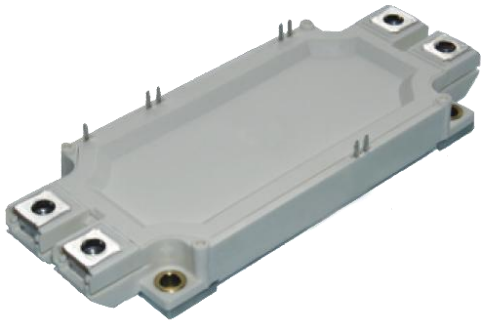
Electrical Features

- Trench/Fieldstop IGBT
- Low VCE(sat)
- VCE(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°C		1700	V
V_{GES}	Gate-emitter voltage	-		±20	V
I_C	Collector current,DC	T_C=100°C,T_{vj}=175°C		450	A
I_{CRM}	Repetitive peak collector current	t_p=1ms		900	A
t_{SC}	Short circuit withstand time	V_{GE}=15V, V_{CC}=800V, T_{vj}≤150°C		10	μs
P_{tot}	Total power dissipation	T_C=25°C,T_{vj}=175°C		2500	W

Characteristics Values							
Symbol	Item	Conditions		Values			Unit
IGBT				Min.	Typ.	Max.	
I_{CES}	Collector-emitter cut-off current	V_{CE}=1700V,V_{GE}=0V,T_{vj}=25°C		-	-	3	mA
I_{GES}	Gate leakage current	V_{CE}=0V,V_{GE}=20V,T_{vj}=25°C		-	-	400	nA
$V_{GE(th)}$	Gate-emitter threshold voltage	I_C=12mA,V_{CE}=V_{GE},T_{vj}=25°C		5.0	6.0	7.0	V
V_{CEsat}	Collector-emitter saturation voltage	I_C=450A V_{GE}=15V	T_{vj}=25°C	-	2.4	-	V
			T_{vj}=125°C	-	-	-	
			T_{vj}=150°C	-	-	-	
C_{ies}	Input capacitance	V_{CE}=25V,V_{GE}=0V f=1MHz,T_{vj}=25°C		-	43.8	-	nF
C_{oes}	Output capacitance				1.47		
C_{res}	Reverse transfer capacitance			-	1.32	-	
Q_G	Gate charge	V_{GE}=-15V...+15V		-	5.1	-	μC
R_g	Internal gate resistance	T_{vj}=25°C			1.7		Ω

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$t_{d(on)}$	Turn-on delay time	V_{CC}=900V, I_C=450A, V_{GE}=±15V, $R_{G(on)}$=2.4 Ω, $R_{G(off)}$=2.4 Ω, Inductive load	T_{vj}=25℃	-	406	-	ns
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
t_r	Rise time		T_{vj}=25℃	-	216	-	
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
$t_{d(off)}$	Turn-off delay time		T_{vj}=25℃	-	579	-	
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
t_f	Fall time		T_{vj}=25℃	-	361	-	
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
E_{on}	Turn-on energy (per pulse)		T_{vj}=25℃	-	159.7	-	mJ
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
E_{off}	Turn-off energy (per pulse)		T_{vj}=25℃	-	94.0	-	
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
R_{thJC}	Thermal resistance,junction to case	per IGBT		-	-	0.06	K/W
R_{thCH}	Thermalresistance,case to heatsink	per IGBT/ λgrease=1W/(m·K)		-	0.029	-	K/W
T_{vjop}	Temperature under switching conditions			-40		150	℃

Diode，Inverter

Maximum Rated Values

Symbol	Item	Conditions	Rating	Unit
V_{RRM}	Repetitive peak reverse voltage	T_{vj}=25℃	1700	V
I_F	Forward current,DC		450	A
I_{FRM}	Repetitive peak forward current	t_p=1ms	900	A

Characteristic Values

V_F	Continuous forward voltage	I_F=450A V_{GE}=0V	T_{vj}=25℃	-	2.23	-	V
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
I_{RM}	Peak reverse recovery current	V_R=900V I_F=450A V_{GE}=-15V	T_{vj}=25℃	-	191.5	-	A
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
t_{rr}	Reverse recovery time		T_{vj}=25℃	-	677	-	ns
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
Q_r	Recovered charge		T_{vj}=25℃	-	52	-	μC
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	
E_{rec}	Reverse recovered energy		T_{vj}=25℃	-	25.5	-	mJ
			T_{vj}=125℃	-	-	-	
			T_{vj}=150℃	-	-	-	

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R_{thJC}	Thermal resistance, junction to case	per diode	-	-	0.1	K/W
R_{thCH}	Thermalresistance,case to heatsink	per diode/ λgrease=1W/(m·K)	-	0.05	-	K/W
T_{vjop}	Temperature under switching conditions		-40		150	℃

NTC Thermistor Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
R_{25}	Rated resistance	T_C=25℃	-	5	-	kΩ
ΔR/R	Deviation of resistance	T_C=100℃,R_{100}=493Ω	-5	-	5	%
P_{25}	Power dissipation	T_C=25℃	-	-	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	2500			V
-	Material of module baseplate	-	Cu			-
-	Internal isolation	Basic insulation(class 1, IEC 61140)	Al_2O_3			-
T_{stg}	Storage temperature	-	-40~125			℃
Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
M	Mounting torque for module mounting	Screw M6	3.0	-	5.0	Nm
	Terminal connection torque	Screw M6	2.5	-	5.0	Nm
ds	Creepage distance	Terminal to terminal	-	13	-	mm
		Terminal to base plate	-	14.5	-	
da	Clearance	Terminal to terminal	-	10	-	mm
		Terminal to base plate	-	12.5	-	
m	Weight	-	-	340	-	g

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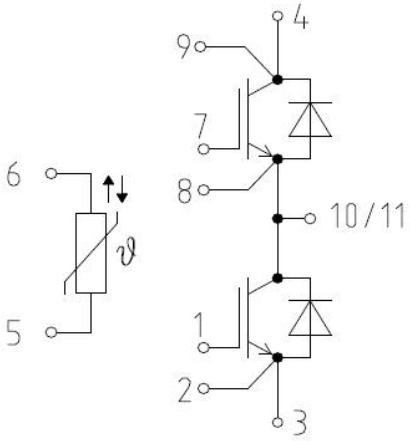
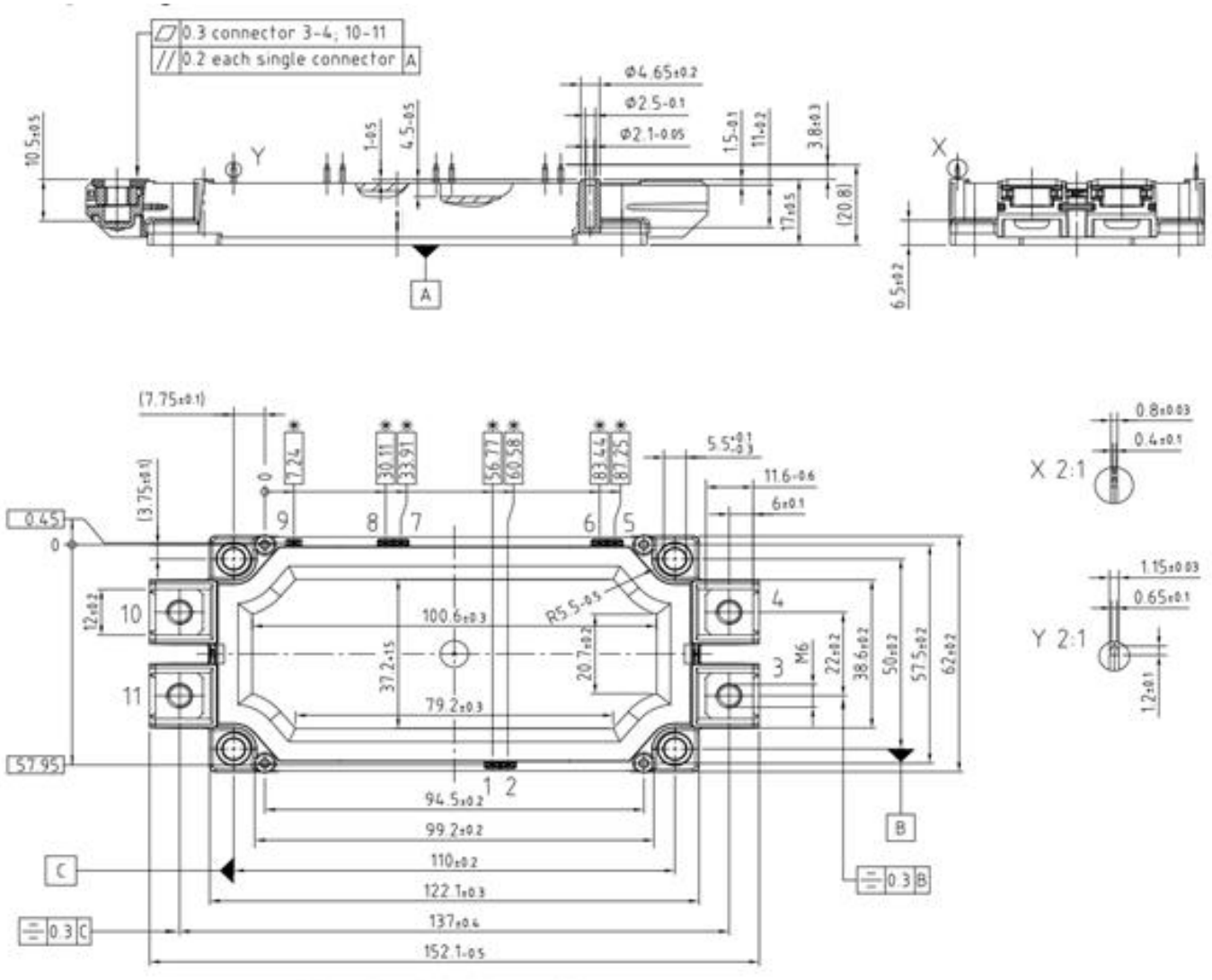
Circuit diagram headline



Package outlines（Unit：mm）



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