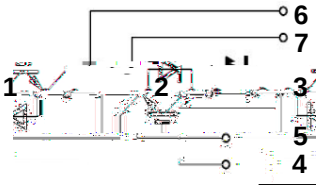
General Description

TRinno IGBT power module provides low conduction and switching losses as well as short circuit ruggedness. It is designed for applications such as Motor Driver, IH , Rectifier and Welder.

Features

1200V Field Stop Trench IGBT Technology
Fast & Soft Recovery Diodes
Positive Temperature Coefficient
Short Circuit Withstanding Time : 10 s



Applications

Motor driver, IH(Induction heating), Rectifier, Welder

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Collector-Emitter Voltage		V_{CES}	1200	V
Gate-Emitter Voltage		V_{GES}	±20	V
Continuous Collector Current	T_C = 25	I_C	600	A
	T_C = 100		300	A
Pulsed Collector Current (Note 1)		I_{CM}	600	A
Diode Continuous Forward Current	T_C = 100	I_F	300	A
Power Dissipation	T_C = 25	P_D	1042	W
	T_C = 100		417	W
Operating Junction Temperature		T_{vj}	-40 ~ 150	
Storage Temperature Range		T_{STG}	-40 ~ 150	

Notes :
(1) Repetitive rating : Pulse width limited by maximum junction temperature

Thermal Characteristics

Parameter	Symbol	Value	Unit
Maximum Thermal resistance, Junction-to-Case (Per ½ Module)		0.12	K/W
Maximum Thermal resistance, Junction-to-Case (Per ½ Module)		0.15	K/W

Electrical Characteristics of the IGBT T_{vj}=25℃, unless otherwise noted

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
OFF						
Collector Emitter Breakdown Voltage	BV_{CES}	V_{GE} = 0V, I_C = 1mA	1200	--	--	V
Zero Gate Voltage Collector Current	I_{CES}	V_{CE} = 1200V, V_{GE} = 0V	--	--	2	mA
Gate Emitter Leakage Current	I_{GES}	V_{CE} = 0V, V_{GE} = 20V	--	--	200	nA
ON						
Gate Emitter Threshold Voltage	$V_{GE(TH)}$	V_{GE} = V_{CE}, I_C = 200mA	5.0	--	8.0	V
Collector Emitter Saturation Voltage	$V_{CE(SAT)}$	V_{GE} = 15V, I_C = 200A, T_{vj} = 25	--	2.0	2.5	V
		V_{GE} = 15V, I_C = 200A, T_{vj}				

Electrical Characteristics of the DIODE T_{vj}=25℃, unless otherwise noted

Parameter	Symbol	Test condition		Min.	Typ.	Max.	Unit
Diode Forward Voltage	V_{FM}	I_F = 300A	T_{vj} = 25	--	2.3	2.8	V
			T_{vj} = 125	--	2.2	2.7	
Reverse Recovery Current	I_{rr}	V_{CC} = 600V, I_F = 300A R_G = 2 , V_{GE} = 15V Inductive Load	T_{vj} = 25	--	136	--	A
			T_{vj} = 125	--	168	--	
Reverse Recovery Charge	Q_{rr}		T_{vj} = 25	--	12.7	--	C
			T_{vj} = 125	--	14.9	--	
Reverse Recovery Time	t_{rr}		T_{vj} = 25	--	217	--	ns
			T_{vj} = 125	--	246	--	

Characteristics of the Module

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Isolation Voltage	V_{ISO}	RMS, f=50Hz, t=1 minutes	--	2.5	--	kV
Terminal mounting torque (M5)	--		2.5	--	5.0	N.m
Weight	--		--	155	--	g

IGBT Characteristics

Fig. 1 Output characteristics

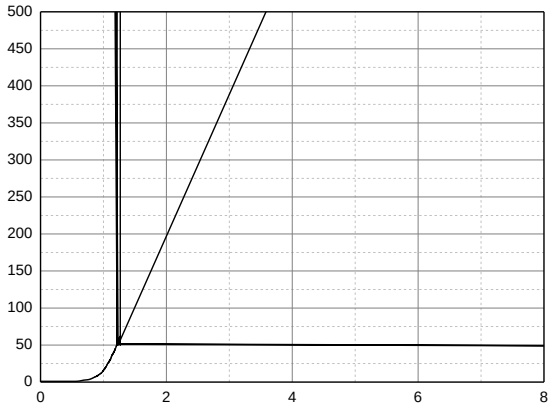


Fig. 2 Saturation voltage characteristics

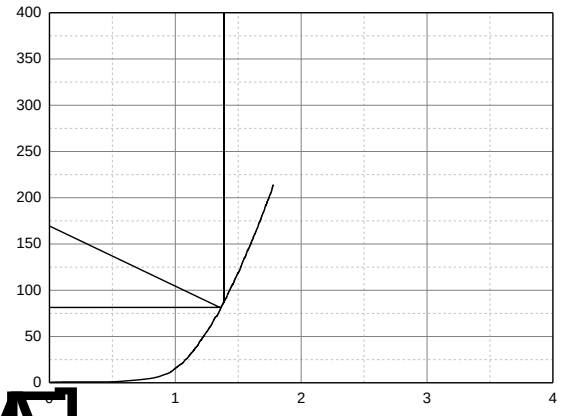
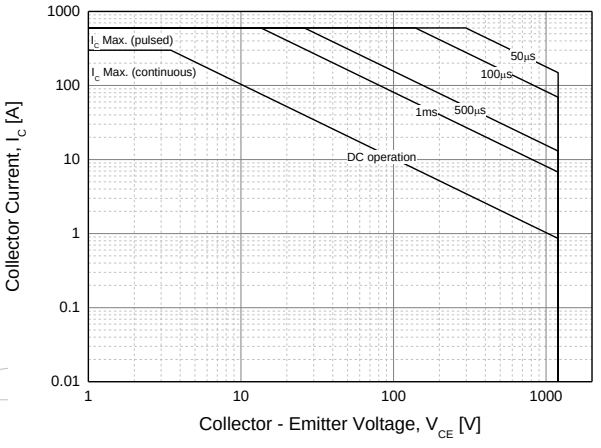


Fig. 3 Switching loss vs. gate resistor

Fig. 4 Switching loss vs. collector current

Fig. 5 Transient thermal impedance of IGBT

Fig. 6 SOA



IGBT Characteristics

Fig. 7 RBSOA

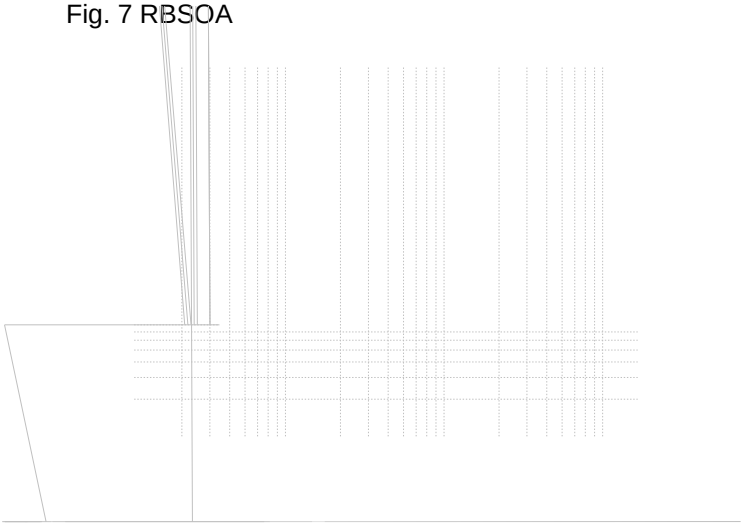


Fig. 8 Load current vs. frequency

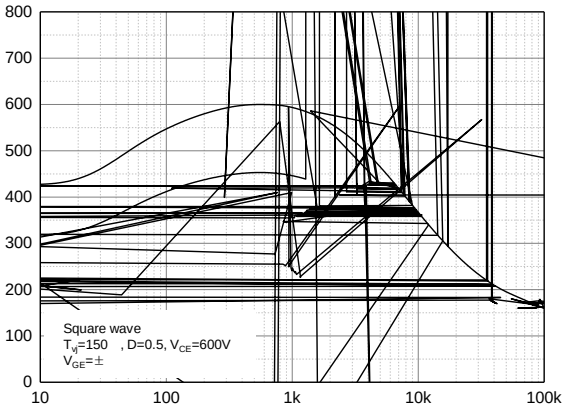
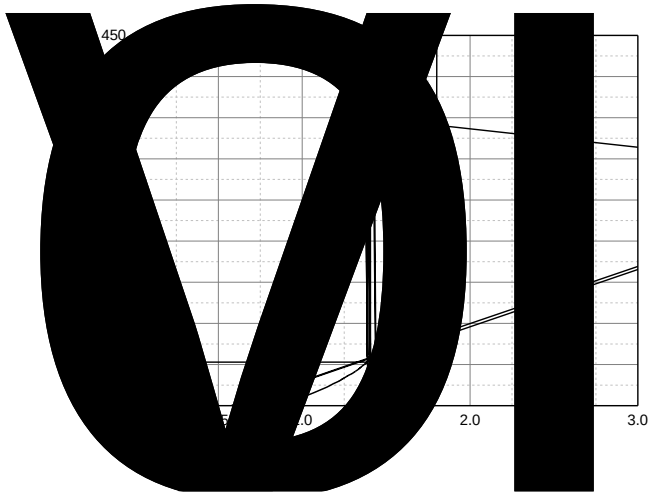
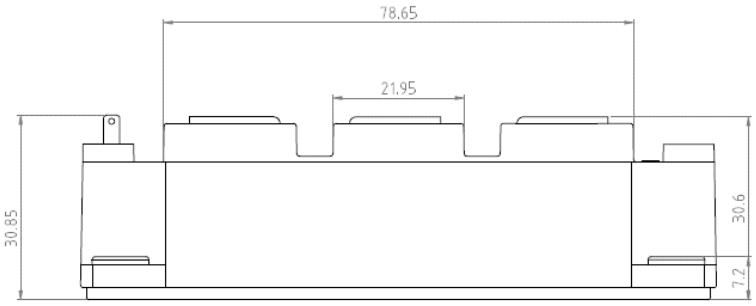
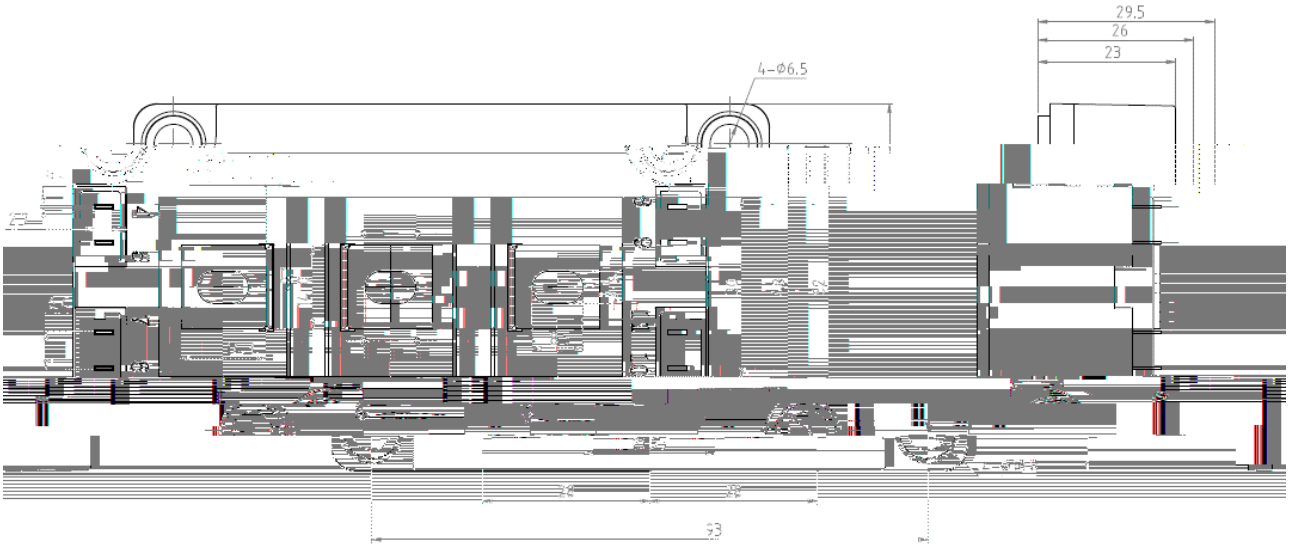


Fig. 9 Conduction characteristics of diode



Package Outline (Dimension in mm)





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