RGB
ELEKTRONIKA
Centrum automatyki przemysłowej

DATASHEET

FUJI ELECTRIC

7MBR35U4P120-50

OTHER SYMBOLS:

7MBR35U4P12050, 7MBR35U4P120 50, 7MBR35U4P120-50

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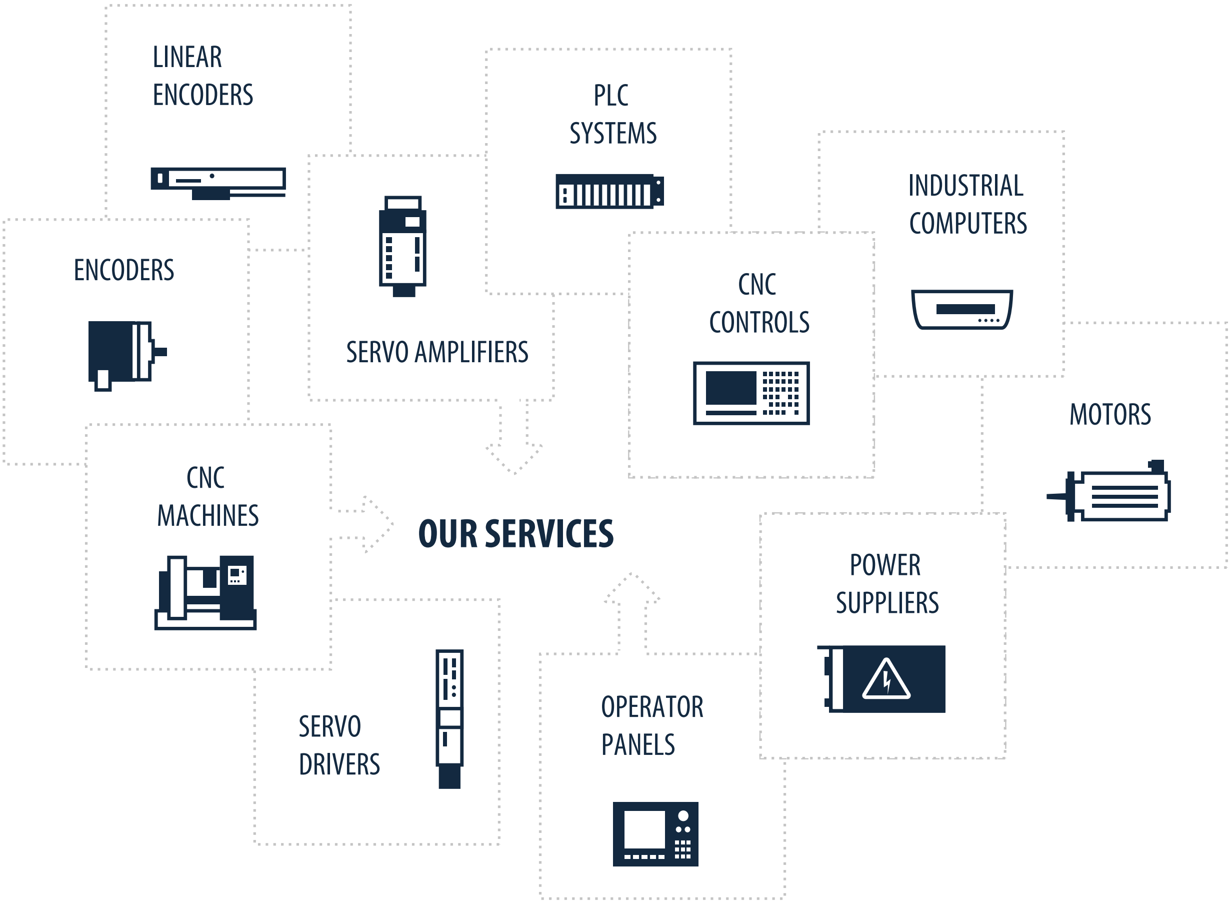

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OPERATOR PANELS

At our premises in Wrocław, we have a fully equipped servicing facility. Here we perform all the repair works and test each later sold unit. Our trained employees, equipped with a wide variety of tools and having several testing stands at their disposal, are a guarantee of the highest quality service.

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BUY »

FUJI ELECTRIC

7MBR 35SB-120

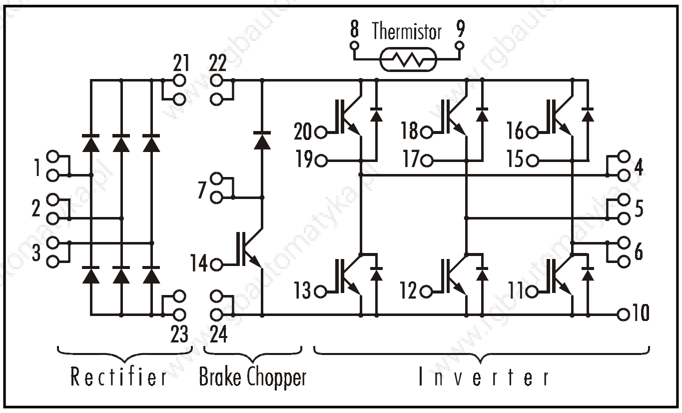
IGBT PIM
1200V
6x35A+Chopper

Power Integrated Module (PIM)

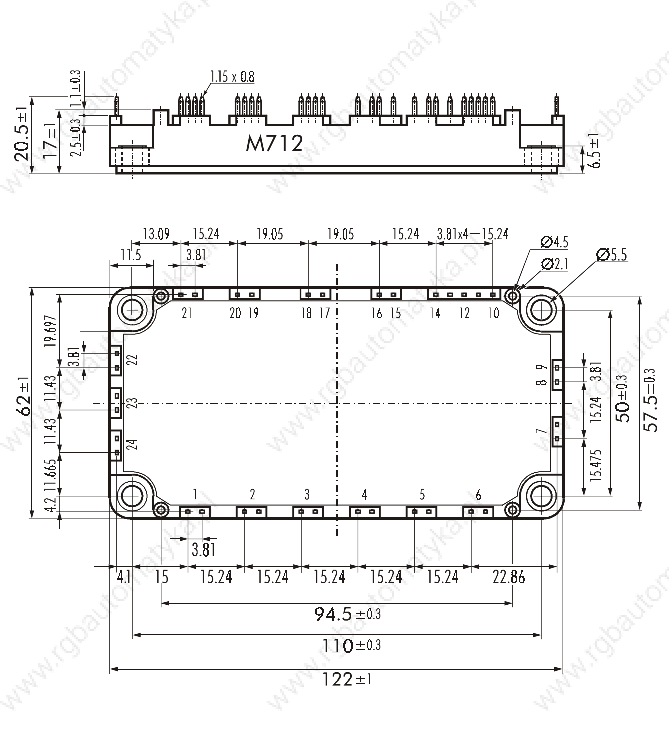
■ Features

- *NPT-Technology*
- *Solderable Package*
- *Square SC SOA at 10 x I_C*
- *High Short Circuit Withstand-Capability*
- *Small Temperature Dependence of the Turn-Off Switching Loss*
- *Low Losses And Soft Switching*

■ Equivalent Circuit



■ Outline Drawing

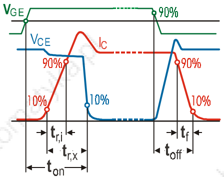


■ Absolute Maximum Ratings (T_c=25°C)

	Items		Symbols	Test Conditions		Ratings	Units
Inverter	Collector-Emitter Voltage		V_{CES}			1200	V
	Gate -Emitter Voltage		V_{GES}			± 20	
	Collector Current		I_C	Continuous	25°C / 80°C	50 / 35	A
			$I_{C\ PULSE}$	1ms	25°C / 80°C	100 / 75	
			$-I_{C\ PULSE}$			35	
	Collector Power Dissipation		P_C	1 device		240	W
Rectifier	Repetitive Peak Reverse Voltage		V_{RRM}			1600	V
	Average Output Current		I_O	50Hz/60Hz sinus wave		35	A
	Surge Current	(Non Repetitive)	I_{FSM}	T_j=150°C, 10 ms, sinus wave		360	
	I^2t	(Non Repetitive)				648	A^2s
Brake Chopper	Collector-Emitter Voltage		V_{CES}			1200	V
	Gate –Emitter Voltage		V_{GES}			± 20	
	Collector Current		I_C	Continuous	25°C / 80°C	35 / 25	A
			$I_{C\ PULSE}$	1ms	25°C / 80°C	70 / 50	
	Collector Power Dissipation		P_C	1 device		180	W
	Repetitive Peak Reverse Voltage		V_{RRM}			1200	V
	Operating Junction Temperature		T_j			+150	°C
	Storage Temperature		T_{Stg}			-40 ~ +125	
	Isolation Voltage		V_{ISO}	A.C. 1min.		2500	V
	Mounting Screw Torque*					3.5	Nm

Note: *:Recommendable Value; 2.5 ~ 3.5 Nm (M5)

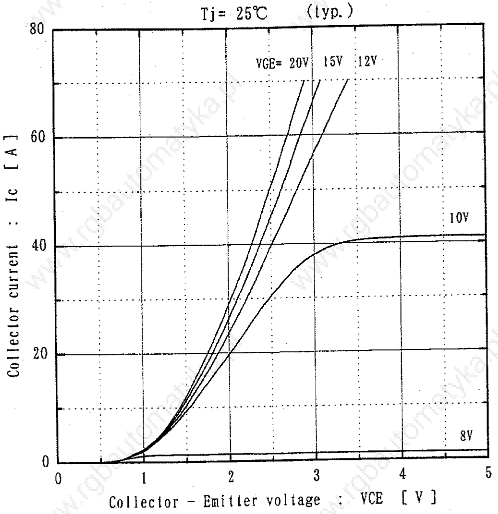
■ Electrical Characteristics(T_j=25°C)

		Items	Symbols	Test Conditions		Min.	Typ.	Max.	Units
Inverter	IGBT	Zero Gate Voltage Collector Current	I_{CES}	V_{GE}=0V V_{CE}=1200V				1.0	mA
		Gate-Emitter Leackage Current	I_{GES}	V_{CE}=0V V_{GE}=± 20V				200	nA
		Gate-Emitter Threshold Voltage	$V_{GE(th)}$	V_{GE}=20V I_C=35mA		5.5	7.2	8.5	V
		Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V_{GE}=15V	Chip		2.1		
				I_C = 35A	Terminal		2.25	2.7	
		Input Capacitance	C_{ies}	f=1MHz, V_{GE}=0V, V_{CE}=10V			4200		pF
		Turn-on Time	t_{on}	V_{CC} = 600V			0.35	1.2	µs
			$t_{r,x}$	I_C = 35A			0.25	0.6	
			$t_{r,i}$	V_{GE} = ±15V			0.10		
		Turn-off Time	t_{off}	R_G = 33Ω			0.45	1.0	
			t_f	Inductive Load			0.08	0.3	
	FRD	Diode Forward On-Voltage	V_F	I_F=35A	Chip		2.3		V
					Terminal		2.45	3.3	
		Reverse Recovery Time	t_{rr}	I_F=35A				350	ns
Rectifier		Forward Voltage	V_{FM}	I_F=35A	Chip		1.1		V
					Terminal		1.2	1.5	
		Reverse Current	I_{RRM}	V_R =1600V				1.0	mA
Brake Chopper		Zero Gate Voltage Collector Current	I_{CES}	V_{GE}=0V V_{CE}=1200V				1.0	mA
		Gate-Emitter Leackage Current	I_{GES}	V_{CE}=0V V_{GE}=± 20V				200	nA
		Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V_{GE}=15V	Chip		2.10		V
				I_C=25A	Terminal		2.25	2.7	
		Turn-on Time	t_{on}	V_{CC} = 600V			0.35	1.2	µs
			$t_{r,x}$	I_C = 15A			0.25	0.6	
		Turn-off Time	t_{off}	V_{GE} = ±15V			0.45	1.0	
			t_f	R_G = 51Ω			0.08	0.3	
		Reverse Current	I_{RRM}	V_R=1200V				1.0	mA
NTC		Resistance	R	T= 25°C			5000		Ω
				T=100°C		465	495	520	
		B Value	B	T=25 / 50°C		3305	3375	3450	K

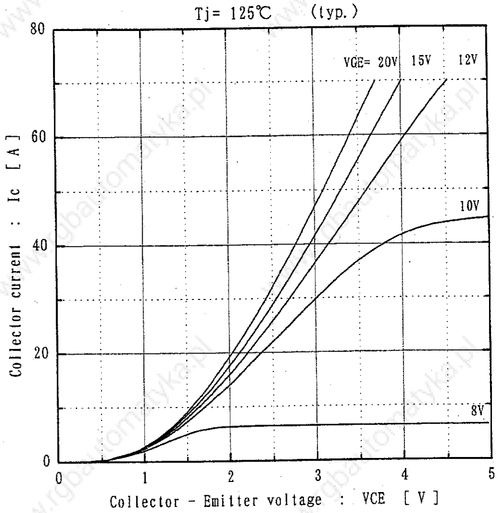
■ Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance (1 device)	$R_{th(j-c)}$	Inverter IGBT			0.52	°C/W
		Inverter FRD			0.90	
		Brake IGBT			0.69	
		Rectifier Diode			0.75	
Contact Thermal Resistance	$R_{th(c-f)}$	With Thermal Compound		0.05		

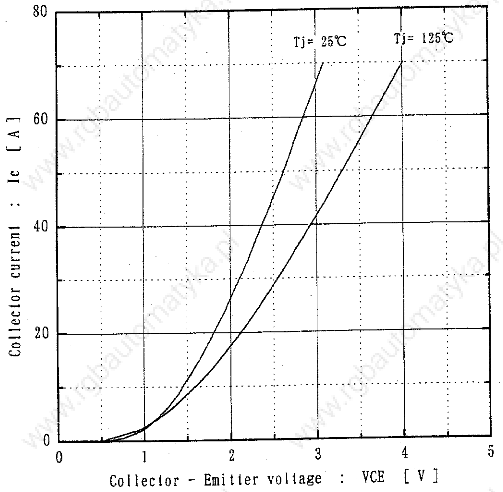
[Inverter]
Collector current vs. Collector-Emiiter voltage
Tj= 25℃ (typ.)



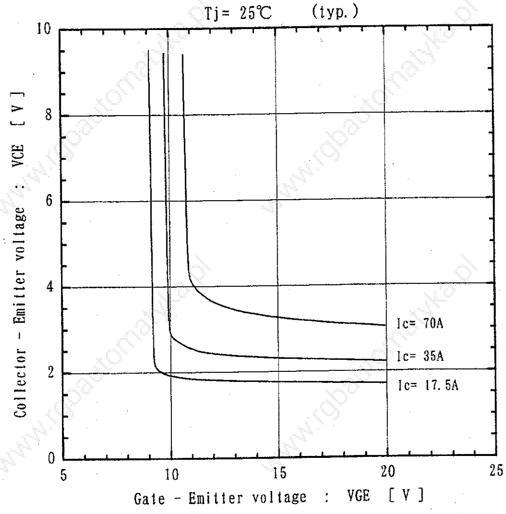
[Inverter]
Collector current vs. Collector-Emiiter voltage
Tj= 125℃ (typ.)



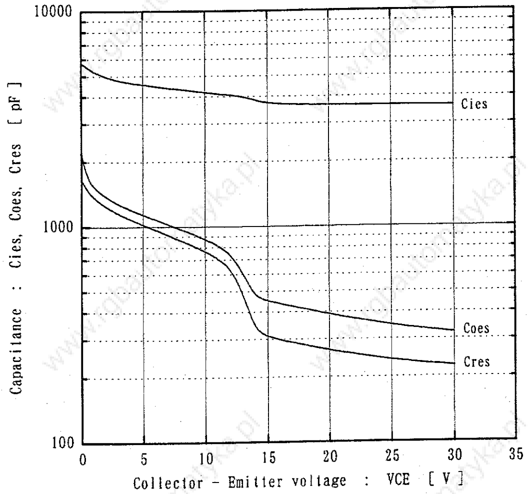
[Inverter]
Collector current vs. Collector-Emiiter voltage
VGE=15V (typ.)



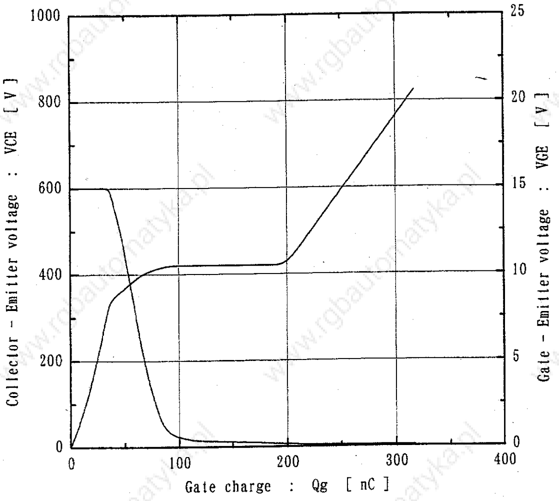
[Inverter]
Collector-Emiiter voltage vs. Gate-Emiiter voltage
Tj= 25℃ (typ.)



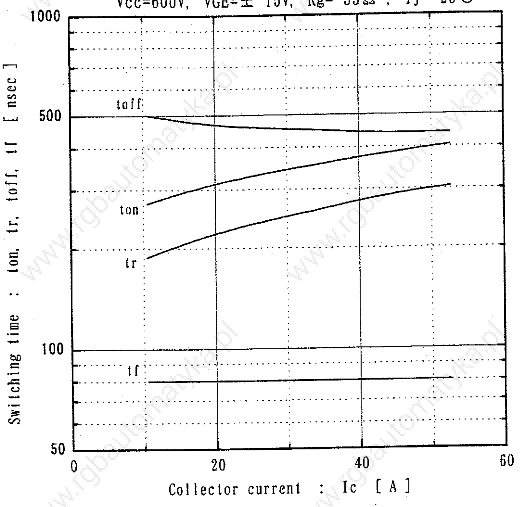
[Inverter]
Capacitance vs. Collector-Emiiter voltage (typ.)
VGE=0V, f= 1MHz, Tj= 25℃



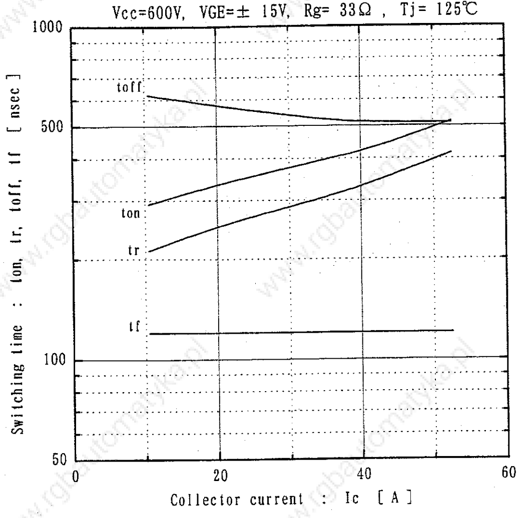
[Inverter]
Dynamic Gate charge (typ.)
Vcc=600V, Ic=35A, Tj= 25℃



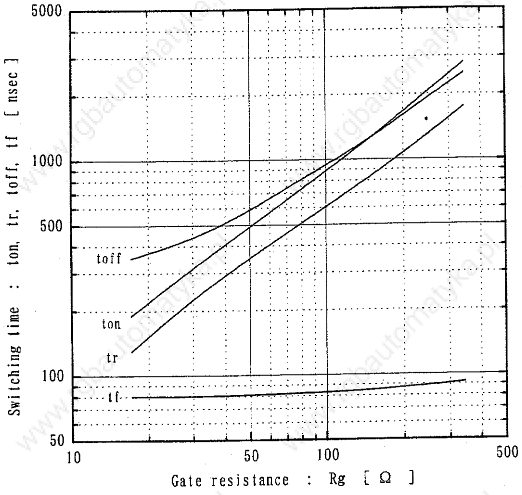
[Inverter]
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 33Ω , Tj= 25℃



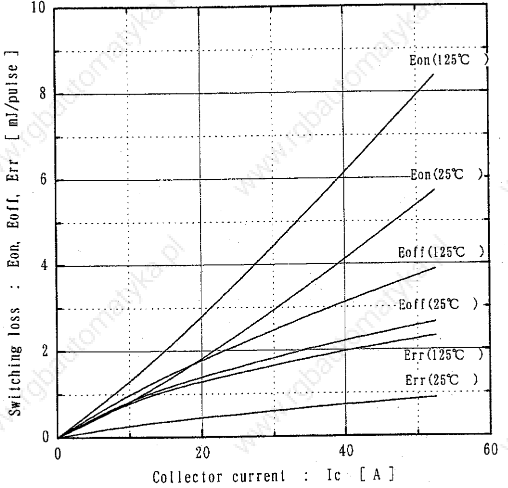
[Inverter]
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 33Ω , Tj= 125℃



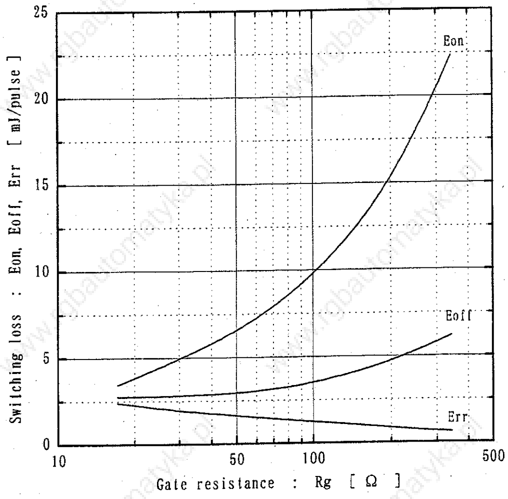
[Inverter]
Switching time vs. Gate resistance (typ.)
Vcc=600V, Ic=35A, VGE=± 15V, Tj= 25℃



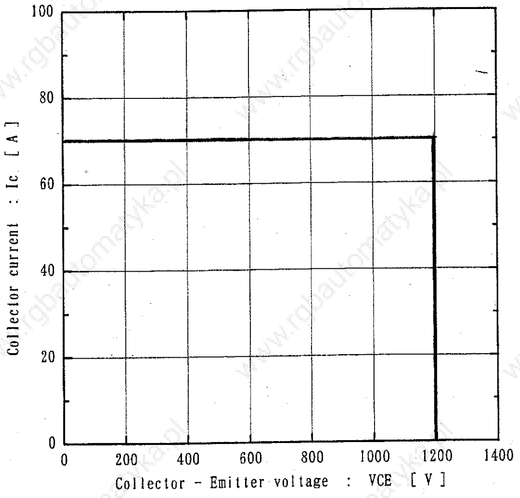
[Inverter]
Switching loss vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg=33Ω



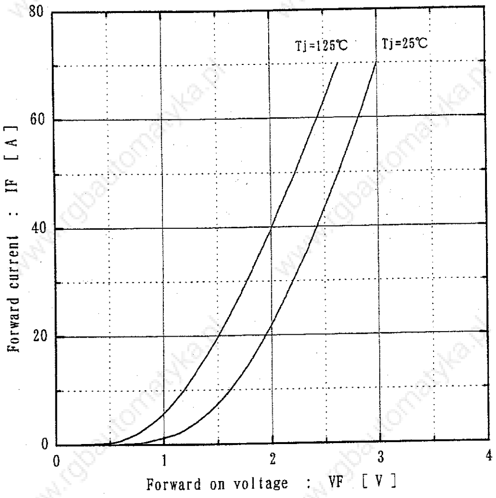
[Inverter]
Switching loss vs. Gate resistance (typ.)
Vcc=600V, Ic=35A, VGE=± 15V, Tj= 125℃



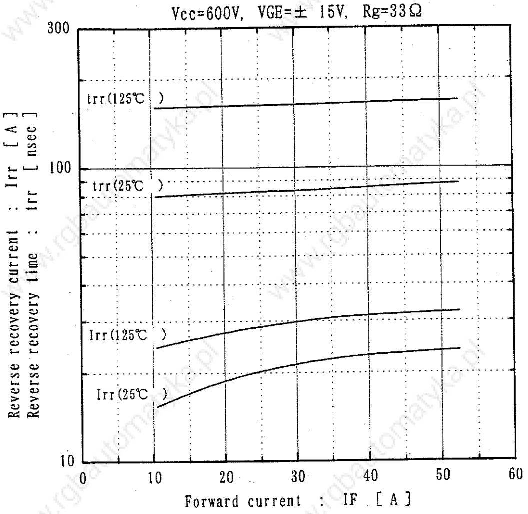
[Inverter]
Reverse bias safe operating area
+VGE=15V, -VGE≦ 15V, Rg≧ 33Ω , Tj≦ 125℃



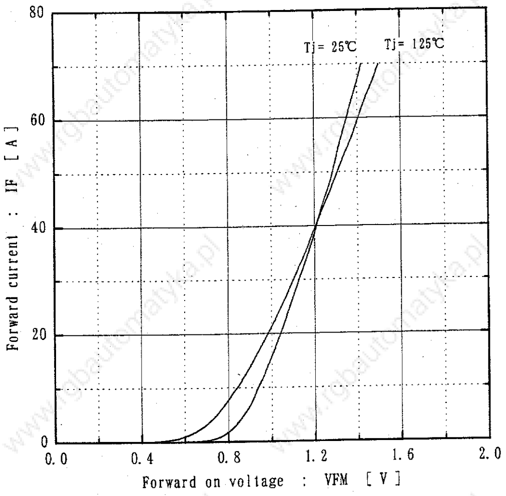
[Inverter]
Forward current vs. Forward on voltage (typ.)



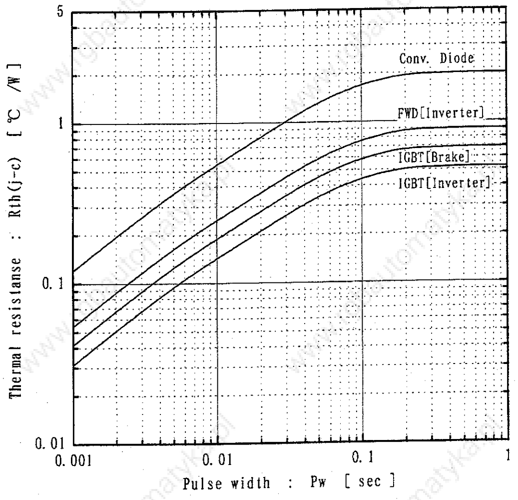
[Inverter]
Reverse recovery characteristics (typ.)
Vcc=600V, VGE=± 15V, Rg=33Ω



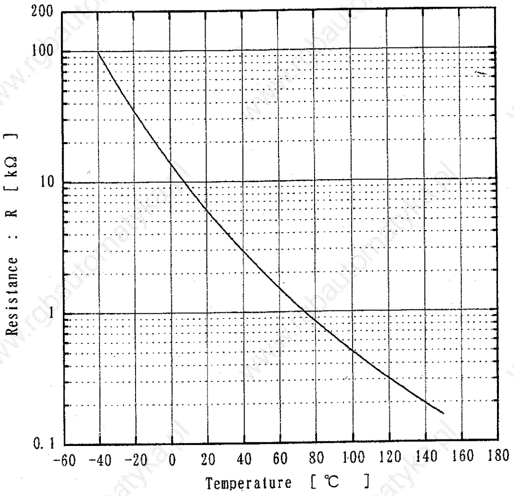
[Converter]
Forward current vs. Forward on voltage (typ.)



Transient thermal resistance



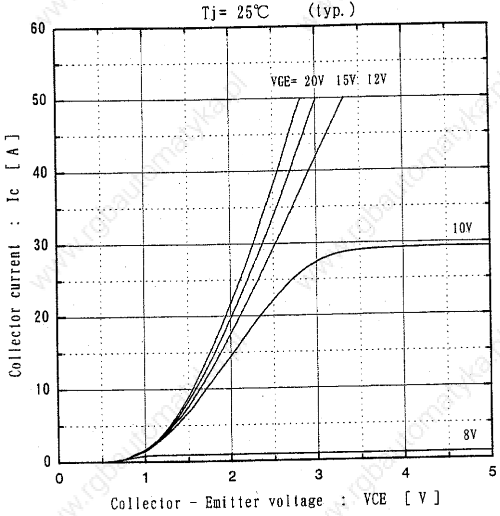
[Thermistor]
Temperature characteristic (typ.)

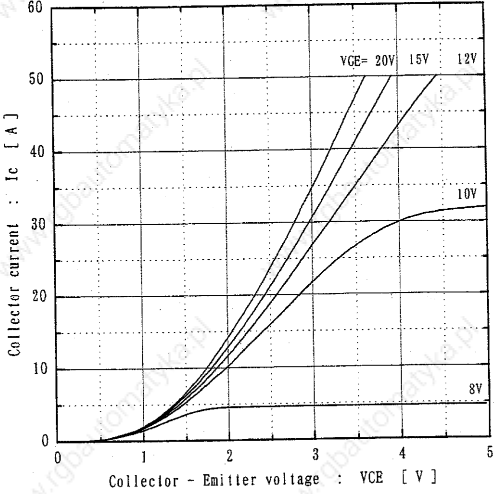


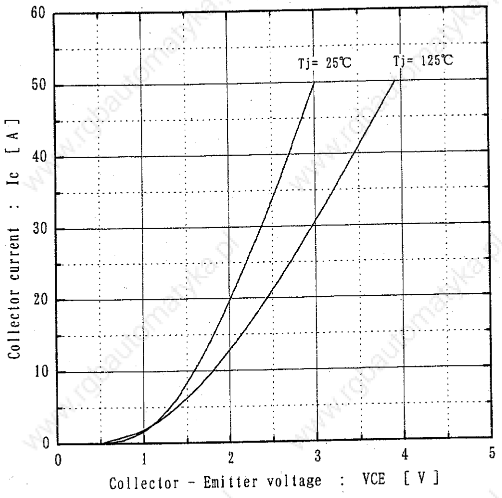
FUJI ELECTRIC

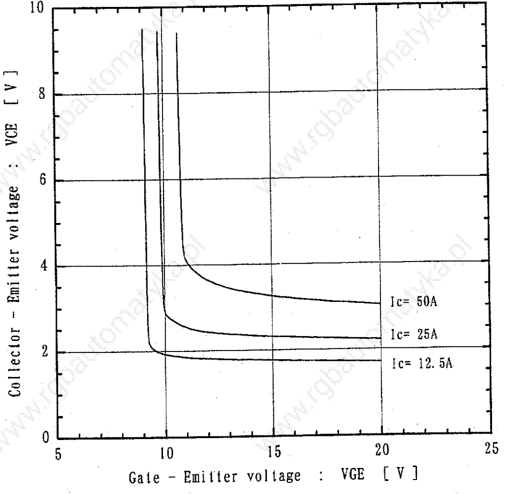
7MBR 35SB-120

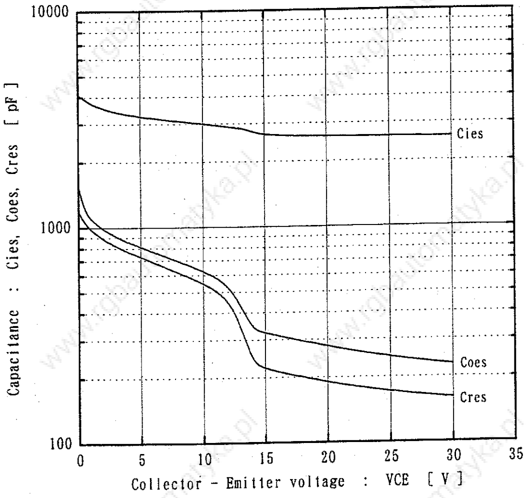
IGBT PIM
1200V
6x35A+Chopper

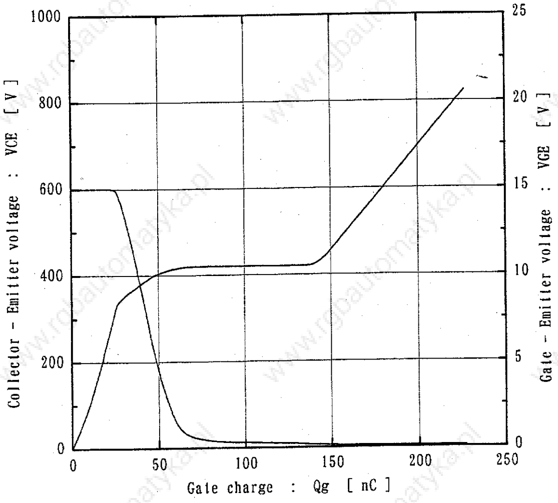

[Brake]
Collector current vs. Collector-Emiiter voltage
Tj= 25℃ (typ.)


[Brake]
Collector current vs. Collector-Emiiter voltage
Tj= 125℃ (typ.)


[Brake]
Collector current vs. Collector-Emiiter voltage
VGE=15V (typ.)


[Brake]
Collector-Emiiter voltage vs. Gate-Emitter voltage
Tj= 25℃ (typ.)


[Brake]
Capacitance vs. Collector-Emiiter voltage (typ.)
VGE=0V, f= 1MHz, Tj= 25℃


[Brake]
Dynamic Gate charge (typ.)
Vcc=600V, Ic=25A, Tj= 25℃