

Features :

- n 10us short circuit capability
- n Low switching losses
- n $V_{CE(sat)}$ with Positive temperature coefficient
- n Fast & soft reverse recovery anti-parallel FWD

Typical Applications :

- n Inverter for motor drive(VFD)
- 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	$T_j=25^{\circ}C$			1200	V
V_{GES}	Gate-Emitter voltage	$T_j=25^{\circ}C$			± 20	V
I_C	Collector current	Continuous@ $T_C=125^{\circ}C$			40	A
I_{CP}		$T_P=1ms$			80	A
T_j	Junction temperature	/			150	$^{\circ}C$
T_{op}	Operating temperature	/	-40		125	$^{\circ}C$
T_{stg}	Storage temperature	/	-40		125	$^{\circ}C$
V_{iso}	Isolation between terminal and copper base	$T_j=25^{\circ}C$, AC: 1minute	2500			V
I_{CES}	Zero gate voltage collector current	$T_j=25^{\circ}C$, $V_{CE}=1200V$, $V_{GE}=0V$			0.1	mA
I_{GES}	Gate-Emitter leakage current	$T_j=25^{\circ}C$, $V_{CE}=0V$, $V_{GE}=\pm 20V$	-0.4		0.4	μA
BV_{CES}		$V_{GE}=0V$, $I_C=4mA$	1200			V
$V_{GE(th)}$	Gate-Emitter threshold voltage	$T_j=25^{\circ}C$, $V_{CE}=20V$, $I_C=1.5mA$	5.0	5.8	6.5	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	$T_j=25^{\circ}C$, $V_{GE}=15V$, $I_C=40A$		1.8	2.3	V
R_{Gint}	Integrated gate resistor			6		Ω
Q_g	Gate Charge	$T_j=25^{\circ}C$, $V_{CE}=600V$, $I_C=40A$, $V_{GE}=15V$		0.33		μC
C_{ies}	Input capacitance	$T_j=25^{\circ}C$, $V_{CE}=25V$, $V_{GE}=0V$, $f=1MHz$		2.5		nF
C_{oes}	output capacitance			1.95		nF
C_{res}	Reverse transfer capacitance			0.09		nF
$t_{(d)on}$	Turn-on time	$V_{CC}=600V$, $I_C=40A$, $V_{GE}=\pm 15V$, $R_g=27\Omega$, Inductive load	$T_j=25^{\circ}C$	90		ns
t_r			$T_j=125^{\circ}C$	90		ns
	$t_{(d)off}$		$T_j=25^{\circ}C$	30		ns
t_f			$T_j=125^{\circ}C$	50		ns
	Turn-off time		$T_j=25^{\circ}C$	420		ns
t_f			$T_j=125^{\circ}C$	520		ns
	t_f		$T_j=25^{\circ}C$	70		ns
t_f			$T_j=125^{\circ}C$	90		ns
tsc	Short circuit withstand time	$V_{CES} \leq 600V$, $V_{GE} = \pm 15V$		10		μs
V_F	Forward on voltage	$T_j=25^{\circ}C$, $I_F=40A$	1.75	2.30		V
		$T_j=125^{\circ}C$, $I_F=40A$	1.75			V
I_{FRM}	Repetitive peak forward current		80			A
t_{rr}	Reverse recovery time	$T_j=25^{\circ}C$, $I_F=40A$, $di_F/dt=-1600A/\mu s$, $V_R=600V$		297		ns
$R_{th(j-c)}$	Thermal resistance(per chip)	IGBT		0.6		$^{\circ}C/W$
		FWD		0.95		$^{\circ}C/W$
R_{25}	Resistance	$T_{vj}=25^{\circ}C$		5		k Ω

B25/50	$R_2=R_{25} \exp [B25/50(1/T_2-1/(298,15K))]$		3375		K
Outline	256H5P2				

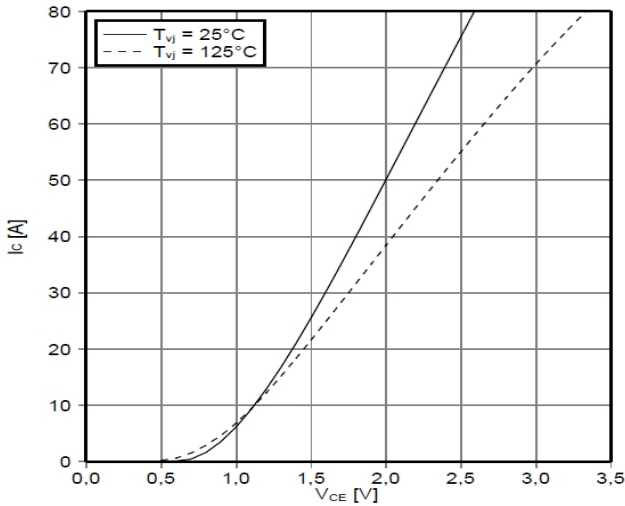


Fig.1 output characteristic IGBT, Inverter

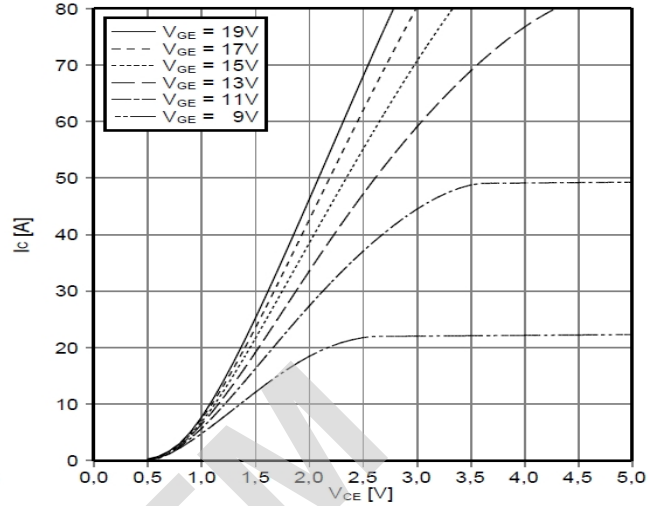


Fig.2 output characteristic IGBT, Inverter

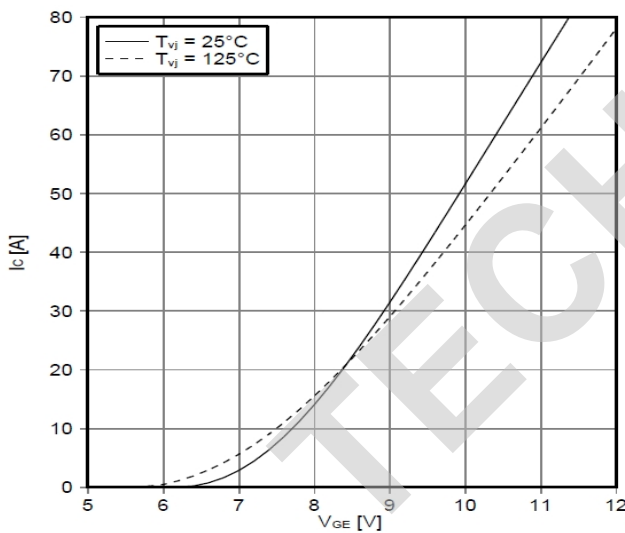


Fig.3 transfer characteristic IGBT, Inverter

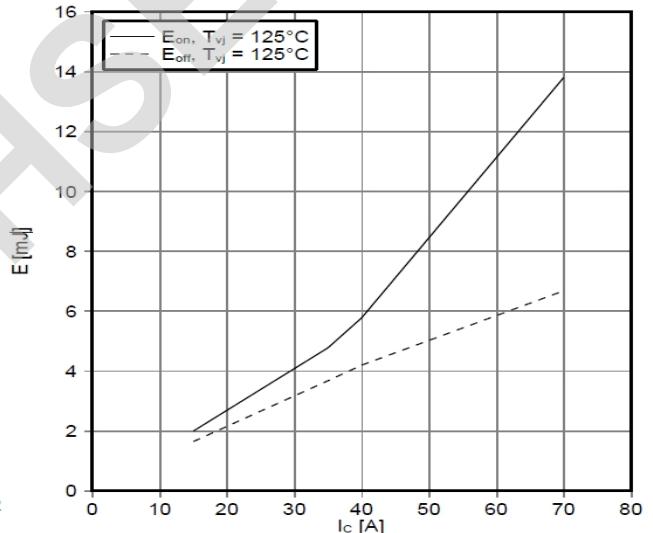


Fig.4 switching losses IGBT, Inverter

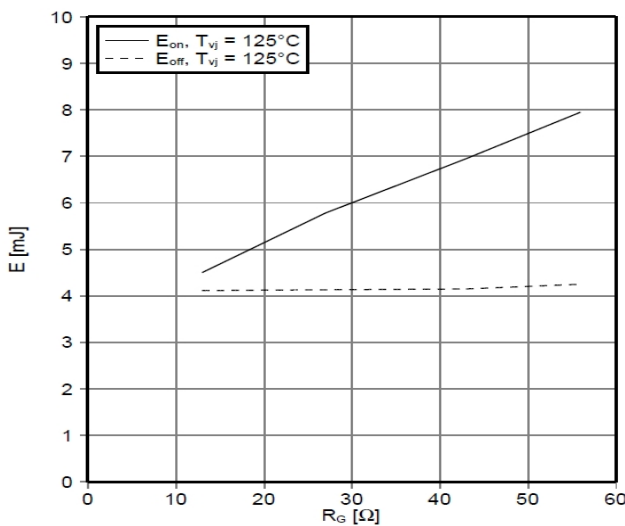


Fig.5 switching losses IGBT, Inverter

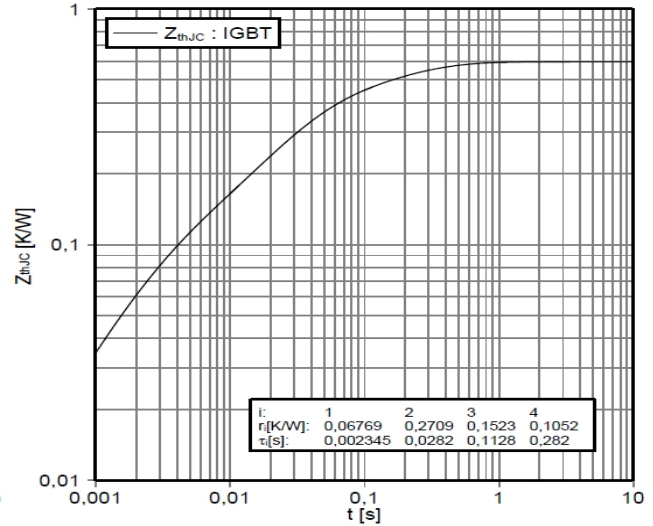


Fig.6 transient thermal impedance IGBT, Inverter

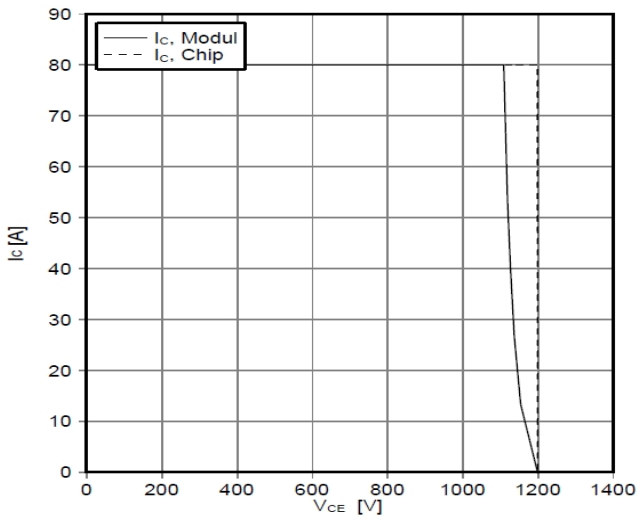


Fig.7 reverse bias safe operating area IGBT, Inverter (RBSOA)

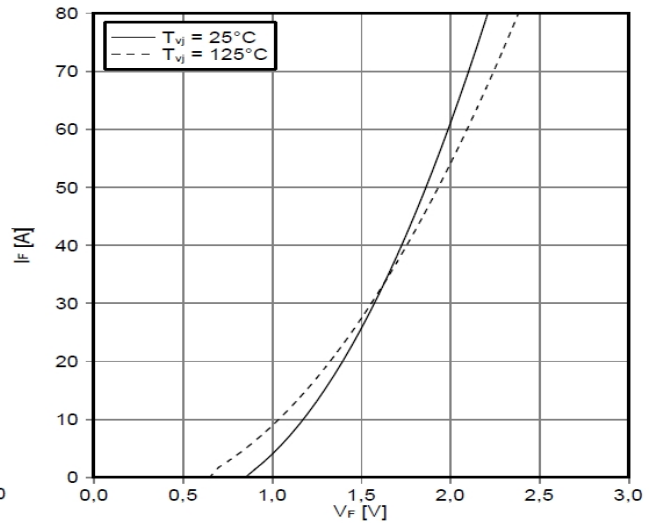


Fig.8 forward characteristic of Diode, Inverter

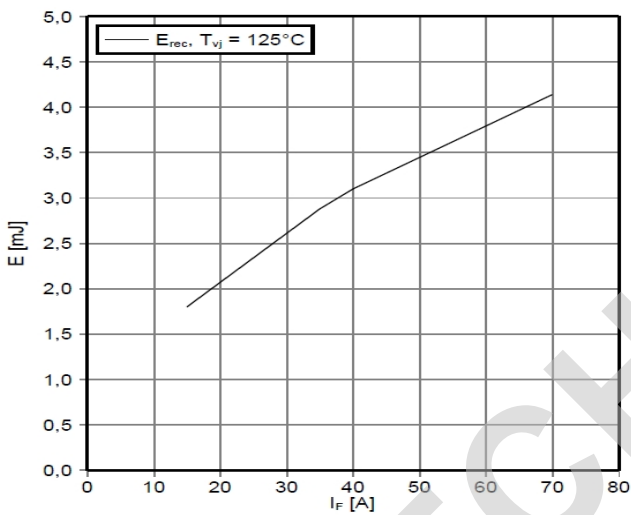


Fig.9 switching losses Diode, Inverter

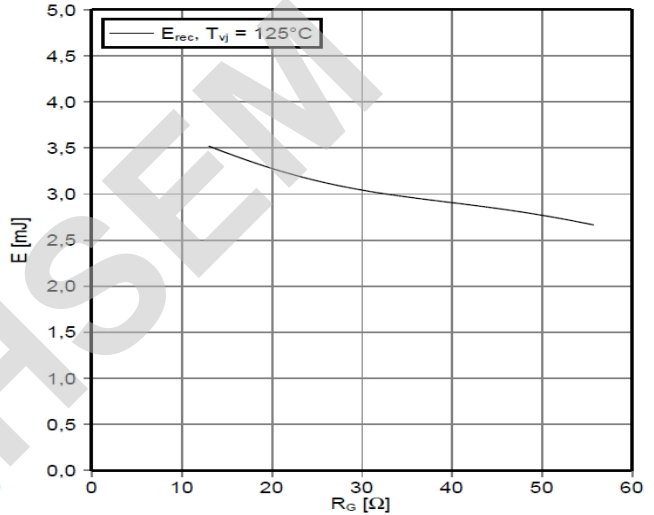


Fig.10 switching losses Diode, Inverter

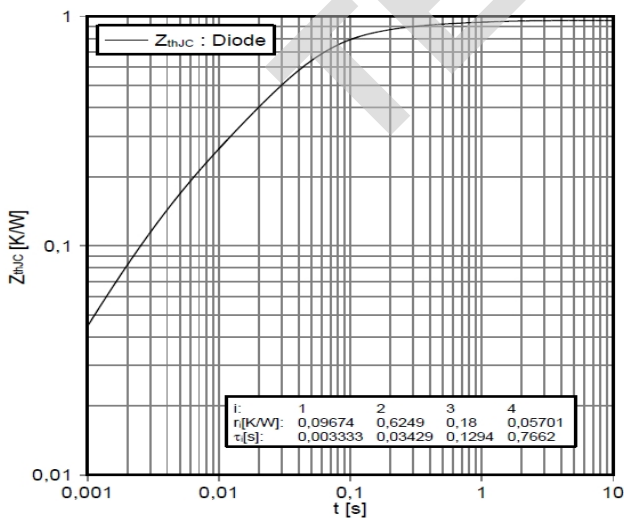


Fig.11 transient thermal impedance Diode, Inverter

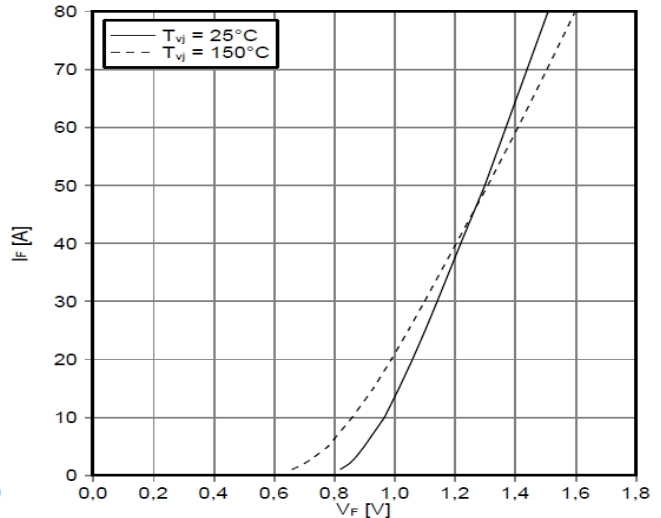


Fig.12 forward characteristic of Diode, Rectifier

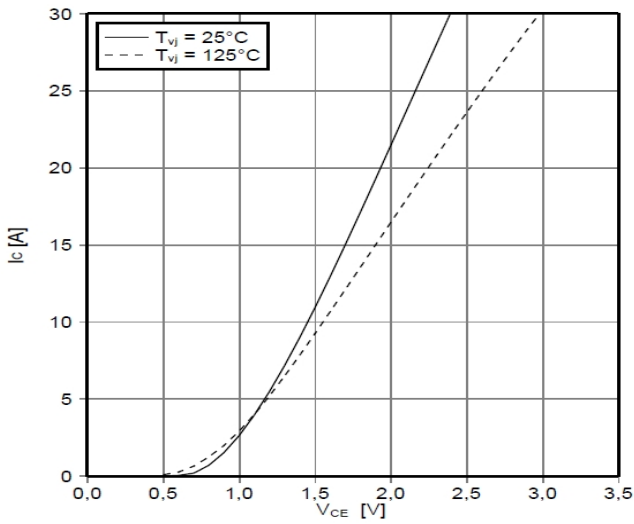


Fig.13 output characteristic IGBT, Brake-Chopper

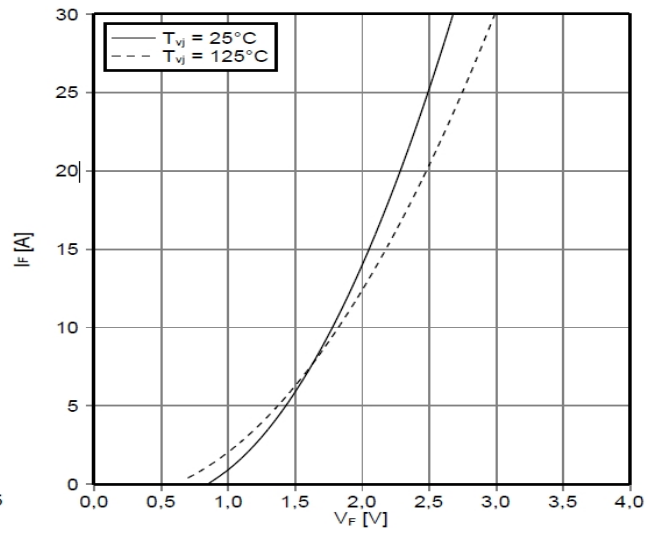


Fig.14 forward characteristic of Diode, Brake-Chopper

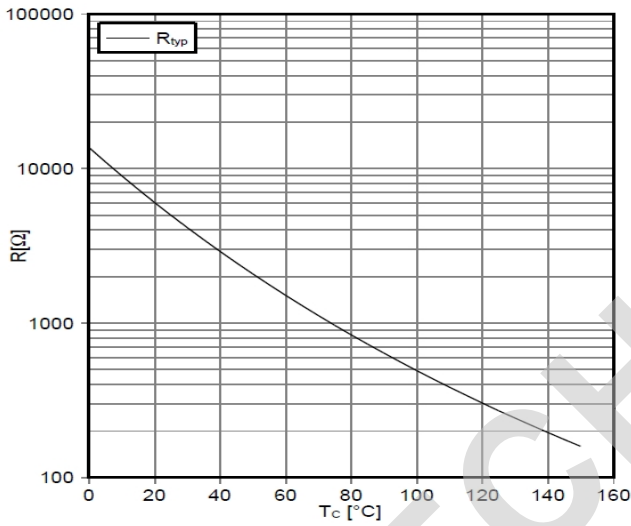


Fig.15 NTC-Thermistor-temperature characteristic

