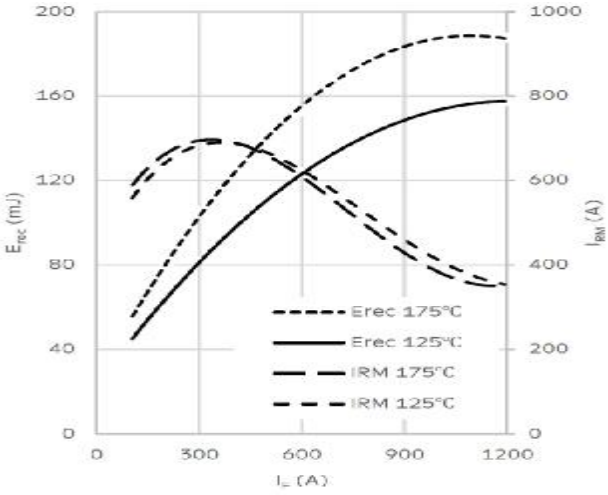


Fig 14. Diode switching characteristics

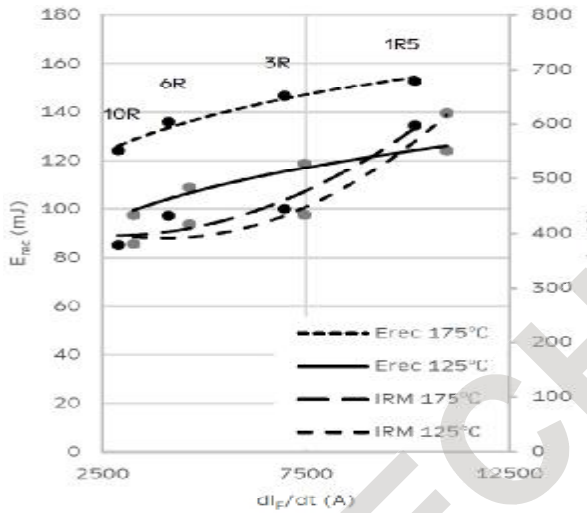
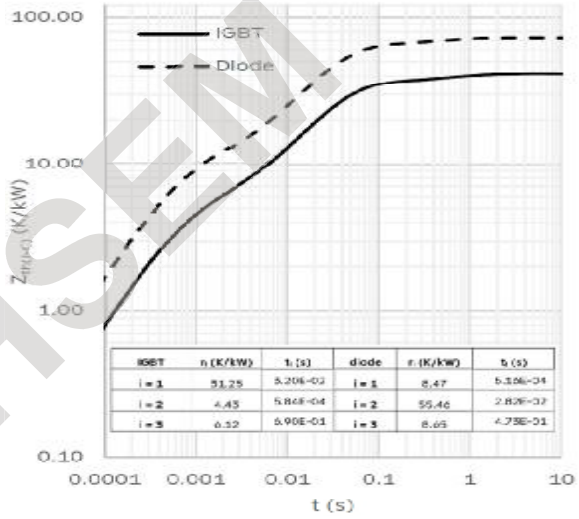


Fig 15. Diode switching characteristics



IGBT	n (K/kW)	t_i (s)	diode	r_i (K/kW)	t_i (s)
i = 1	31.25	5.20E-03	i = 1	8.47	5.10E-04
i = 2	4.45	5.86E-04	i = 2	55.46	2.82E-02
i = 3	0.32	5.90E-01	i = 3	8.65	4.73E-01

Fig 16. Thermal impedance

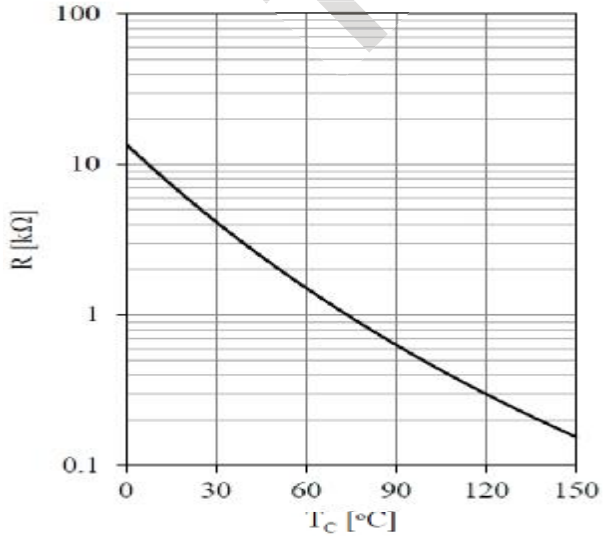
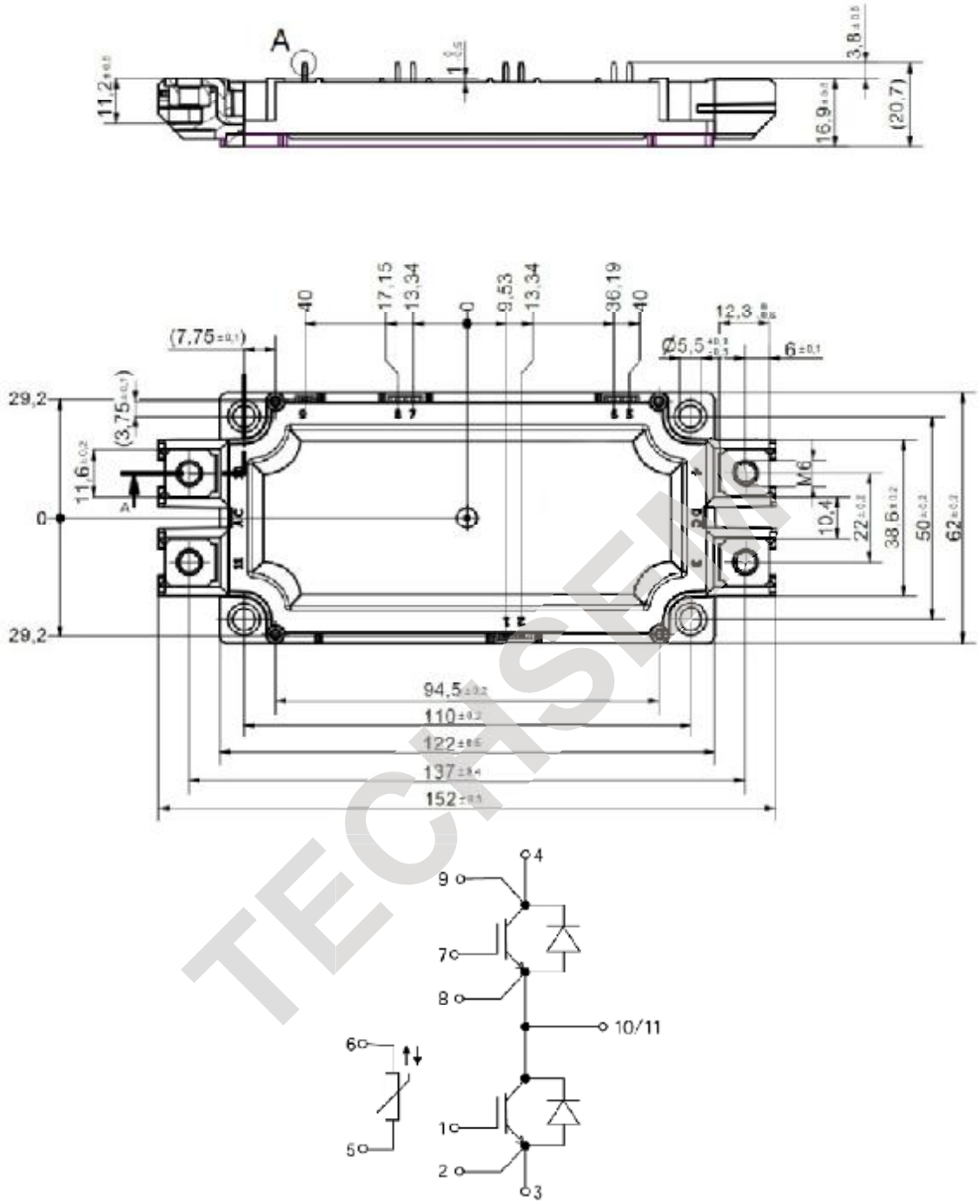


Fig 17. NTC Temperature Characteristic

Outline & Circuit Diagram



Unmarked dimensional tolerance：±0.5mm

TECHSEM reserves the right to change specifications without notice.