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$_{blt}$= 25 V			

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	$V_{GE(TH)}$	$V_{GE} = V_{CE}$, $I_C = 150mA$	5.0	--	8.0	V
Collector – Emitter Saturation Voltage	$V_{CE(SAT)}$	$V_{GE} = 15V$, $I_C = 150A$, $T_{vj} = 25$	--	2.0	2.5	V
		$V_{GE} = 15V$, $I_C = 150A$, $T_{vj} = 125$	--	2.3		V
DYNAMIC						
Input Capacitance	C_{IES}	$V_{CE} = 25V$, $V_{GE} = 0V$ $f = 1MHz$	--	16	--	nF
Output Capacitance	C_{OES}		--	370	--	pF
Reverse Transfer Capacitance	C_{RES}		--	626	--	pF
SWITCHING						
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 600V$, $I_C = 150A$ $R_G = 2$, $V_{GE} = 15V$ Inductive Load, $T_{vj} = 25$	--	45	--	ns
Rise Time	t_r		--	166	--	ns
Turn-Off Delay Time	$t_{d(off)}$		--	211	--	ns
Fall Time	t_f		--	84	--	ns
Turn-On Switching Loss	E_{ON}		--	17.1	--	mJ
Turn-Off Switching Loss	E_{OFF}		--	8.1	--	mJ
Total Switching Loss	E_{TS}		--	25.2	--	mJ
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 600V$, $I_C = 150A$ $R_G = 2$, $V_{GE} = 15V$ Inductive Load, $T_{vj} = 125$	--	48	--	ns
Rise Time	t_r		--	178	--	ns
Turn-Off Delay Time	$t_{d(off)}$		--	231	--	ns
Fall Time	t_f		--	116	--	ns
Turn-On Switching Loss	E_{ON}		--	21.9	--	mJ
Turn-Off Switching Loss	E_{OFF}		--	10.2	--	mJ
Total Switching Loss	E_{TS}		--	32.1	--	mJ
Total Gate Charge	Q_g	$V_{CC} = 600V$, $I_C = 150A$ $V_{GE} = 15V$	--	1031	--	nC
Gate-Emitter Charge	Q_{ge}		--	99	--	nC
Gate-Collector Charge	Q_{gc}		--	559	--	nC
Short Circuit Withstanding Time	t_{SC}	$V_{CC} = 600V$, $V_{GE} = 15V$, $T_{vj} = 125$	10	--	--	µs

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

Parameter	Symbol	Test condition		Min.	Typ.	Max.	Unit
Diode Forward Voltage	V_{FM}	$I_F = 150A$	$T_{vj} = 25$	--	2.3	2.8	V
			$T_{vj} = 125$	--	2.2	2.7	
Reverse Recovery Current	I_{rr}	$V_{CC} = 600V, I_F = 150A$ $R_G = 2$, $V_{GE} = 15V$ Inductive Load	$T_{vj} = 25$	--	92	--	A
			$T_{vj} = 125$	--	97	--	
Reverse Recovery Charge	Q_{rr}		$T_{vj} = 25$	--	8.1	--	µC
			$T_{vj} = 125$	--	12.3	--	
Reverse Recovery Time	t_{rr}		$T_{vj} = 25$	--	229	--	ns
			$T_{vj} = 125$	--	332	--	

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

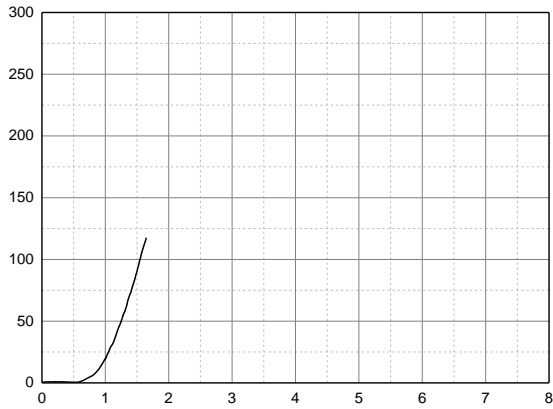## IGBT Characteristics

Fig. 1 Output characteristics

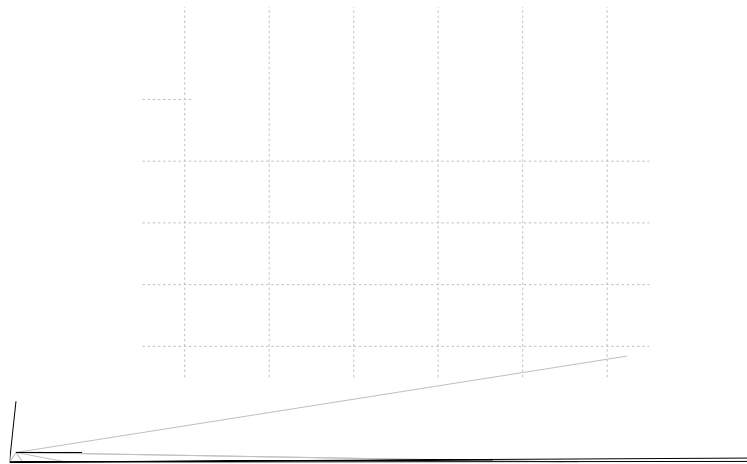Fig. 2 Saturation voltage characteristics
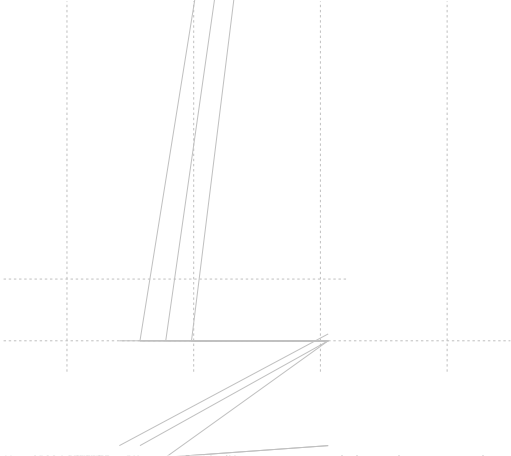
Fig. 3 Switching loss vs. gate resistor

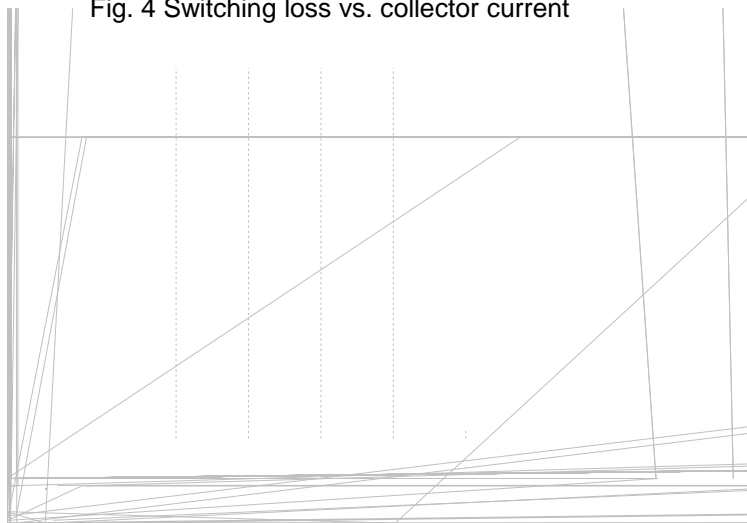Fig. 4 Switching loss vs. collector current

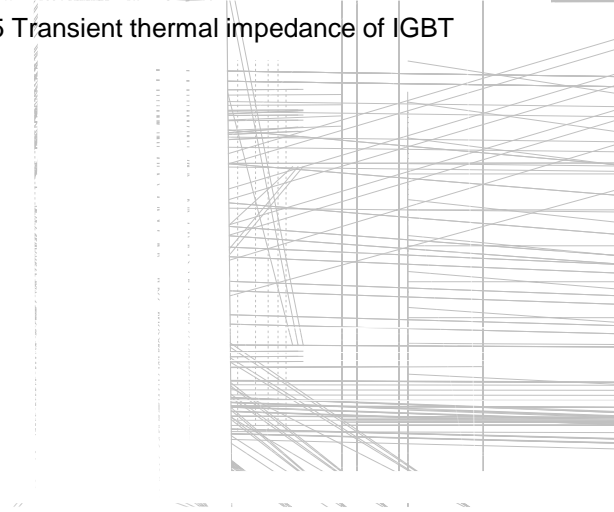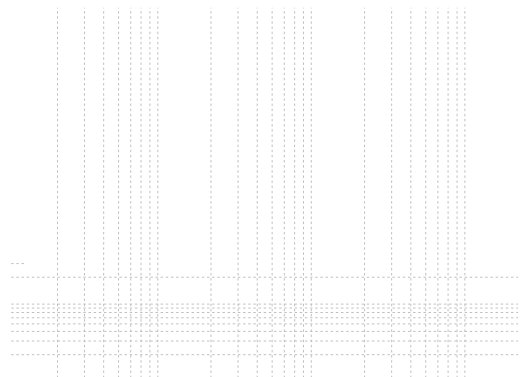Fig. 5 Transient thermal impedance of IGBT

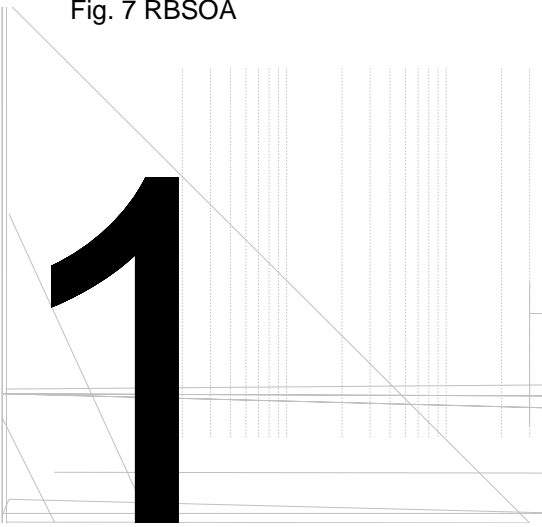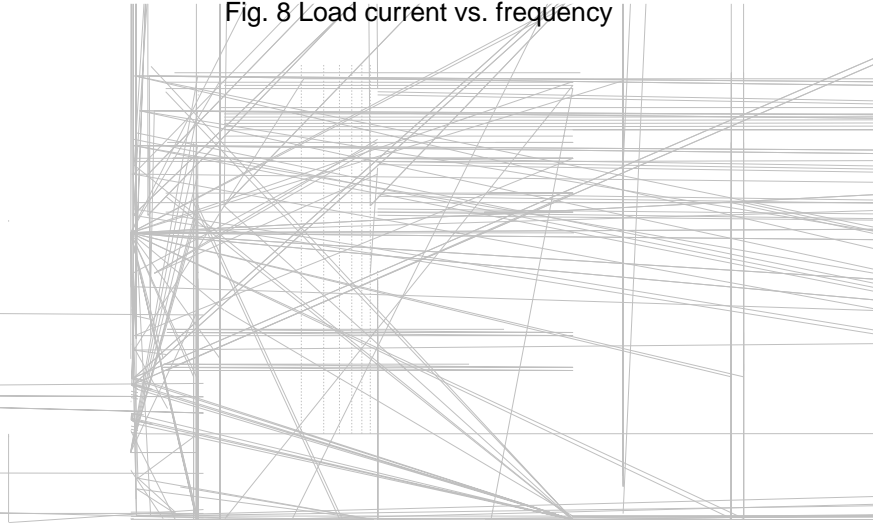Fig. 6 SOA

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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