Features：

- $V_{CE(sat)}$ with positive temperature coefficient
- Low V_{CEsat}
- Short circuit rated

Typical Applications：

- Motor Drive
- Servo Drive

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
V_{CES}	Collector-Emitter voltage	T_j=25°C			1200	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±20	V
I_C	Collector current	Continuous@ T_C=100°C			450	A
I_{CP}		T_P= 1ms			900	A
P_C	Collector power dissipation	T_j=175°C ,1 device			2307	W
T_{jmax}	Junction temperature	/			175	℃
T_{jop}	Operating junction temperature				150	℃
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}=1200V，V_{GE}=0V			1	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V	-0.4		0.4	μA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=20V，I_C=8mA	5.0	5.8	6.6	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=450A		1.60	2.00	V
		T_j=125°C ,V_{GE}=15V，I_C=450A		1.97		V
		T_j=150°C ,V_{GE}=15V，I_C=450A		2.00		V
Q_G	Gate charge	V_{CE}=600V， I_C=450A，V_{GE}=15 V		3.8		μC
R_{Gint}	Internal gate resistor	T_j=25°C		0.8		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=100KHz		75		nF
C_{res}	Reverse transfer capacitance			1.3		nF
$t_{d(on)}$	Turn-on time	T_j=150°C ,V_{CC}=600V，I_C=450A，V_{GE}=±15V，R_g=1Ω，Inductive load		130		ns
t_r				50		ns
$td_{(off)}$	Turn-off time			460		ns
t_f				230		ns
E_{on}	Turn-on energy loss per pulse	I_C=450 A, V_{CE}=600 V, V_{GE}=±15 V, R_{Gon}=1Ω		19.1		mJ
E_{off}	Turn-off energy loss per pulse			51.8		mJ
I_{SC}	SC data	T_j=150°C，V_{CC}=800V，V_{GE}≤15V		1900		A
tsc	Short circuit withstand time	V_{GE}=15 V, V_{CES}≤600V	10			μs

V_F	Forward on voltage	T_j=25°C ,I_F=450A		2.05	2.40	V
		T_j=125°C ,I_F=450A		2.00		V
		T_j=150°C ,I_F=600A		1.95		V
I_{RM}	Peak reverse recovery current	I_F=450 A, V_R=600V, V_{GE}=-15V, , R_{Gon}=1Ω, T_j=150°C		536		A
Q_r	Recovered charge			73		μC
E_{rec}	Reverse recovery energy			33.2		mJ
t_{rr}	Reverse recovery time	I_F=450A, V_R=600V, di_F/dt=-250A/us T_j=150°C		260		ns
$R_{th(j-c)}$	Thermal resistance(1 device)	IGBT			0.065	℃/W
		FWD			0.11	℃/W
$R_{th(c-f)}$	Contact thermal resistance (1 device)	With thermal compound		0.030		℃/W
Screw torque	Mounting(M6)	/	3.5		5.0	N·m
	Terminals(M6)	/	3.5		5.0	N·m
W_t	Weight				310	g
Outline	M42a					

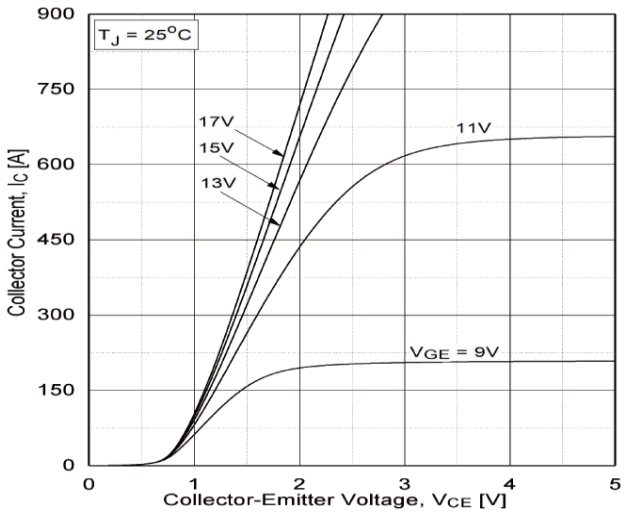


Fig.1 output characteristic IGBT,Inverter (typical)

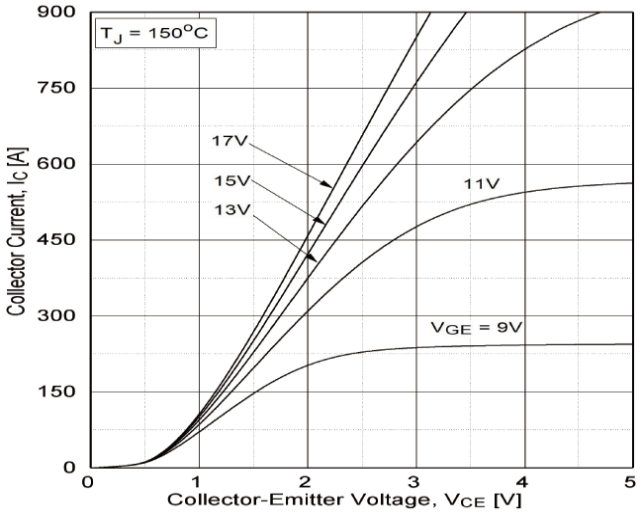


Fig.2 output characteristic IGBT, Inverter (typical)

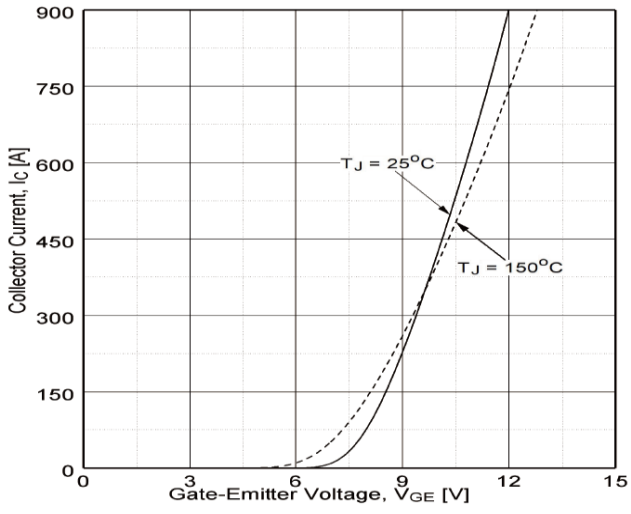


Fig.3 transfer characteristic IGBT, Inverter(typical)

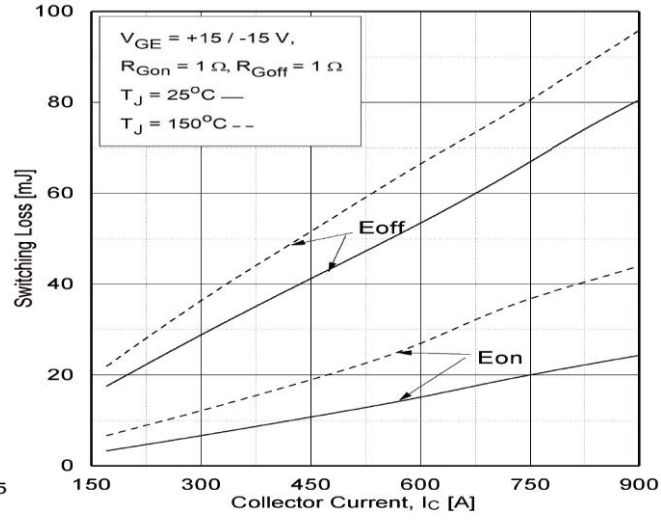


Fig.4 switching losses IGBT, Inverter (typical)

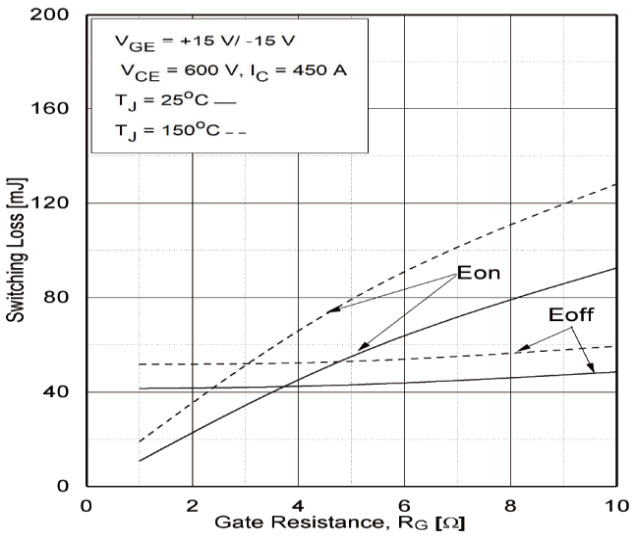


Fig.5 switching losses IGBT, Inverter (typical)

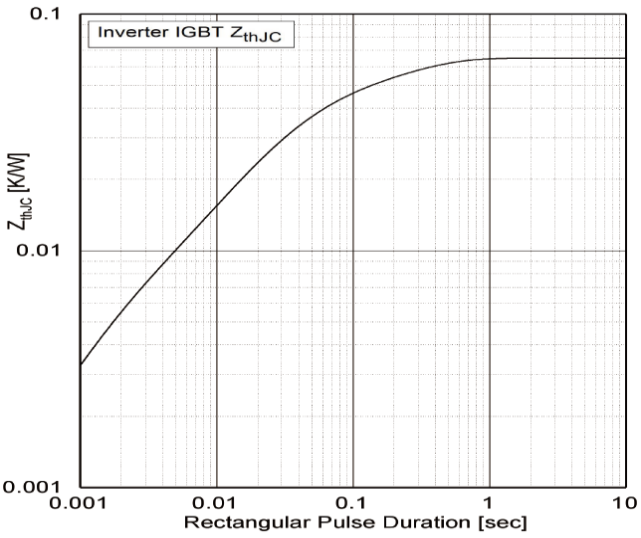


Fig.6 transient thermal impedance IGBT, Inverter

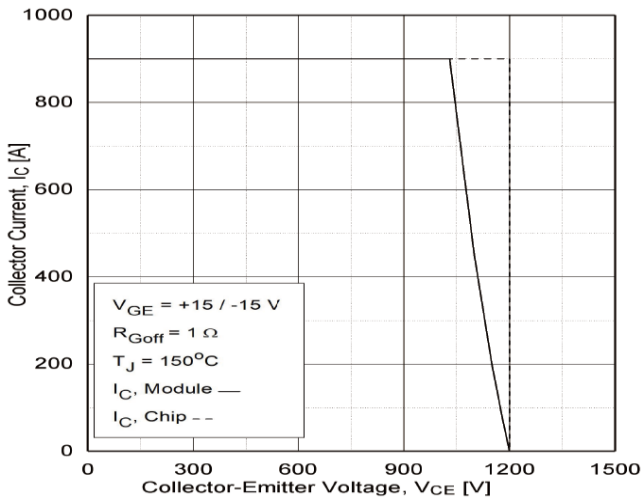


Fig.7reverse bias safe operating area IGBT, Inverter (RBSOA)

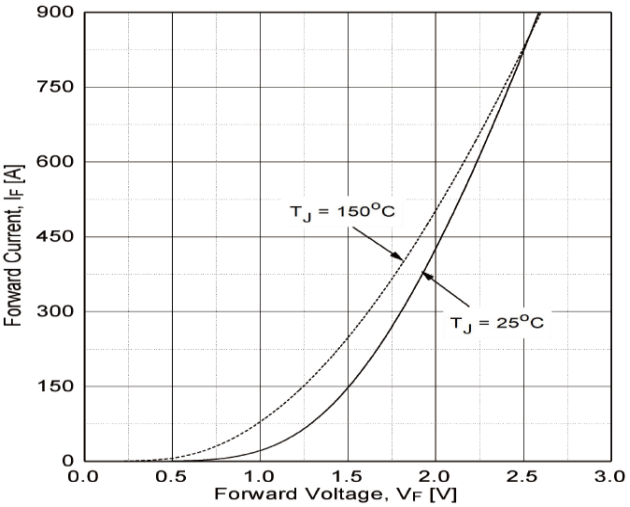


Fig.8 forward characteristic of Diode, Inverter (typical)

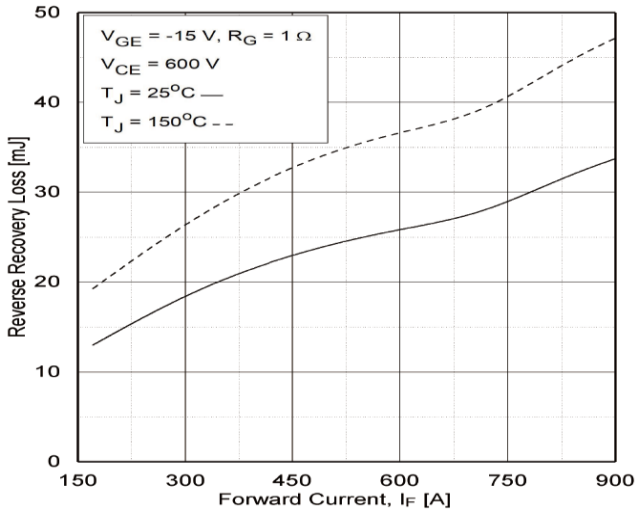


Fig.9 switching losses Diode, Inverter (typical)

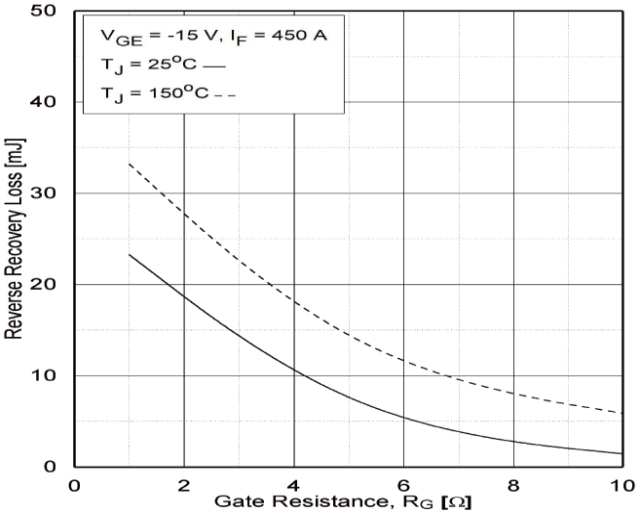


Fig.10 switching losses Diode, Inverter (typical)

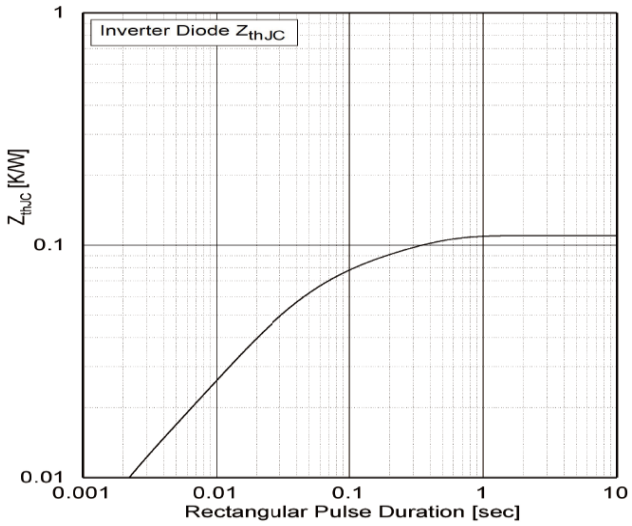
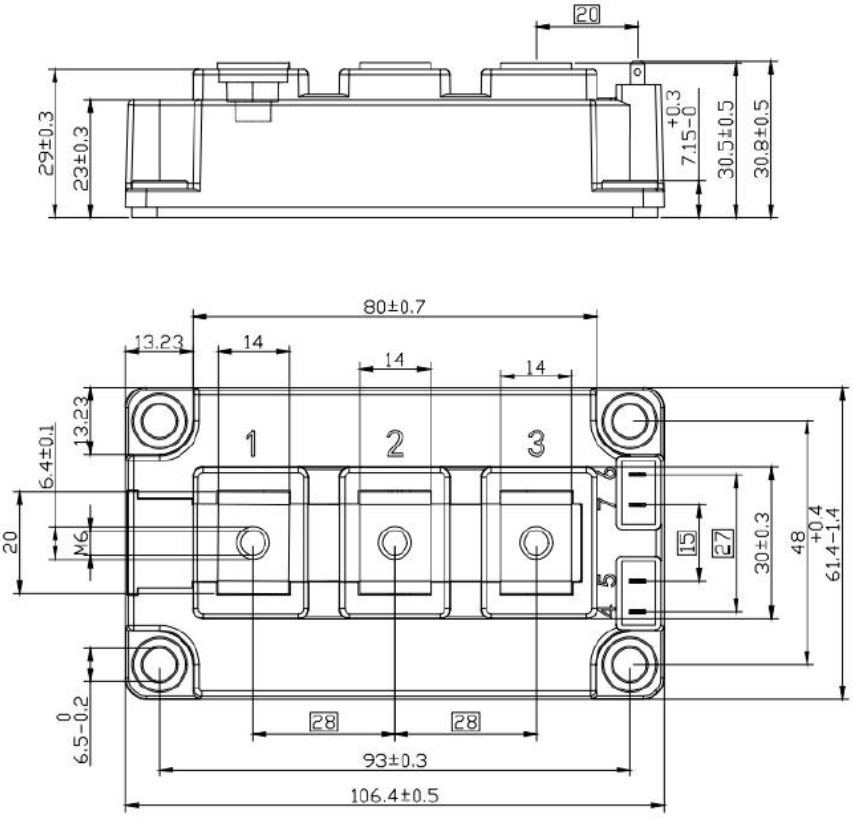
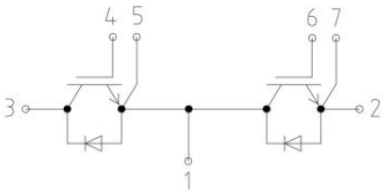


Fig.11 transient thermal impedance Diode, Inverter

Outline & Circuit Diagram



MD450MB120S



Unmarked dimensional tolerance：±0.5mm

NIPS reserves the right to change specifications without notice.