

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	I_C	$T_C = 25$	600 A
		$T_C = 100$	300 A
Pulsed Collector Current (Note 1)	I_{CM}	600	A
Diode Continuous Forward Current	I_F	300	A
Power Dissipation	P_D	$T_C = 25$	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 DIODE $T_{vj}=25^{\circ}\text{C}$, unless otherwise noted

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

Characteristics of the Module

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

IGBT Characteristics

Fig. 1 Output characteristics

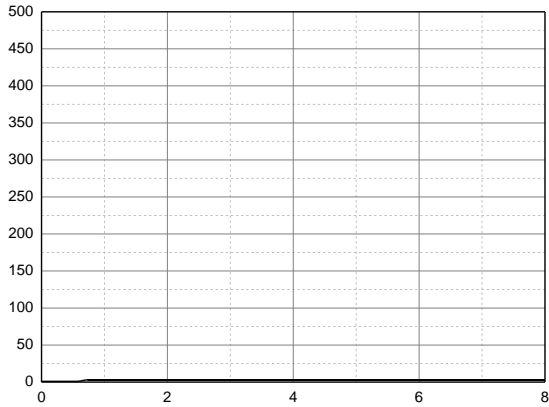


Fig. 2 Saturation voltage characteristic

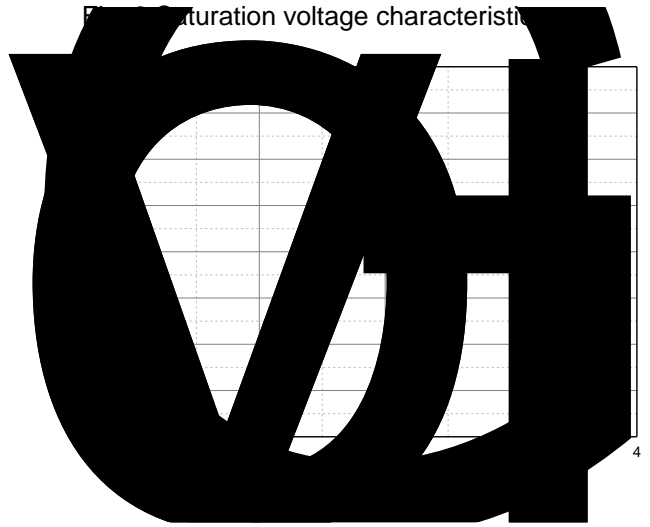


Fig. 3 Switching loss vs. gate resistor

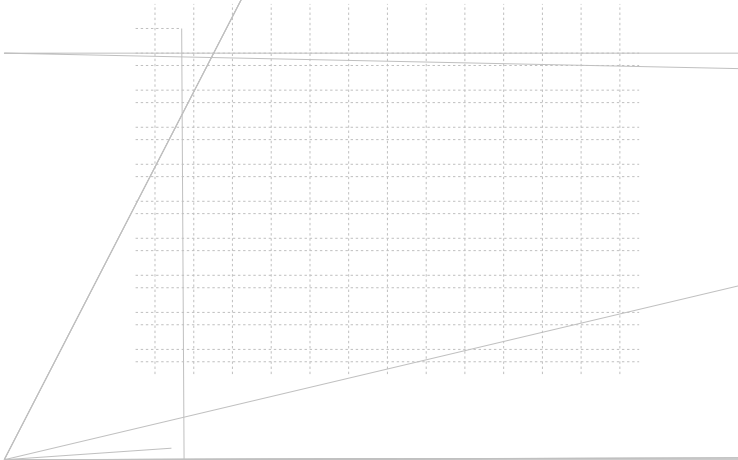


Fig. 4 Switching loss vs. collector current

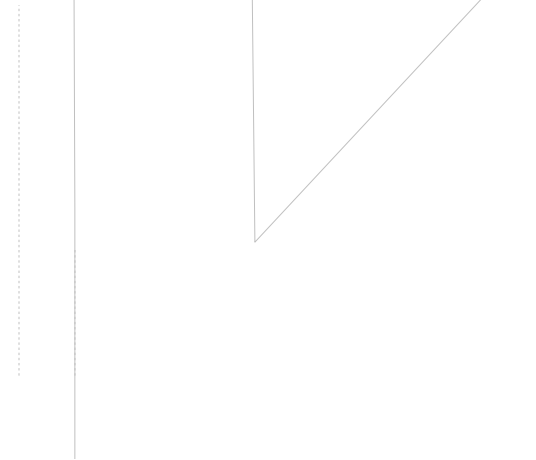


Fig. 5 Transient thermal impedance of IGBT

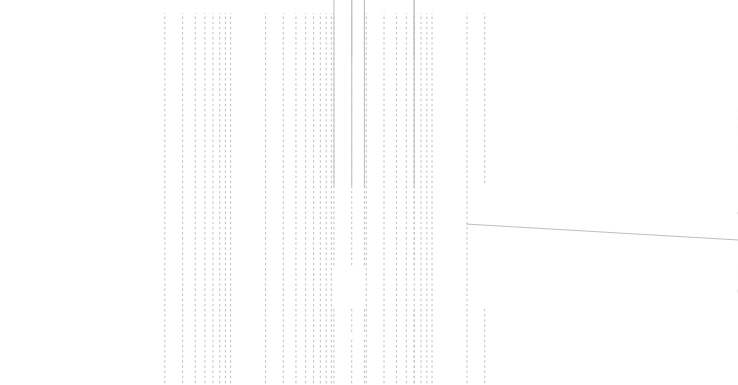
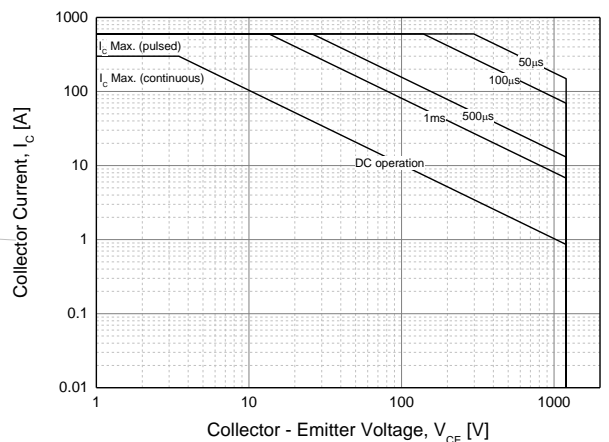


Fig. 6 SOA



IGBT Characteristics

Fig. 7 RBSOA

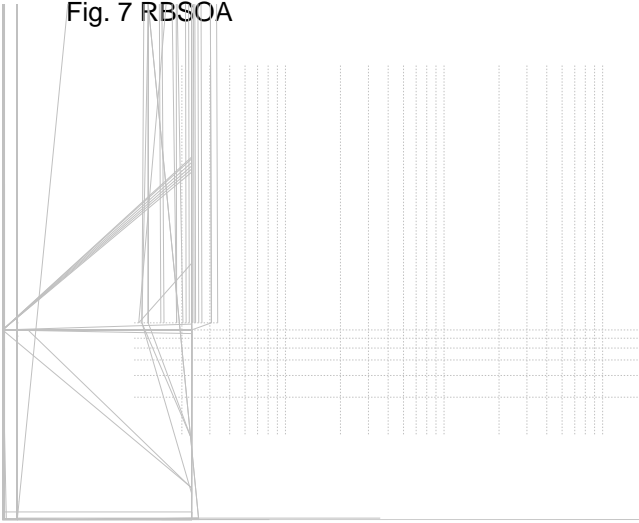


Fig. 8 Load current vs. frequency

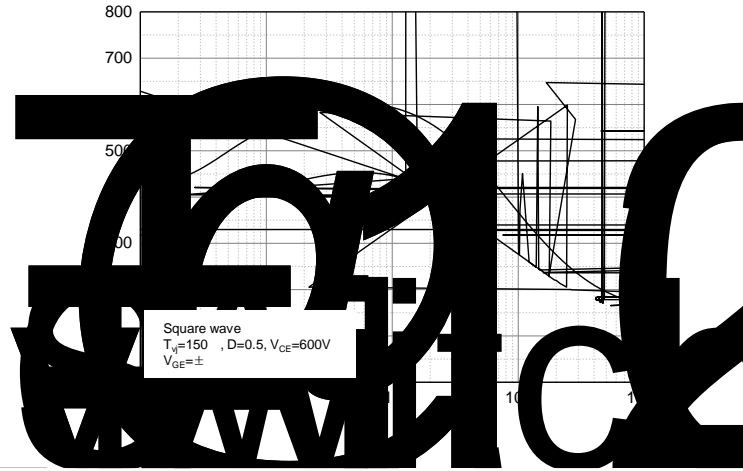
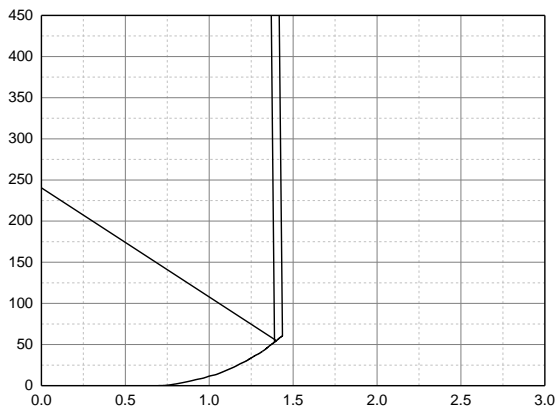
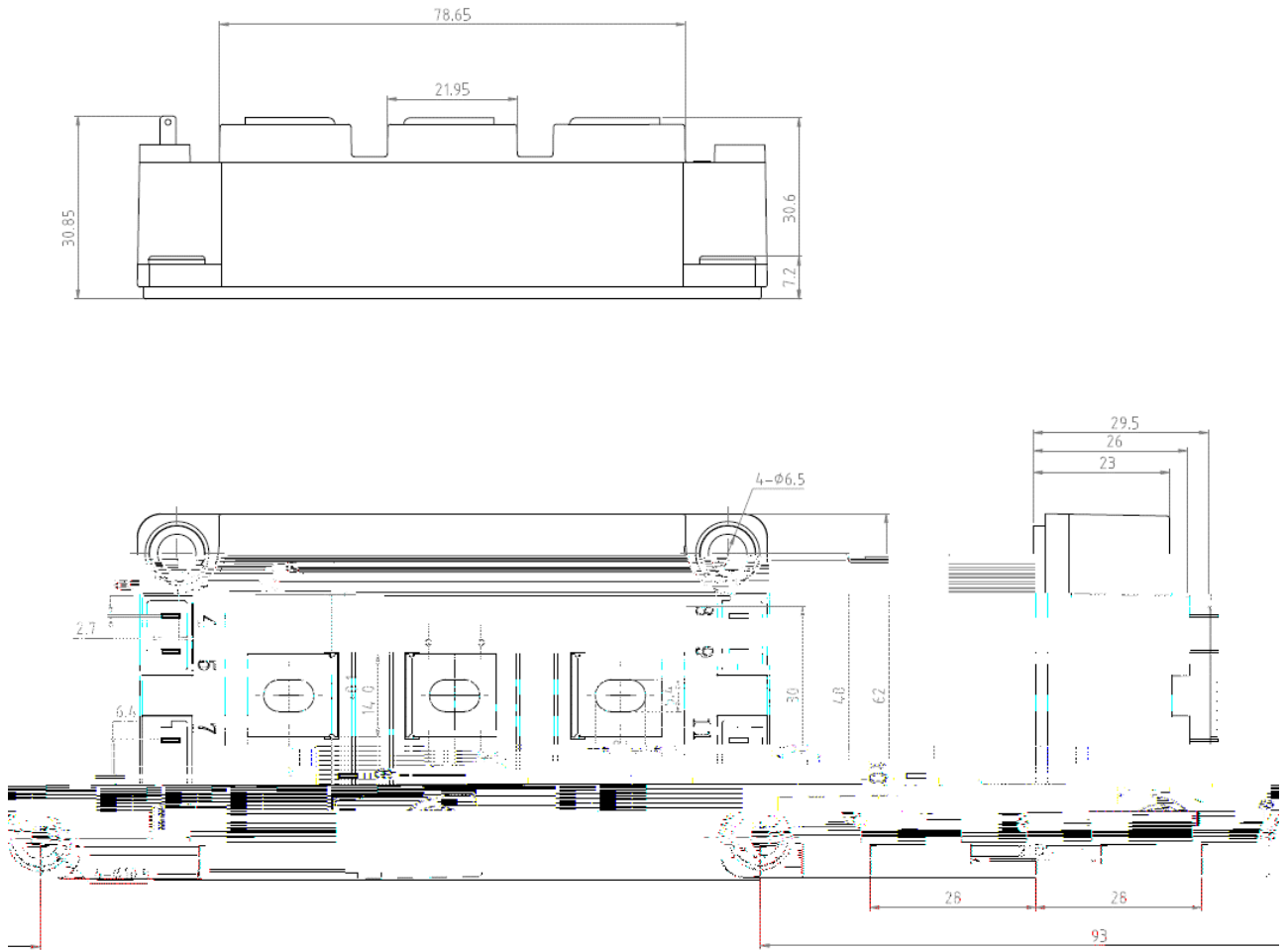


Fig. 9 Conduction characteristics of diode



Package Outline (Dimension in mm)



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