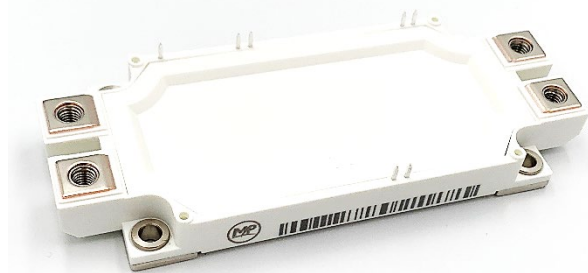


Electrical Features

- Trench/Fieldstop IGBT
- Low $V_{ce(sat)}$
- $V_{ce(sat)}$ with positive temperature coefficient
- 10 μ s short circuit capability
- Fast&soft reverse recovery anti-parallel FWD
- Low inductance case



Typical Applications

- Motor Drives
- High Power Converters
- UPS System
- Servo Drives
- Wind Turbines

IGBT, Inverter

Maximum Rated Values							
Symbol	Item	Conditions	Rating			Unit	
IGBT							
V_{CES}	Collector-emitter voltage	$T_{vj}=25^{\circ}\text{C}$	1700			V	
V_{GES}	Gate-emitter voltage	-	± 20			V	
I_C	Collector current,DC	$T_C=100^{\circ}\text{C}, T_{vj}=175^{\circ}\text{C}$	300			A	
I_{CRM}	Repetitive peak collector current	$t_p=1\text{ms}$	600			A	
P_{tot}	Total power dissipation	$T_C=25^{\circ}\text{C}, T_{vj}=175^{\circ}\text{C}$				W	
Characteristics Values							
Symbol	Item	Conditions	Values			Unit	
			Min.	Typ.	Max.		
IGBT							
I_{CES}	Collector-emitter cut-off current	$V_{CE}=1700\text{V}, V_{GE}=0\text{V}, T_{vj}=25^{\circ}\text{C}$	-	-	3	mA	
I_{GES}	Gate leakage current	$V_{CE}=0\text{V}, V_{GE}=20\text{V}, T_{vj}=25^{\circ}\text{C}$	-	-	400	nA	
$V_{GE(th)}$	Gate-emitter threshold voltage	$I_C=9\text{mA}, V_{CE}=V_{GE}, T_{vj}=25^{\circ}\text{C}$	5.2	5.5	6.4	V	
V_{CEsat}	Collector-emitter saturation voltage	$I_C=300\text{A}$ $V_{GE}=15\text{V}$	$T_{vj}=25^{\circ}\text{C}$	-	2.17		3.6
			$T_{vj}=125^{\circ}\text{C}$	-	2.68		-
			$T_{vj}=150^{\circ}\text{C}$	-	-	-	
C_{ies}	Input capacitance	$V_{CE}=25\text{V}, V_{GE}=0\text{V}$	-	41.6	-	nF	
C_{res}	Reverse transfer capacitance	$f=1\text{MHz}, T_{vj}=25^{\circ}\text{C}$	-	1.25	-		
Q_G	Gate charge	$V_{GE}=-15\text{V}\dots+15\text{V}$	-	3.69	-	μC	
R_g	Internal gate resistance	$T_{vj}=25^{\circ}\text{C}$		1.61		Ω	

$t_{d(on)}$	Turn-on delay time	$V_{CC}=900V,$ $I_C=300A,$ $V_{GE}=\pm 15V,$ $R_{G(on)}=2.4 \Omega,$ $R_{G(off)}=2.4 \Omega,$ Inductive load	$T_{vj}=25^\circ C$	-	384	-	ns		
			$T_{vj}=125^\circ C$	-	389	-			
			$T_{vj}=150^\circ C$	-		-			
t_r	Rise time		$T_{vj}=25^\circ C$	-	178	-			
			$T_{vj}=125^\circ C$	-	187	-			
			$T_{vj}=150^\circ C$	-		-			
$t_{d(off)}$	Turn-off delay time		$T_{vj}=25^\circ C$	-	623	-			
			$T_{vj}=125^\circ C$	-	699	-			
			$T_{vj}=150^\circ C$	-		-			
t_f	Fall time	$T_{vj}=25^\circ C$	-	558	-				
		$T_{vj}=125^\circ C$	-	801	-				
		$T_{vj}=150^\circ C$	-		-				
E_{on}	Turn-on energy (per pulse)	$V_{CC}=900V, I_C=300 A,$ $V_{GE}=\pm 15V,$ $R_{G(on)}=2.4 \Omega,$ $R_{G(off)}=2.4 \Omega,$ $di/dt=4525A/\mu s(T_{vj}=25^\circ C)$ $du/dt=6740V/\mu s(T_{vj}=25^\circ C)$	$T_{vj}=25^\circ C$	-	145.4	-	mJ		
			$T_{vj}=125^\circ C$	-	190.3	-			
			$T_{vj}=150^\circ C$	-		-			
E_{off}	Turn-off energy (per pulse)		$T_{vj}=25^\circ C$	-	124.9	-			
			$T_{vj}=125^\circ C$	-	160.7	-			
			$T_{vj}=150^\circ C$	-		-			
SC data	Short-circuit current		$V_{CC}=900V, V_{GE}\leq 15V, T_{vj}=25^\circ C,$ $t_p\leq 10\mu s$						A
R_{thJC}	Thermal resistance, junction to case		per IGBT		-				K/W
R_{thCH}	Thermal resistance, case to heatsink		per IGBT/ $\lambda_{grease}=1W/(m\cdot K)$		-			-	K/W
T_{vjop}	Temperature under switching conditions		-40			150	$^\circ C$		

Diode, Inverter

Maximum Rated Values

Symbol	Item	Conditions	Rating	Unit
V_{RRM}	Repetitive peak reverse voltage	$T_{vj}=25^\circ C$	1700	V
I_F	Forward current, DC		300	A
I_{FRM}	Repetitive peak forward current	$t_p=1ms$	600	A

Characteristic Values

			Min.	Typ.	Max.		
V_F	Continuous forward voltage	$I_F=300A$ $V_{GE}=0V$	$T_{vj}=25^\circ C$	-	2.1	3.0	V
			$T_{vj}=125^\circ C$	-	2.0	-	
			$T_{vj}=150^\circ C$	-		-	
I_{RM}	Peak reverse recovery current	$V_R=900V$ $I_F=300A$ $V_{GE}=-15V$	$T_{vj}=25^\circ C$	-	223	-	A
			$T_{vj}=125^\circ C$	-	329	-	
			$T_{vj}=150^\circ C$	-		-	
t_{rr}	Reverse recovery time	$-di_F/dt=4096A/\mu s$ ($T_{vj}=25^\circ C$)	$T_{vj}=25^\circ C$	-	701	-	ns
			$T_{vj}=125^\circ C$	-	922	-	
			$T_{vj}=150^\circ C$	-		-	

Q _r	Recovered charge	V _R =900V I _F =300A V _{GE} =-15V	T _{vj} =25°C	-	49	-	μC
			T _{vj} =125°C	-	128	-	
			T _{vj} =150°C	-		-	
E _{rec}	Reverse recovered energy	-di _F /dt=4096A/μs (T _{vj} =25°C)	T _{vj} =25°C	-	32.1	-	mJ
			T _{vj} =125°C	-	71.6	-	
			T _{vj} =150°C	-		-	
R _{thJC}	Thermal resistance, junction to case	per diode	-				K/W
R _{thCH}	Thermal resistance, case to heatsink	per diode/ λgrease=1W/(m·K)	-			-	K/W
T _{vjop}	Temperature under switching conditions		-40			150	°C

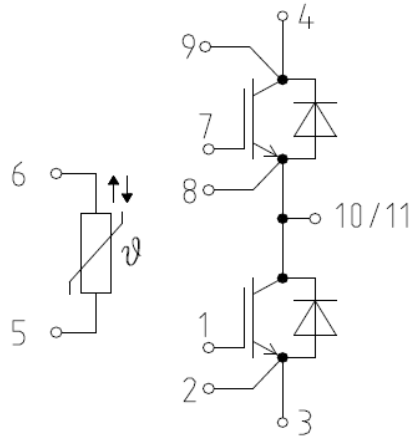
NTC Thermistor Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
R ₂₅	Rated resistance	T _C =25°C	-	5	-	kΩ
ΔR/R	Deviation of resistance	T _C =100°C, R ₁₀₀ =493Ω	-5	-	5	%
P ₂₅	Power dissipation	T _C =25°C	-	-	20	mW
B _{25/50}	B-constant	R ₂ =R ₂₅ exp[B _{25/50} (1/T ₂ -1/(298.15K))]	-	3375	-	K
B _{25/80}	B-constant	R ₂ =R ₂₅ exp[B _{25/80} (1/T ₂ -1/(298.15K))]	-	3411	-	
B _{25/100}	B-constant	R ₂ =R ₂₅ exp[B _{25/100} (1/T ₂ -1/(298.15K))]	-	3433	-	

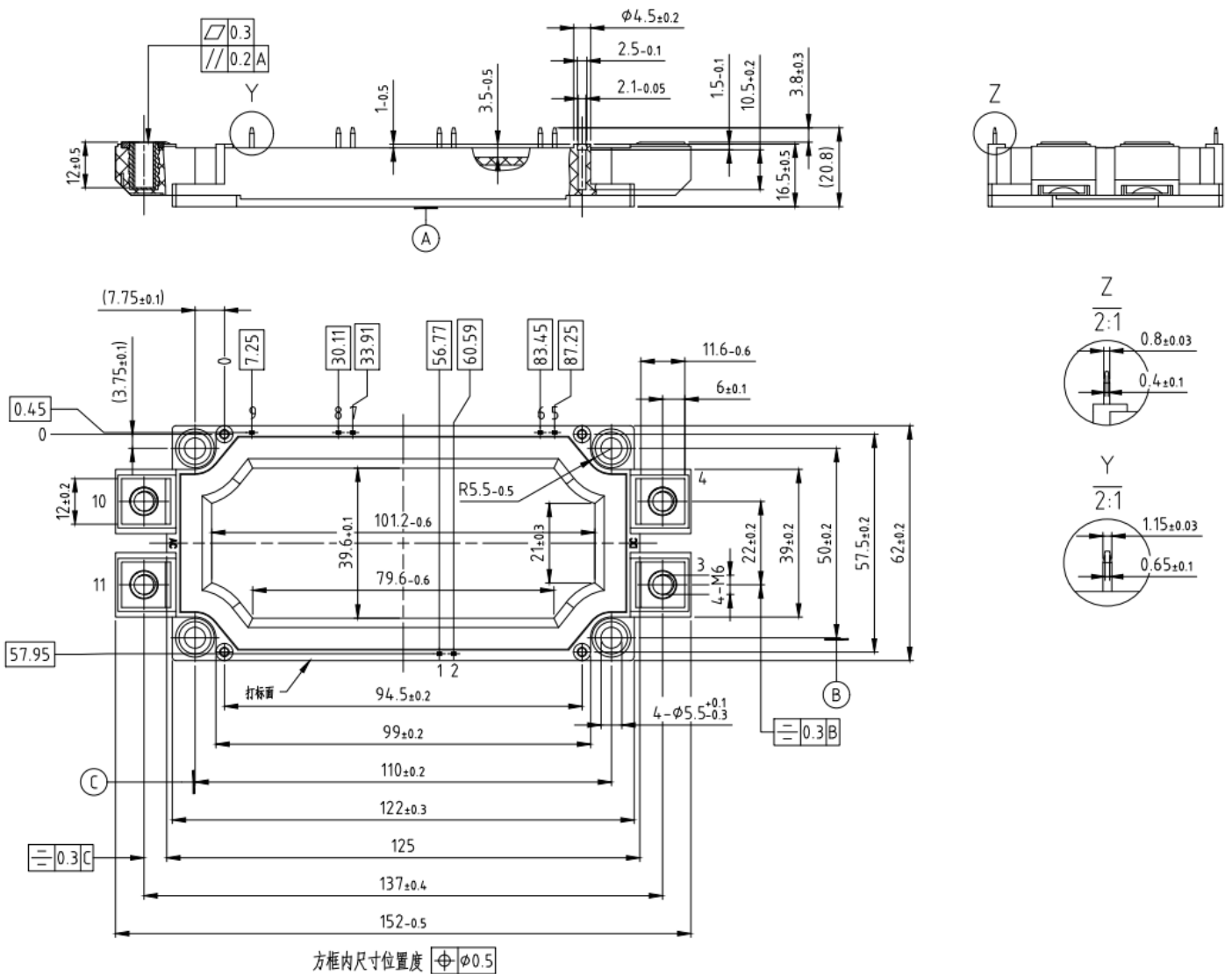
Module

Symbol	Item	Conditions	Rating			Unit
V _{ISOL}	Isolation voltage	Terminals to baseplate, RMS, f=50Hz, t=1min	4000			V
-	Material of module baseplate	-	Cu			-
-	Internal isolation	Basic insulation(class 1, IEC 61140)	Al ₂ O ₃			-
T _{stg}	Storage temperature	-	-40~125			°C
Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
M	Mounting torque for module mounting	Screw M5	3.0	-	5.0	Nm
	Terminal connection torque	Screw M6	2.5	-	5.0	Nm
d _{Creep}	Creepage distance	Terminal to terminal	-	13	-	mm
		Terminal to base plate	-	14.5	-	
d _{Clear}	Clearance	Terminal to terminal	-	10	-	mm
		Terminal to base plate	-	12.5	-	
m	Weight	-	-	348	-	g

Circuit diagram headline



Package outlines (Unit: mm)



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序号 Item	日期 Date	变更记录及描述 Change History Description	版本序号 Rev. item	经办人 Responsibility
1	2023.9.9	初版规格书发布，版本为V1.0	2023 9 Ver1.0	梁华文
2	2023.10.19	更新外形图，变更为V1.1版本	2023 10 Ver1.1	梁华文