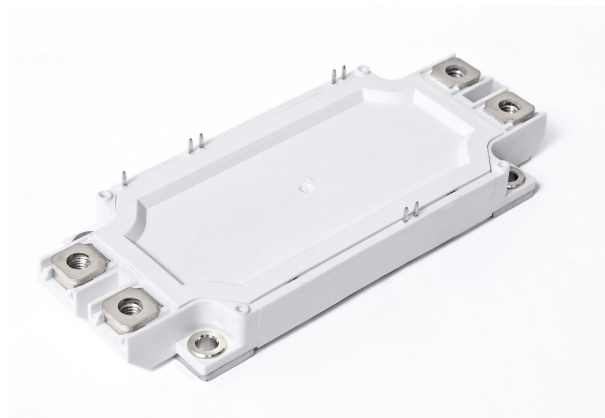


PRODUCT FEATURES

- ☐ IGBT³ CHIP(Trench+Field Stop technology)
- ☐ Low saturation voltage and positive temperature coefficient
- ☐ Fast switching and short tail current
- ☐ Free wheeling diodes with fast and soft reverse recovery
- ☐ Temperature sense included



APPLICATIONS

- ☐ AC motor control
- ☐ Motion/servo control
- ☐ Inverter and power supplies
- ☐ Photovoltaic/Fuel cell

IGBT-inverter

ABSOLUTE MAXIMUM RATINGS($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Values	Unit
V_{CES}	Collector Emitter Voltage	$T_J=25^{\circ}\text{C}$	1200	V
V_{GES}	Gate Emitter Voltage		± 20	
I_C	DC Collector Current	$T_C=25^{\circ}\text{C}$	340	A
		$T_C=100^{\circ}\text{C}$	225	
I_{CM}	Repetitive Peak Collector Current	$t_p=1\text{ms}$	450	
P_{tot}	Power Dissipation Per IGBT		1300	W

Diode-inverter

ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Values	Unit
V_{RRM}	Repetitive Reverse Voltage	$T_J=25^{\circ}\text{C}$	1200	V
$I_{F(AV)}$	Average Forward Current	$T_C=25^{\circ}\text{C}$	225	A
I_{FRM}	Repetitive Peak Forward Current	$t_p=1\text{ms}$	450	
i^2t		$T_J=125^{\circ}\text{C}$, $t=10\text{ms}$, $V_R=0\text{V}$	12400	A^2S

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IGBT-inverter

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit	
V _{GE(th)}	Gate Emitter Threshold Voltage	V _{CE} =V _{GE} , I _C =9mA	5.0	5.8	6.5	V	
V _{CE(sat)}	Collector Emitter Saturation Voltage	I _C =225A, V _{GE} =15V, T _J =25℃		1.75	2.2		
		I _C =225A, V _{GE} =15V, T _J =125℃		2.05			
		I _C =225A, V _{GE} =15V, T _J =150℃		2.1			
I _{CES}	Collector Leakage Current	V _{CE} =1200V, V _{GE} =0V, T _J =25℃			100	μA	
		V _{CE} =1200V, V _{GE} =0V, T _J =150℃			10	mA	
I _{GES}	Gate Leakage Current	V _{CE} =0V,V _{GE} =±15V, T _J =25℃	-400		400	nA	
R _{gint}	Integrated Gate Resistor			3.3		Ω	
Q _g	Gate Charge	V _{CE} =600V, I _C =225A , V _{GE} =15V		1.2		μC	
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f =1MHz		33		nF	
C _{res}	Reverse Transfer Capacitance			300		pF	
t _{d(on)}	Turn on Delay Time	V _{CC} =600V,I _C =225A R _G =2.5Ω, V _{GE} =±15V, Inductive Load	T _J =25℃		330		ns
			T _J =125℃		340		ns
			T _J =150℃		350		ns
t _r	Rise Time		T _J =25℃		90		ns
			T _J =125℃		95		ns
			T _J =150℃		100		ns
t _{d(off)}	Turn off Delay Time		T _J =25℃		500		ns
			T _J =125℃		580		ns
			T _J =150℃		600		ns
t _f	Fall Time	T _J =25℃		100		ns	
		T _J =125℃		160		ns	
		T _J =150℃		180		ns	
E _{on}	Turn on Energy	V _{CC} =600V,I _C =225A R _G =2.5Ω, V _{GE} =±15V, Inductive Load	T _J =125℃		26		mJ
			T _J =150℃		27		mJ
E _{off}	Turn off Energy		T _J =125℃		20		mJ
			T _J =150℃		21		mJ
I _{sc}	Short Circuit Current	tpsc≤10μS , V _{GE} =15V T _J =125℃,V _{CC} =600V		1350		A	
R _{thJC}	Junction to Case Thermal Resistance （ Per IGBT ）				0.115	K /W	

Diode-inverter

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
V _F	Forward Voltage	I _F =225A , V _{GE} =0V, T _J =25℃		1.9	2.4	V
		I _F =225A , V _{GE} =0V, T _J =125℃		1.65		
		I _F =225A , V _{GE} =0V, T _J =150℃		1.6		
t _{rr}	Reverse Recovery Time	I _F =225A , V _R =600V dI _F /dt=-2700A/μs T _J =150℃		425		ns
I _{RRM}	Max. Reverse Recovery Current			210		A
Q _{RR}	Reverse Recovery Charge			39		μC
E _{rec}	Reverse Recovery Energy			13.5		mJ
R _{thJCD}	Junction to Case Thermal Resistance （Per Diode）				0.2	K /W

NTC CHARACTERISTICS (T_C=25°C unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
R ₂₅	Resistance	T _C =25°C		5		KΩ
B _{25/50}	R ₂ = R ₂₅ exp [B _{25/50} (1/T ₂ - 1/(298.15 K))]			3375		K

MODULE CHARACTERISTICS (T_C=25°C unless otherwise specified)

Symbol	Parameter/Test Conditions		Values	Unit
T _{Jmax}	Max. Junction Temperature		175	℃
T _{Jop}	Operating Temperature		-40~150	
T _{stg}	Storage Temperature		-40~125	
V _{isol}	Isolation Breakdown Voltage	AC, 50Hz(R.M.S), t=1minute	3000	V
CTI	Comparative Tracking Index		>200	
Torque	to heatsink	Recommended (M5)	2.5~5	Nm
	to terminal	Recommended (M6)	3~5	Nm
Weight			350	g

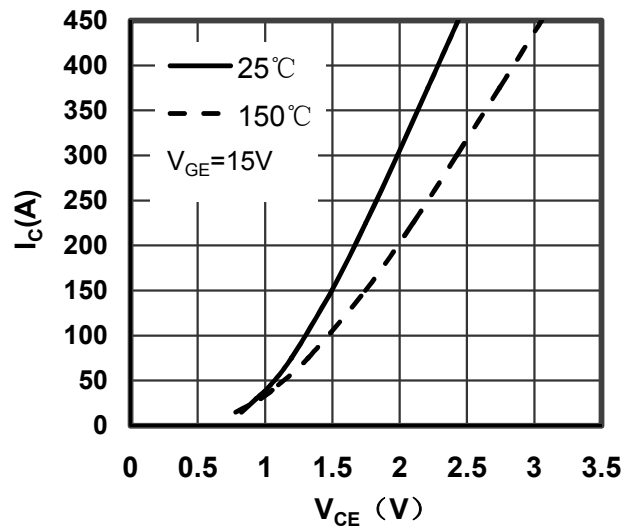


Figure 1. Typical Output Characteristics IGBT-inverter

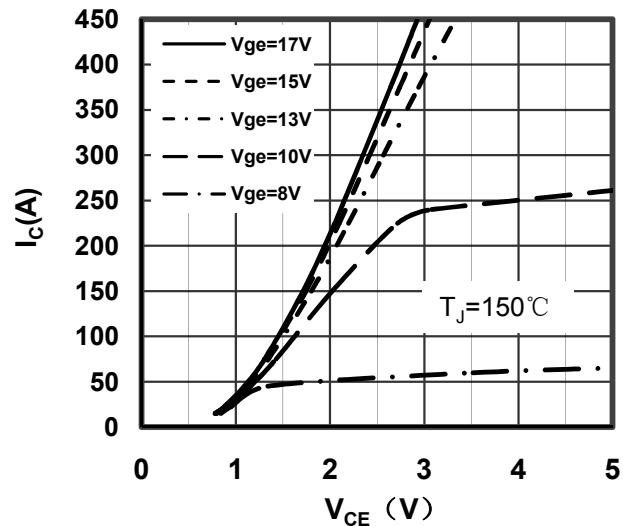


Figure 2. Typical Output Characteristics IGBT-inverter

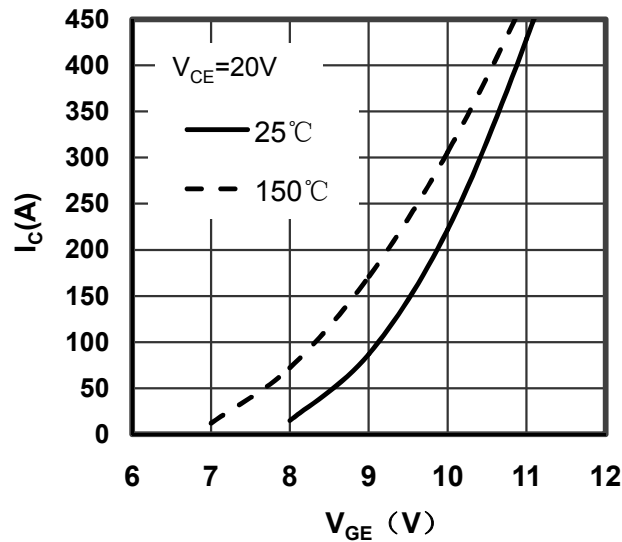


Figure 3. Typical Transfer Characteristics IGBT-inverter

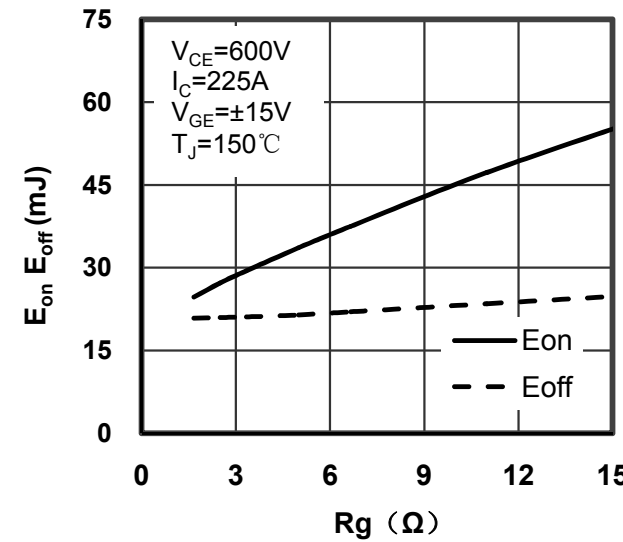


Figure 4. Switching Energy vs Gate Resistor IGBT-inverter

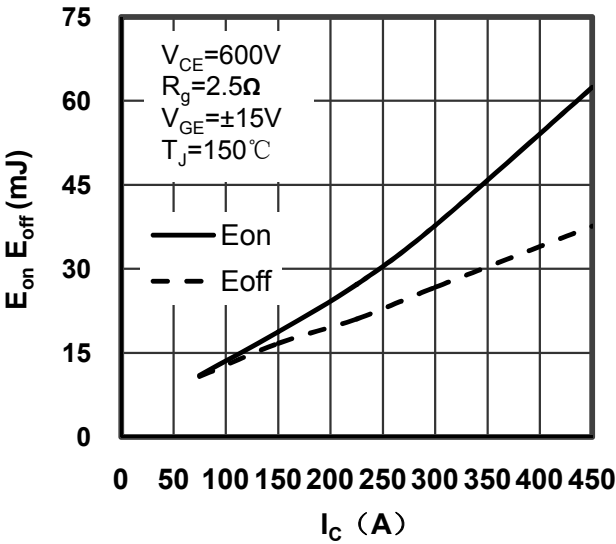


Figure 5. Switching Energy vs Collector Current IGBT-inverter

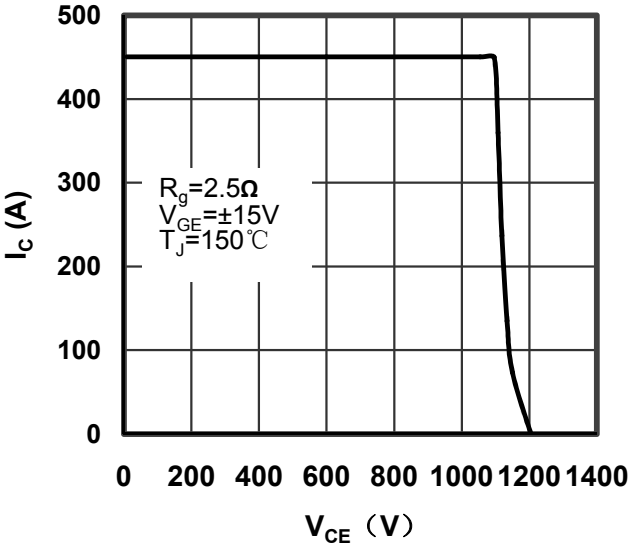


Figure 6. Reverse Biased Safe Operating Area IGBT-inverter

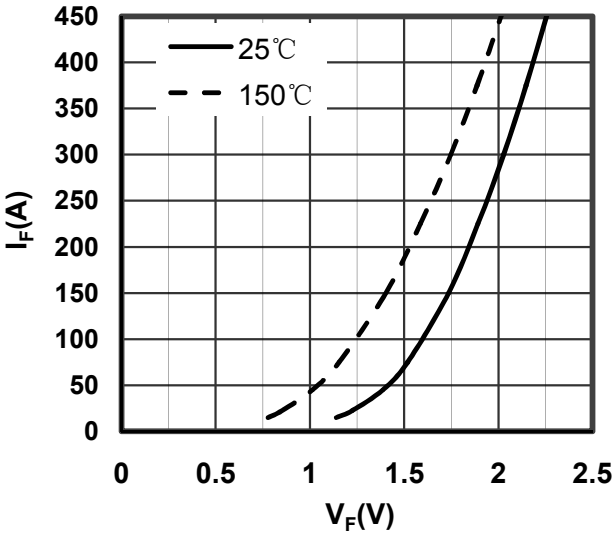


Figure 7. Diode Forward Characteristics Diode -inverter

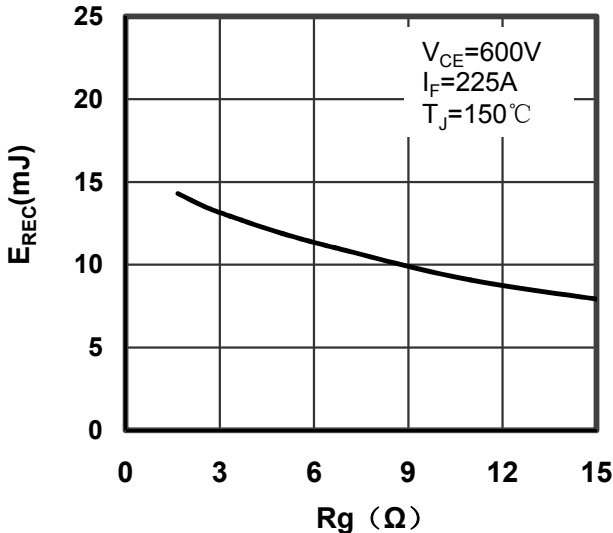


Figure 8. Switching Energy vs Gate Resistor Diode -inverter

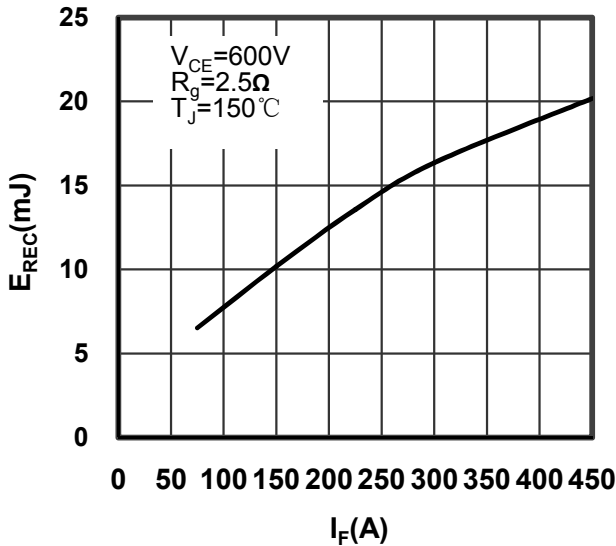


Figure 9. Switching Energy vs Forward Current Diode-inverter

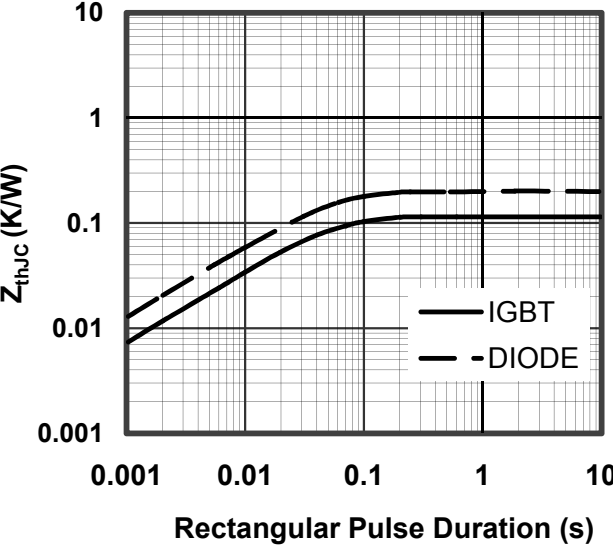


Figure 10. Transient Thermal Impedance of Diode and IGBT-inverter

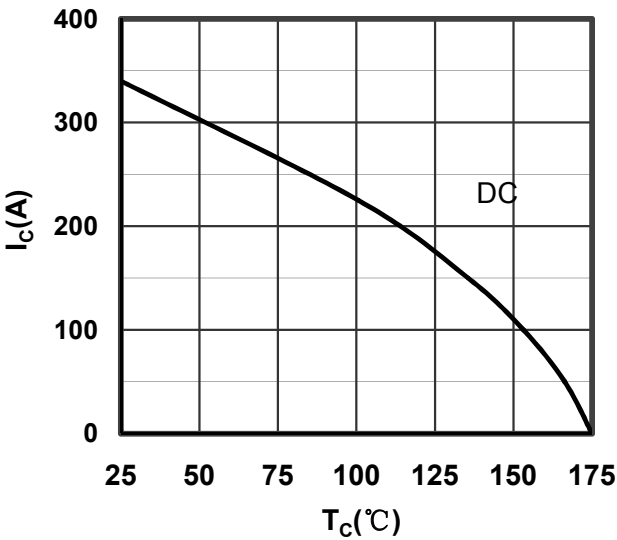


Figure 11. Collector Current vs Case temperature
IGBT -inverter

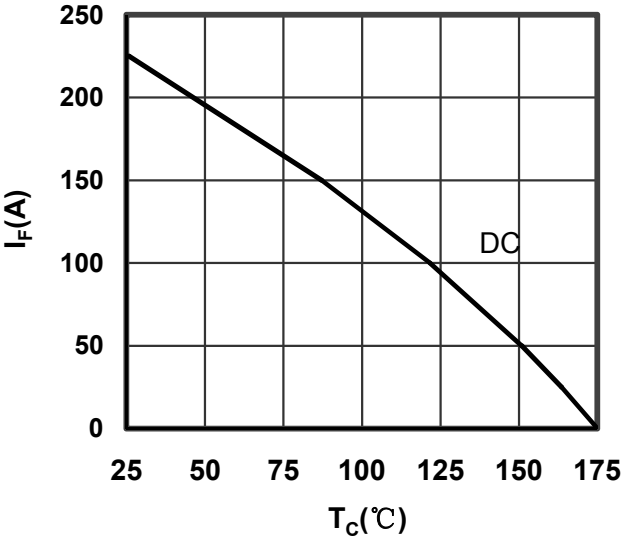


Figure 12. Forward current vs Case temperature
Diode -inverter

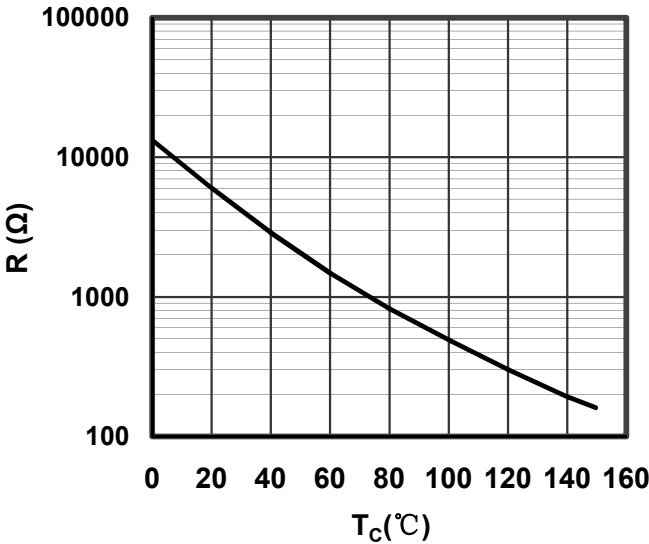


Figure 13. NTC Characteristics

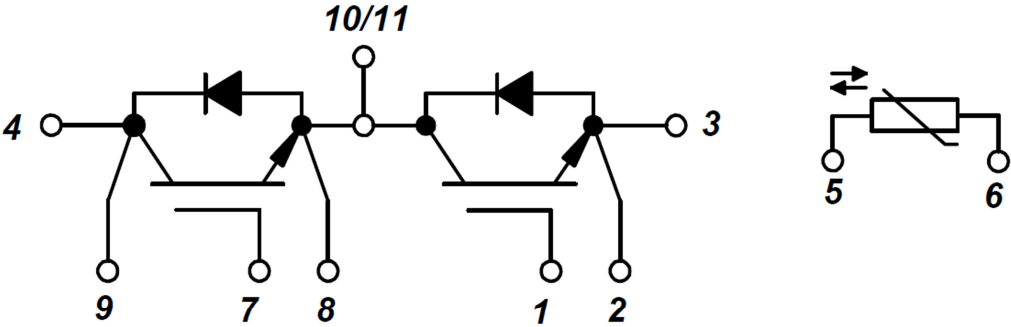
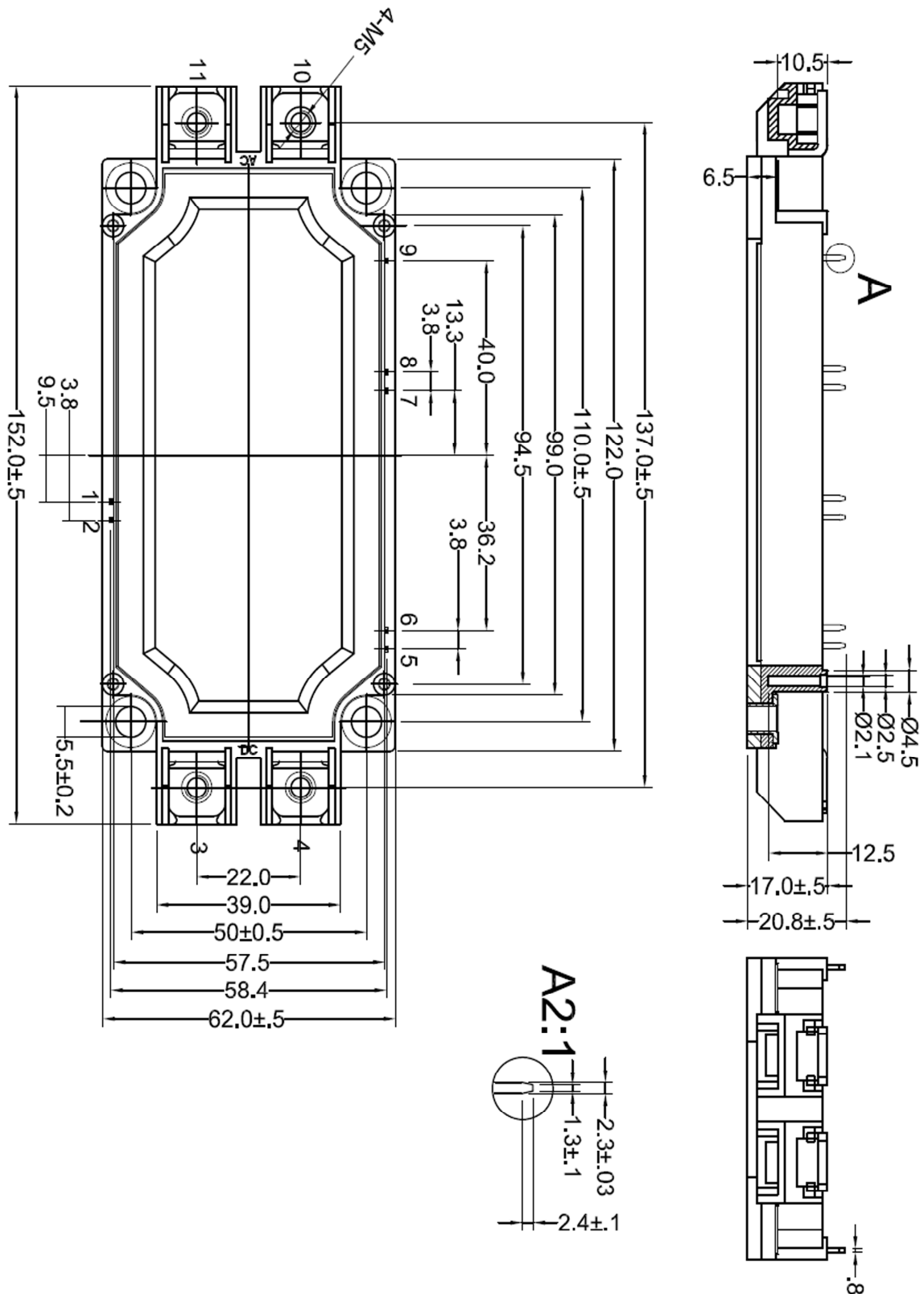


Figure 14. Circuit Diagram



Dimensions in (mm)
Figure 15. Package Outline