SPECIFICATION

DEVICE NAME : IGBT

TYPE NAME : 1MBH10D-060

SPEC. No. :

DATE :

Fuji Electric Co.,Ltd.

This Specification is subject to change without notice.

	DATE	NAME	APPROVED
DRAWN			
CHECKED			

Fuji Electric Co.,Ltd.

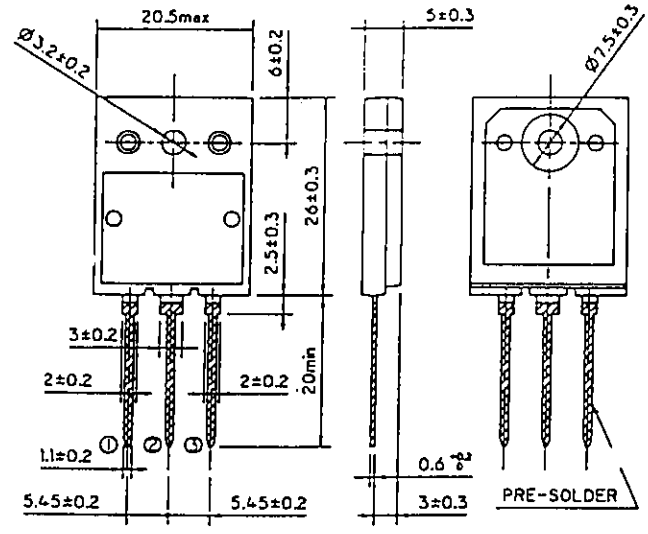
DWG.NO.

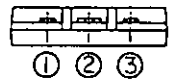
H04-004-07

Ratings and characteristics of Fuji IGBT

1MBH10D-060

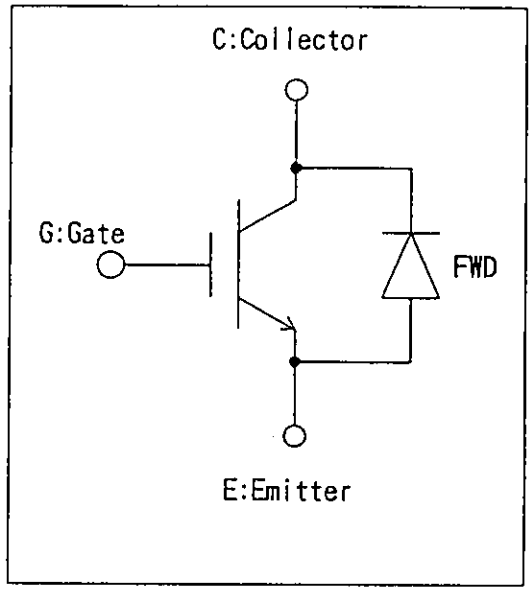
1. Outline Drawing





CONNECTION
① GATE
② COLLECTOR
③ EMITTER

2. Equivalent circuit



3. Absolute maximum ratings (Tc=25℃)

Items			Symbols	Ratings	Units
Collector-Emitter Voltage			V_{CES}	600	V
Gate-Emitter Voltage			V_{GES}	±20	V
Collector Current	DC	Tc=25 ℃	Ic_{25}	30	A
		Tc=115℃	Ic_{115}	10	A
	1ms	Tc=25 ℃	Icp	80	A
IGBT Max. Power Dissipation			Pc	115	W
FWD Max. Power Dissipation			Pc	55	W
Operating Temperature			Tj	+ 150	℃
Storage Temperature			Tstg	-40 ～ +150	℃
Mounting Screw Torque			——	70	N・cm

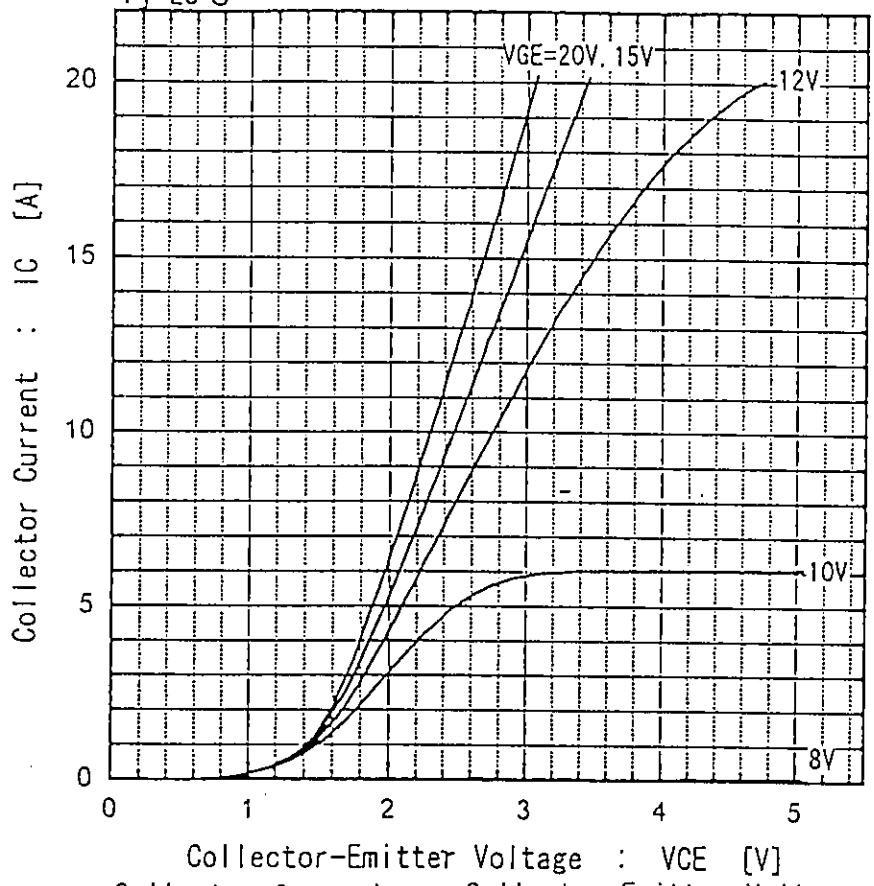
4. Electrical Characteristics (at Tc=25℃ unless otherwise specified)

Items		Symbols	Characteristics			Conditions	Unit
			min.	typ.	max.		
Zero gate voltage Collector Current		I_{CES}			1.0	V_{GE} = 0V V_{CE} = 600V	mA
Gate-Emitter leakage Current		I_{GES}			20	V_{CE} = 0V V_{GE} = ±20V	μA
Gate-Emitter Threshold Voltage		$V_{GE(th)}$	5.5		8.5	V_{CE} = 20V Ic = 10mA	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			3.0	V_{GE} = 15V Ic = 10A	V
Input capacitance		Cies		700		V_{GE} = 0V V_{CE} = 10V f = 1MHz	pF
Output capacitance		Coes		150			
Reverse transfer capacitance		Cres		20			
Switching Time	Turn-on time	ton			1.2	Vcc = 300V Ic = 10A V_{GE} = ±15V R_G = 220Ω (Half Bridge)	μs
		tr			0.6		
	Turn-off time	toff			1.0		
		tf			0.35		
	Turn-on time	ton		0.16		Vcc = 300V Ic = 10A V_{GE} = +15V R_G = 22 Ω (Half Bridge)	
		tr		0.11			
	Turn-off time	toff		0.30			
		tf			0.35		
FWD forward voltage drop		VF			3.0	I_F = 10A	V
Reverse recovery time		trr			0.3	IF=10A, V_{GE}=-10V VR= 200V di/dt=100A/μs	μs

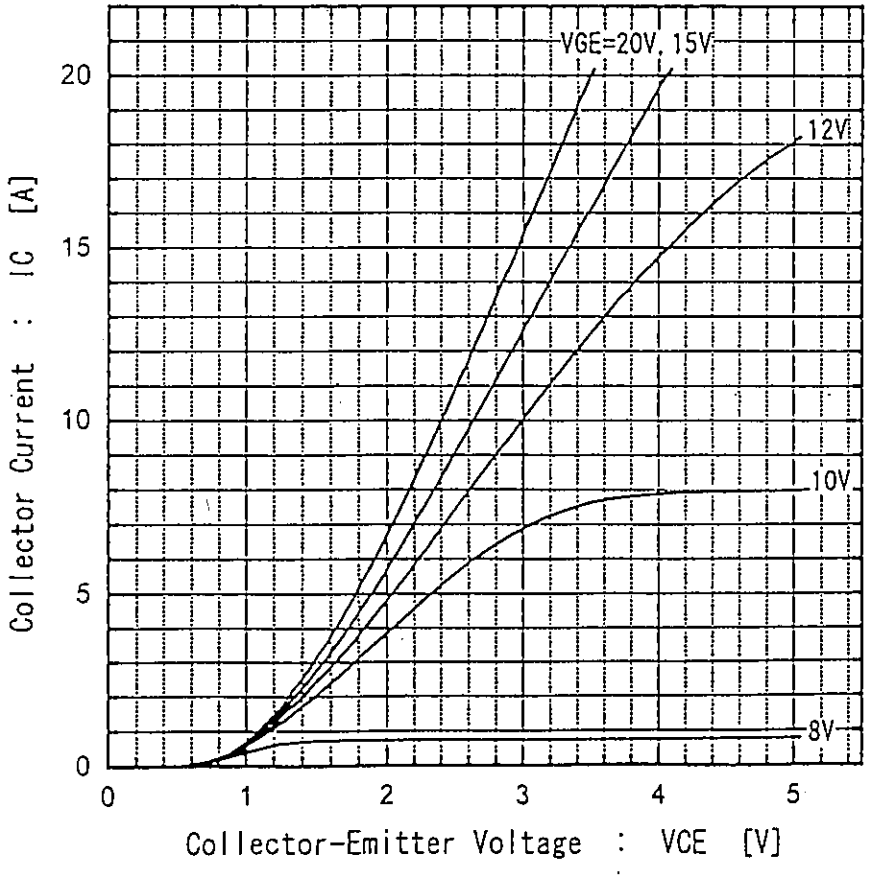
5. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Unit
		min.	typ.	max.		
Thermal resistance	Rth(j-c)			1.08	IGBT	℃/W
	Rth(j-c)			2.27	FWD	

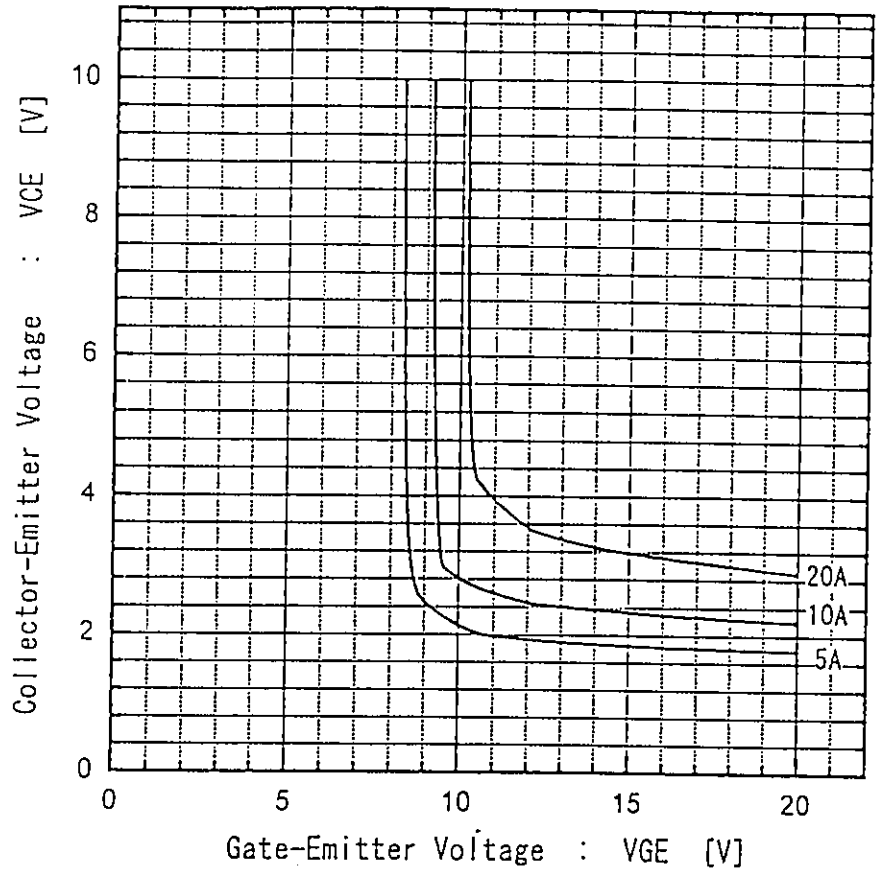
Collector Current vs. Collector-Emitter Voltage
Tj=25℃



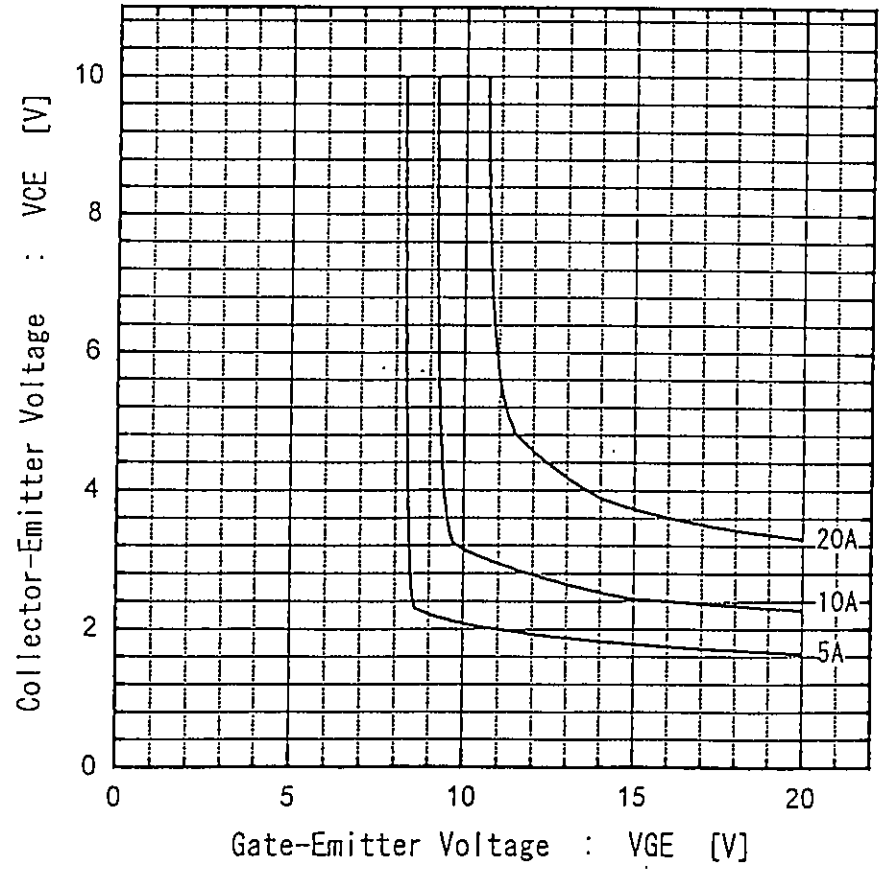
Collector Current vs. Collector-Emitter Voltage
Tj=125℃



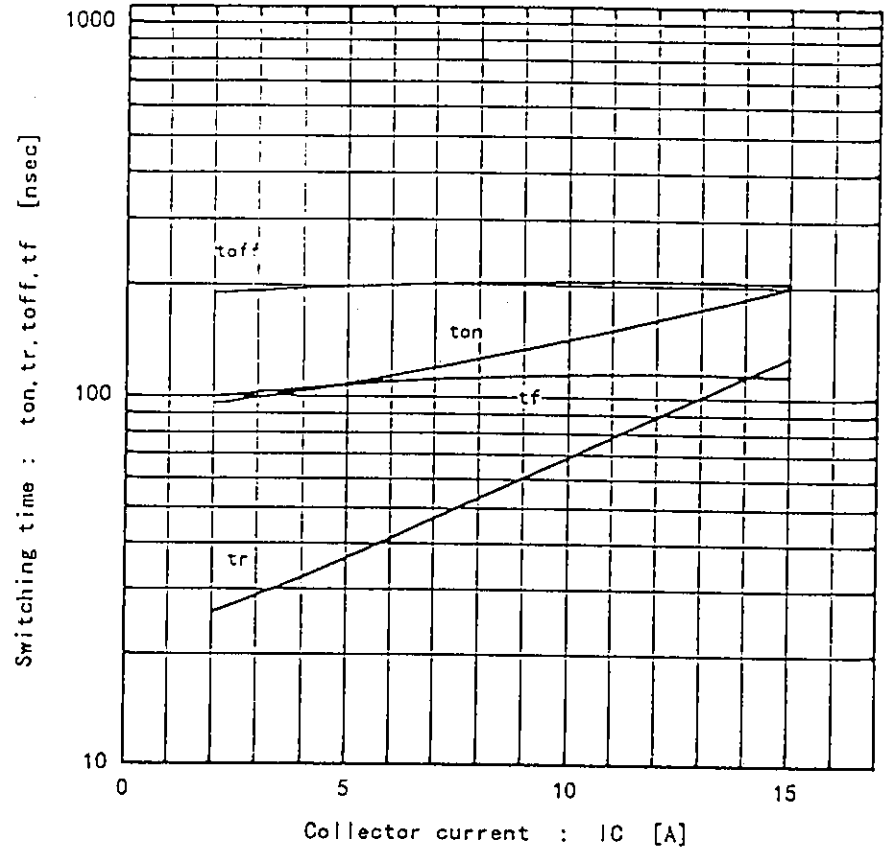
Collector-Emitter Voltage vs Gate-Emitter Voltage
Tj=25℃



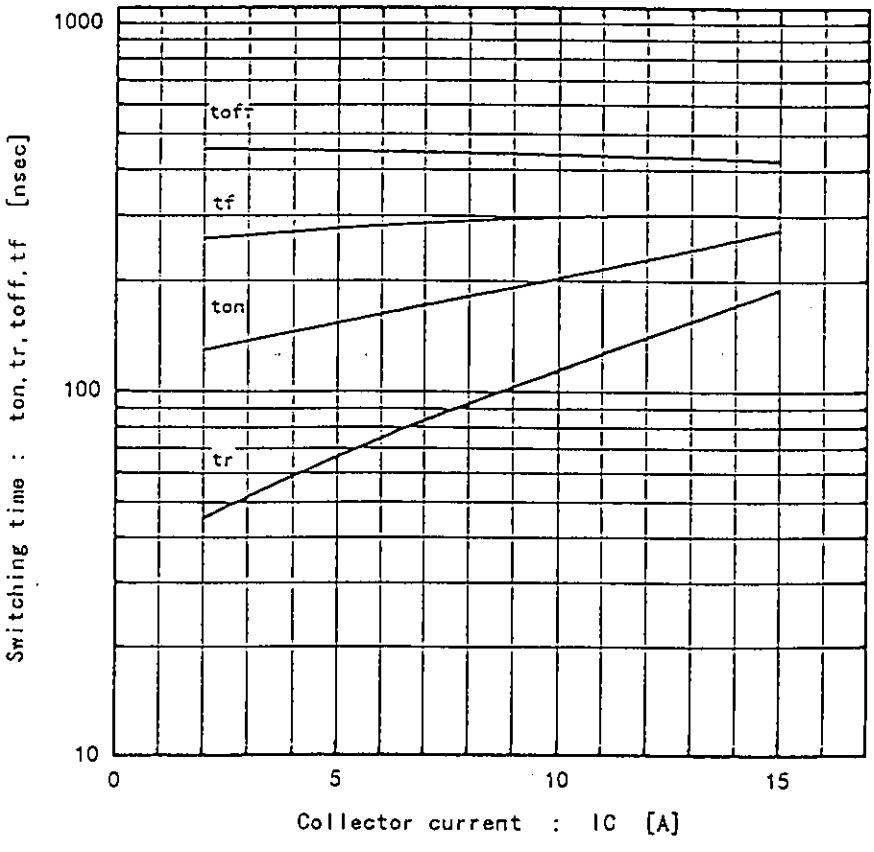
Collector-Emitter Voltage vs Gate-Emitter Voltage
Tj=125℃



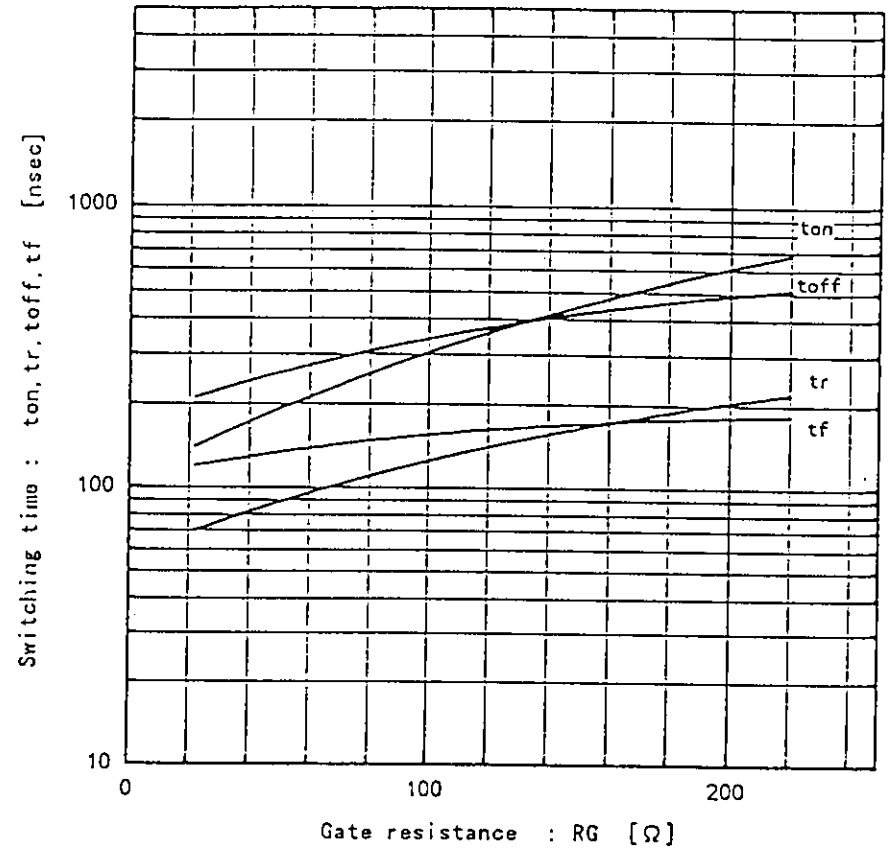
Switching time vs. Collector current
Vcc=300V, RG=22Ω, VGE=±15V, Tj=25°C



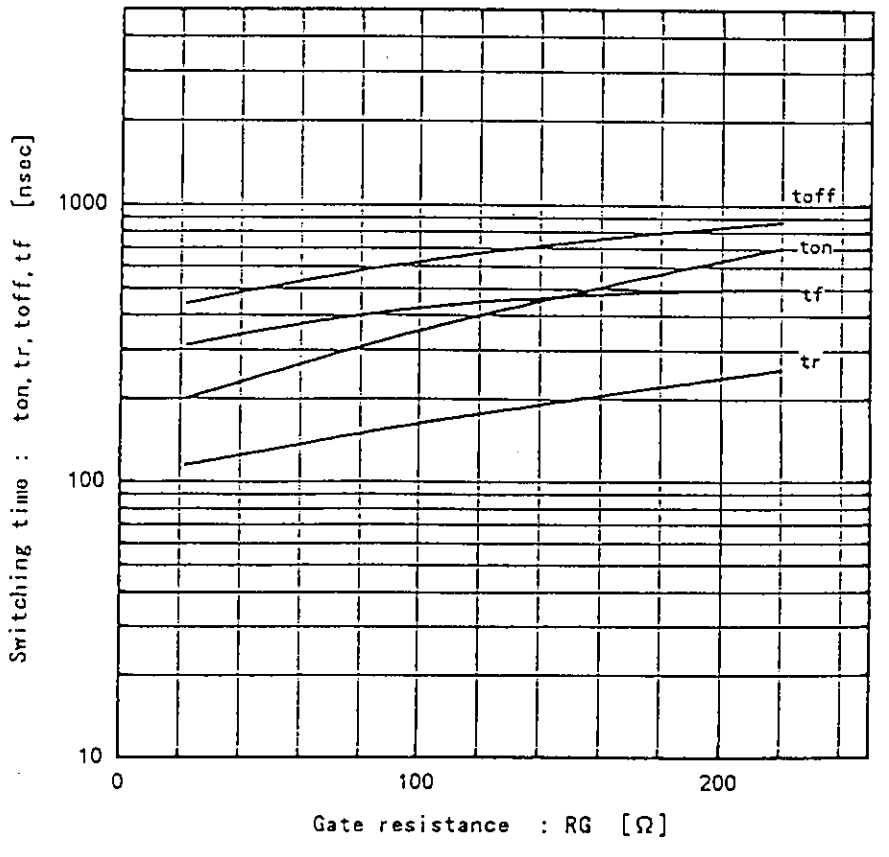
Switching time vs. Collector current
Vcc=300V, RG=22Ω, VGE=±15V, Tj=125°C



Switching time vs. RG
Vcc=300V, IC=10A, VGE=±15V, Tj=25°C



Switching time vs. RG
Vcc=300V, IC=10A, VGE=±15V, Tj=125°C



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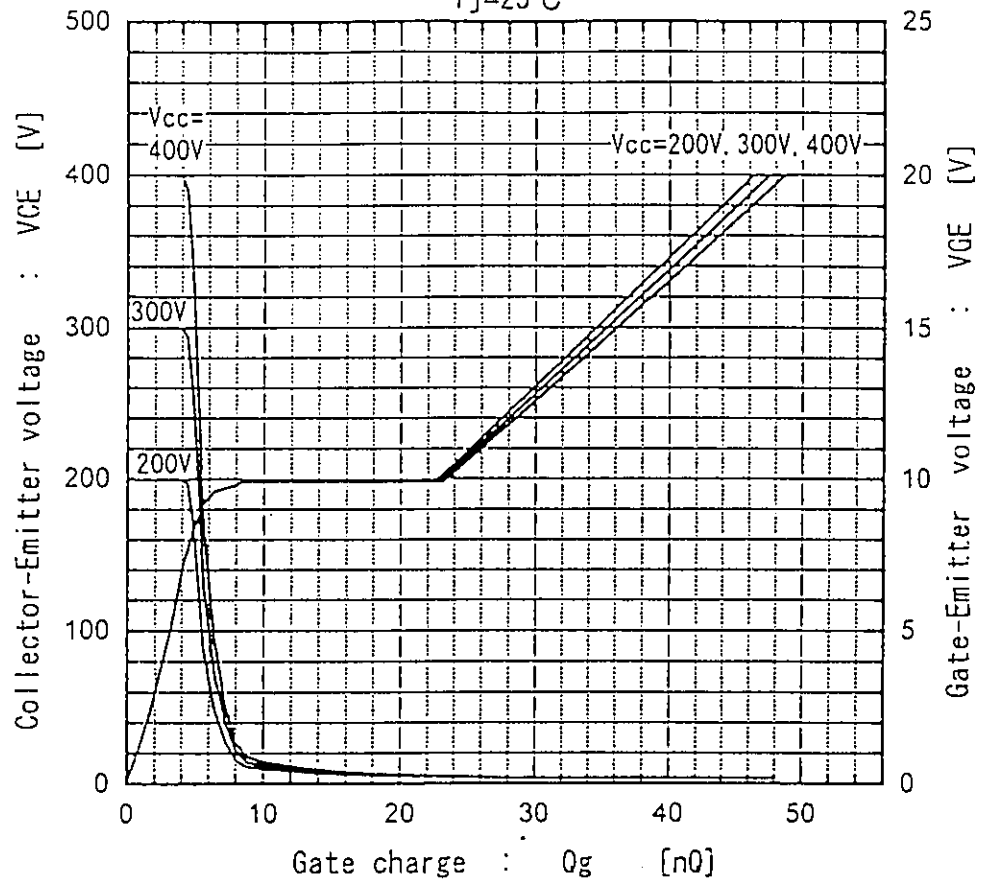
DWG.NO.

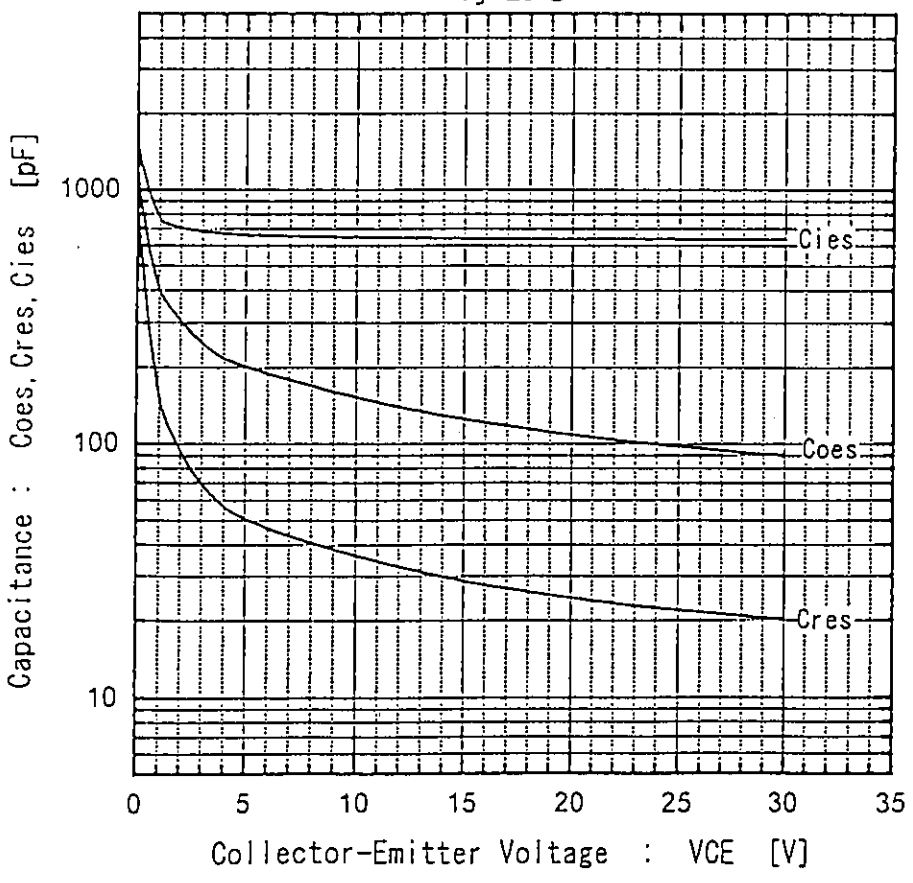
7/12

H04-004-03

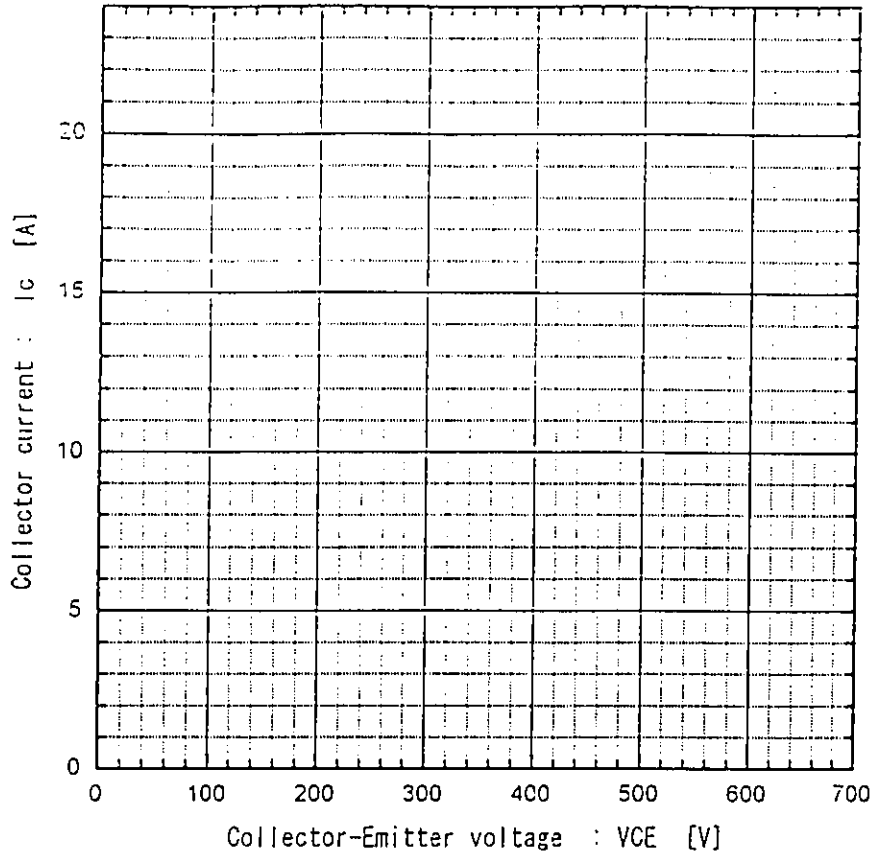
Dynamic input characteristics
Tj=25℃



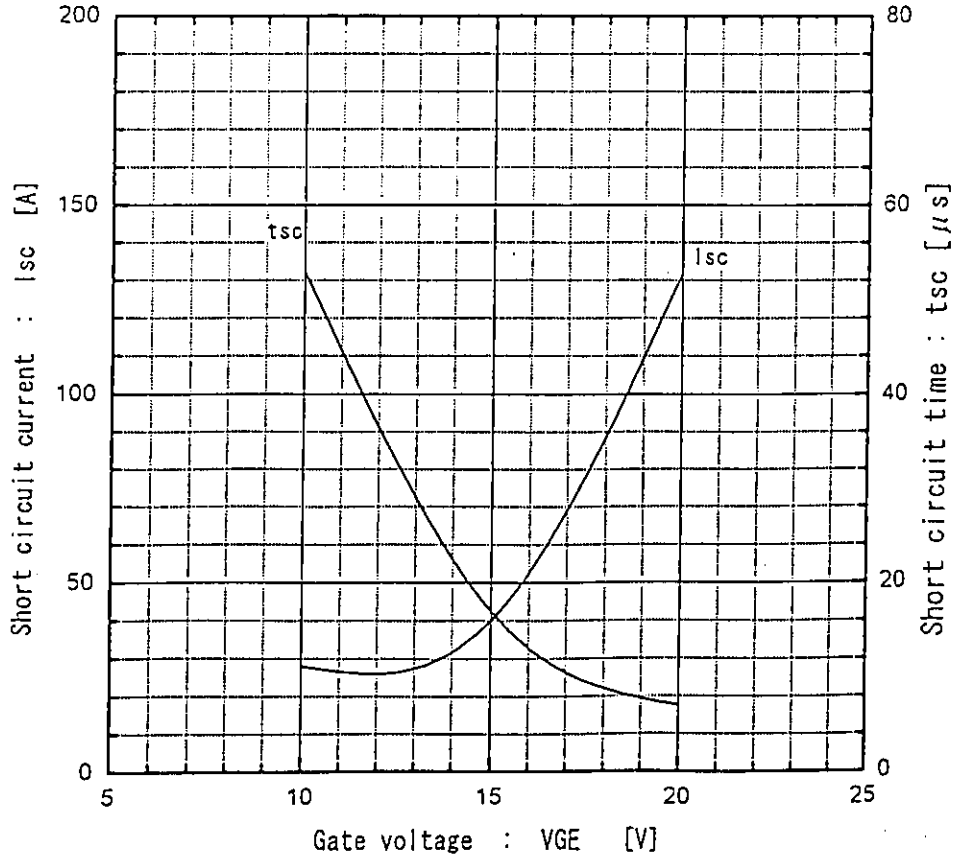
Capacitance vs. Collector-Emitter voltage
Tj=25℃



Reverse Biased Safe Operating Area
+VGE=15V, -VGE≦15V, Tj≦125°C, RG≧22Ω



Typical short circuit capability
Vcc=400V, Rg=22Ω, Tj=125°C



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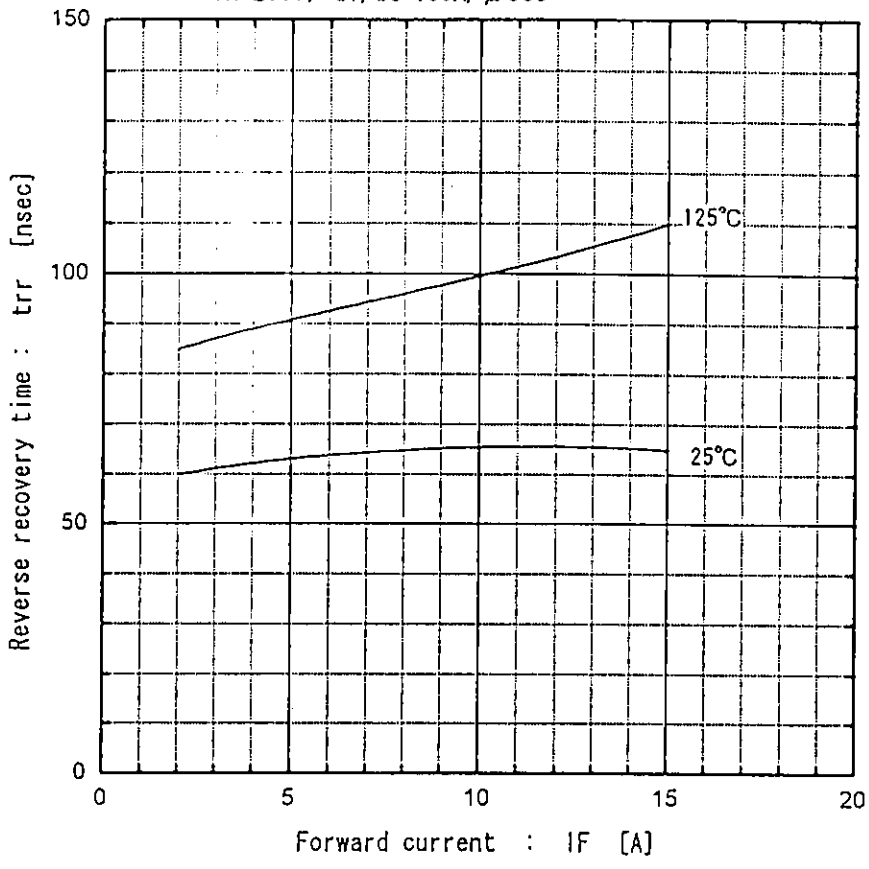
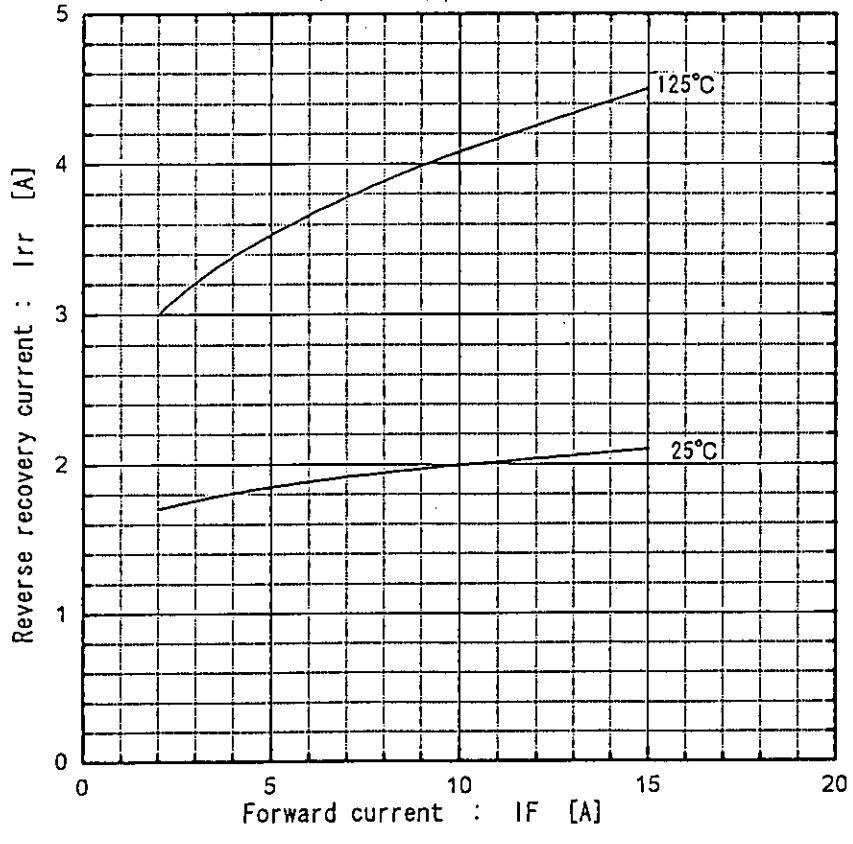
H04-004-03

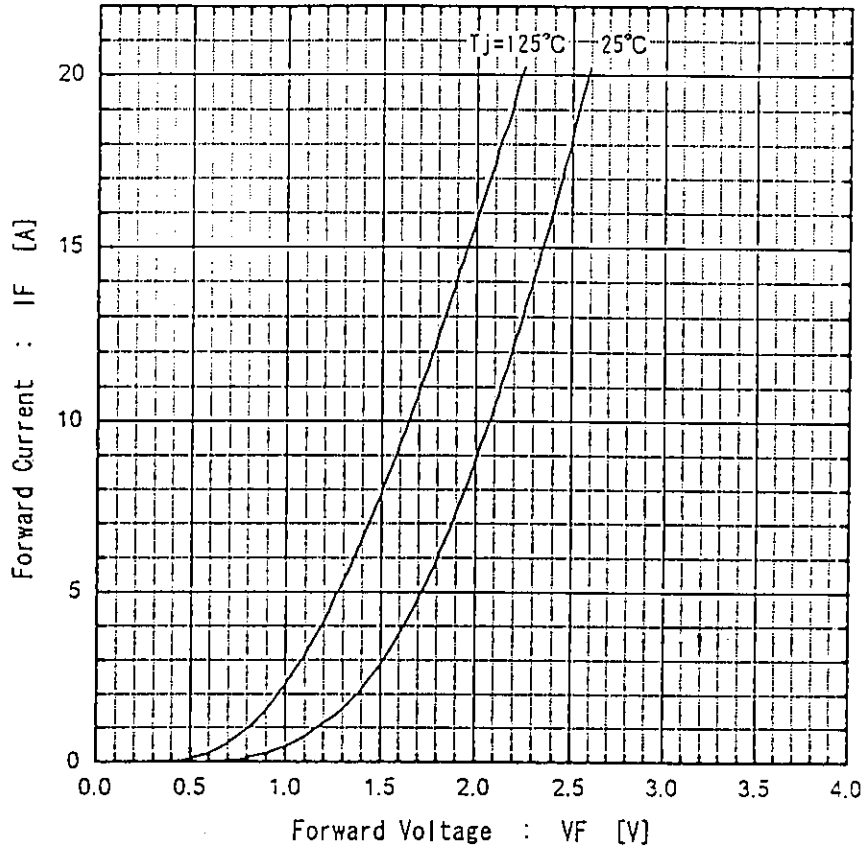
Reverse recovery time vs. Forward current
VR=200V, -di/dt=100A/μsec



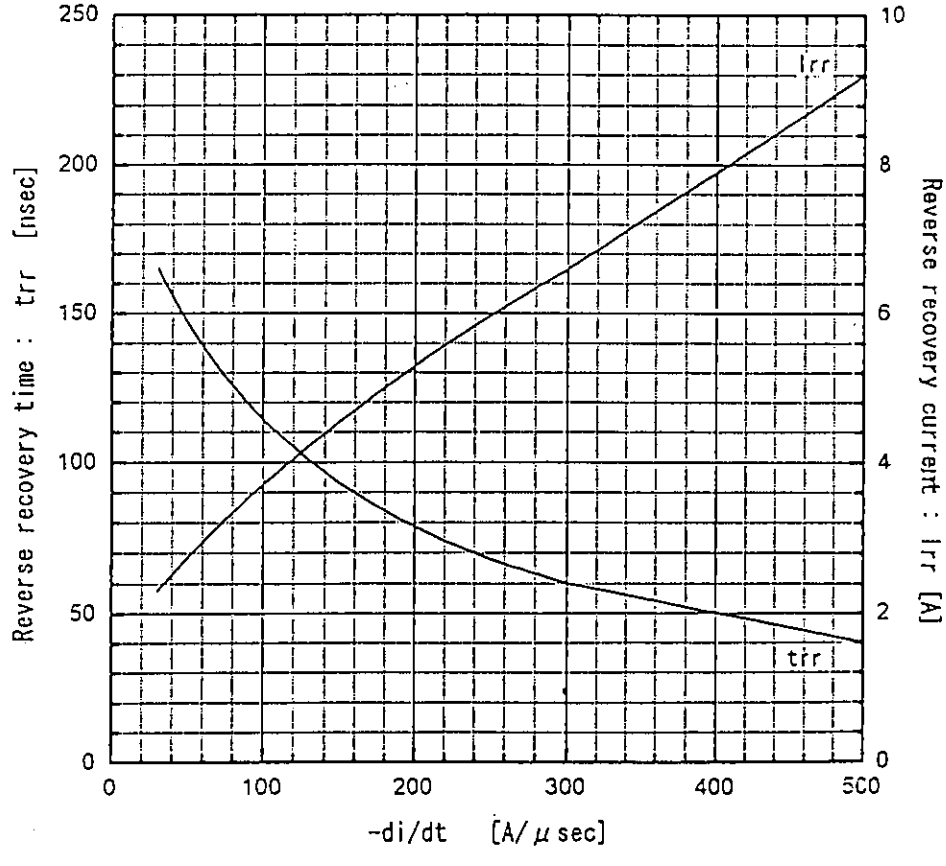
Reverse recovery current vs. Forward current
VR=200V, -di/dt=100A/μsec



Forward voltage vs. Forward current



Reverse recovery chracteristics vs. -di/dt
IF=10A. Tj=125°C



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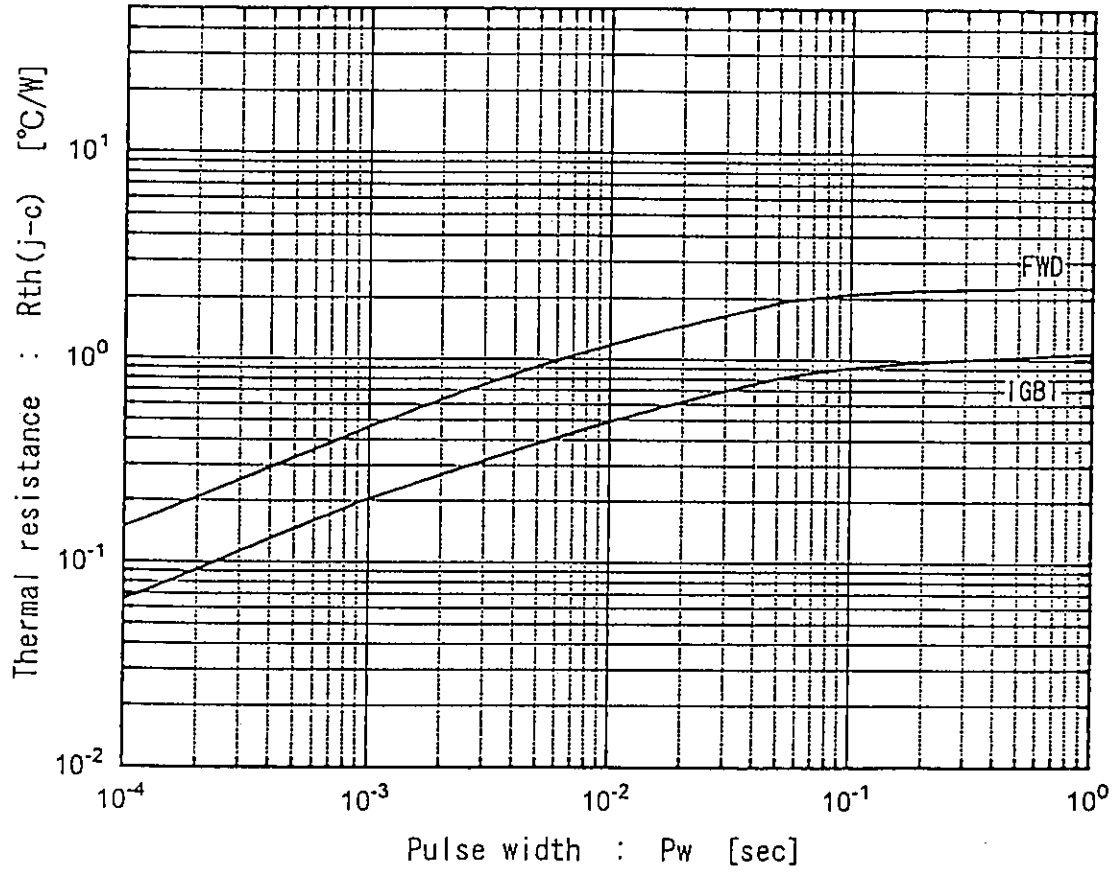
DWG.NO.

11/12

H04-004-03

Transient thermal resistance



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