

IGBT MODULE (L series)

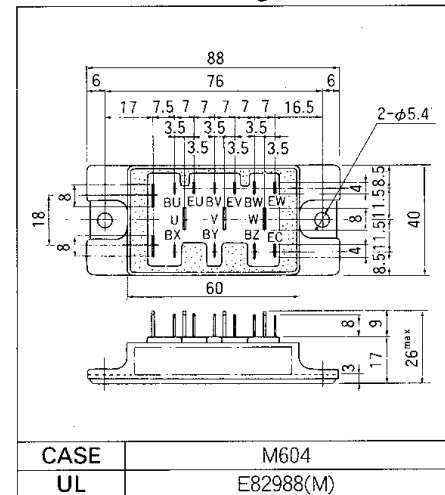
■ Features

- High Speed Switching
- Low Saturation Voltage
- Voltage Drive

■ Applications

- Inverter for Motor Drive
- AC and DC Servo Drive Amplifier
- Uninterruptible Power Supply
- Industrial Machines, such as Welding Machines

■ Outline Drawings

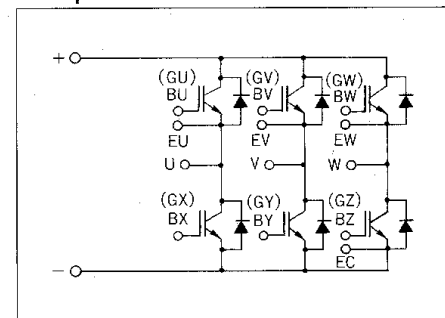


■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V _{CES}	120	V
Gate-Emitter Voltage	V _{GES}	±20	V
Collector Current	Continuous	I _C	8
	1ms	I _C pulse	16
	Continuous	-I _C	8
	1ms	-I _C pulse	16
Max. Power Dissipation	P _C	60	W
Operating Temperature	T _J	+150	°C
Storage Temperature	T _{stg}	-40 to +125	°C
Net. Weight		150	g
Isolation Voltage	AC. 1min.	V _{isol}	2500
Screw Torque	Mounting *1	35	kg*cm
	Terminals	-	

■ Equilavelent Circuit Schematic



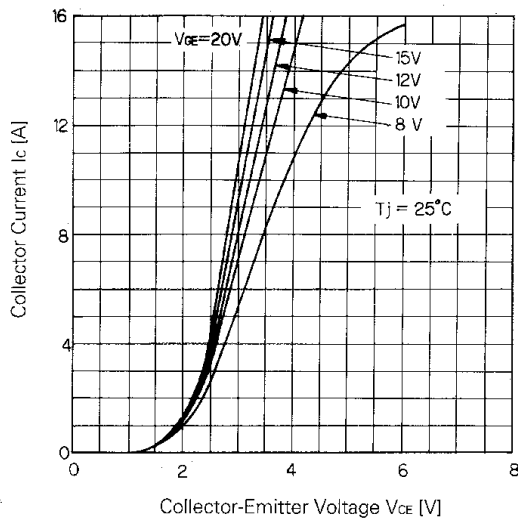
*1 Recommendable Value 25 to 35kg*cm (M5)

● Electrical Characteristics (T_c=25°C)

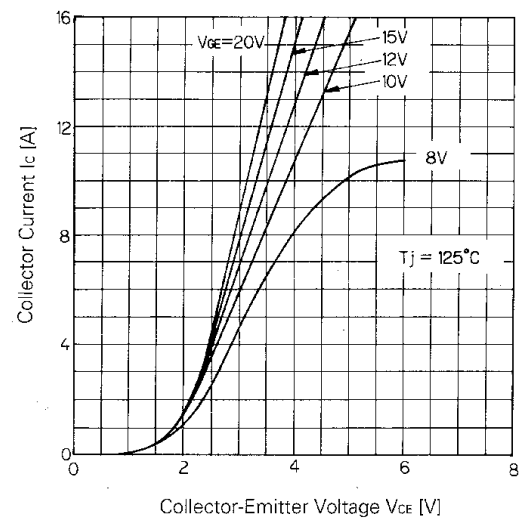
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Zero Gate Voltage Collector Current	I _{CES}	V _{GE} =0V V _{CE} =1200V T _c =25°C			1.0	mA
		V _{GE} =0V V _{CE} =1200V T _c =125°C			-	mA
Gate-Emitter Leakage Current	I _{GES}	V _{CE} =0V V _{GE} =±20V			100	nA
Gate-Emitter Threshold Voltage	V _{GE} (th)	V _{CE} =20V I _C =8mA	3.0		6.0	V
Collector-Emitter Saturation Voltage	V _{CE} (sat)	V _{GE} =15V I _C =8A		2.7	3.5	V
Input Capacitance	C _{ies}	V _{GE} =0V		1450		pF
Output Capacitance	C _{oes}	V _{CE} =10V		-		pF
Reverse Transfer Capacitance	C _{res}	f=1MHz		-		pF
Turn-on Time	t _{on}	V _{CC} =600V		0.5	0.8	μs
	t _r	I _C =8A		0.3	0.6	μs
Turn-off Time	t _{off}	V _{GE} =±15V		0.8	1.5	μs
	t _f	R _G =150Ω		0.3	0.5	μs
Diode Forward On-Voltage	V _F	I _F =8A V _{GE} =0V			2.5	V
Reverse Recovery Time	t _{rr}	I _F =8A -di/dt=50A/μs V _{GE} =-10V		200	350	ns

● Thermal Characteristics

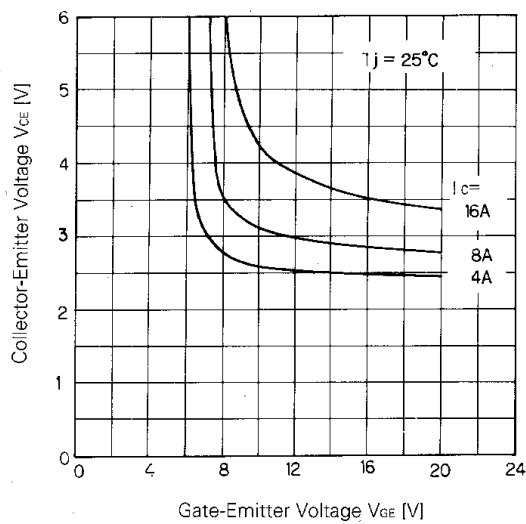
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th} (j-c)	IGBT			2.08	°C/W
	R _{th} (j-c)	Diode			3.30	°C/W
	R _{th} (c-f)	With Thermal compound		0.06		°C/W



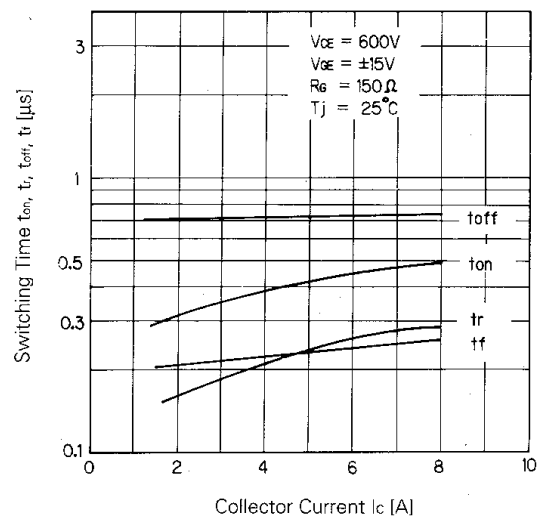
Collector Current vs. Collector-Emitter Voltage



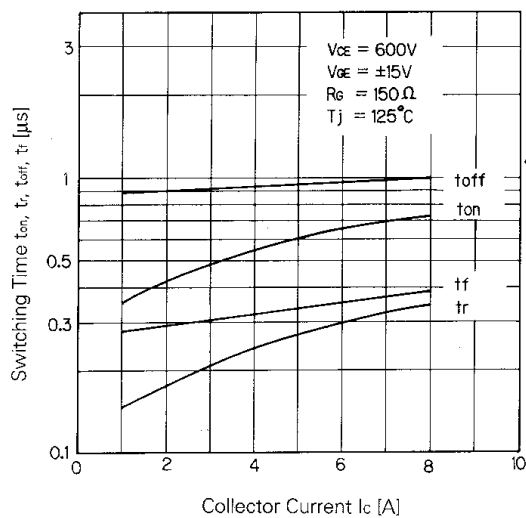
Collector Current vs. Collector-Emitter Voltage



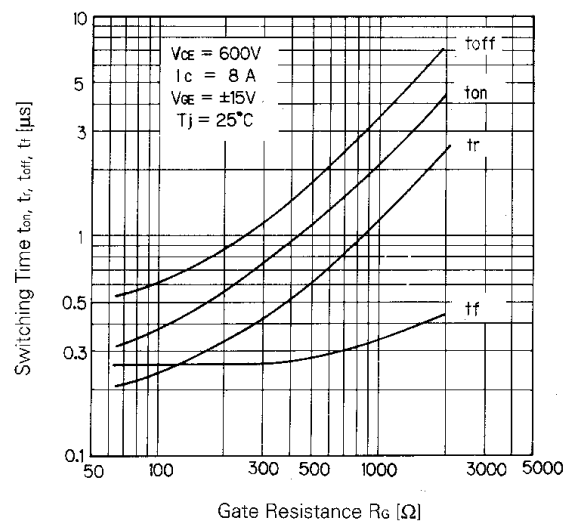
Collector-Emitter Voltage vs. Gate-Emitter Voltage



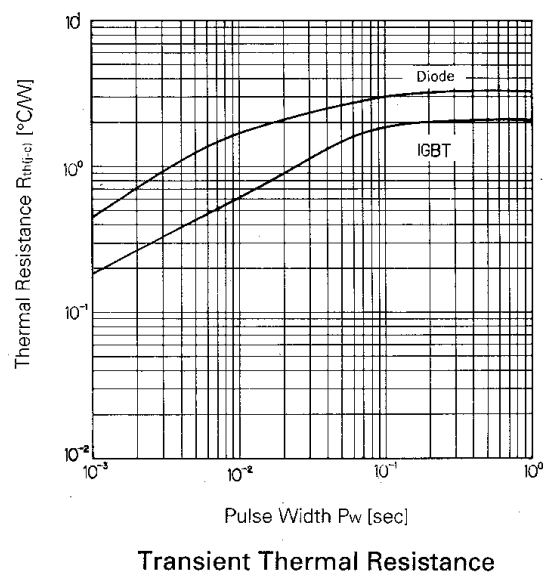
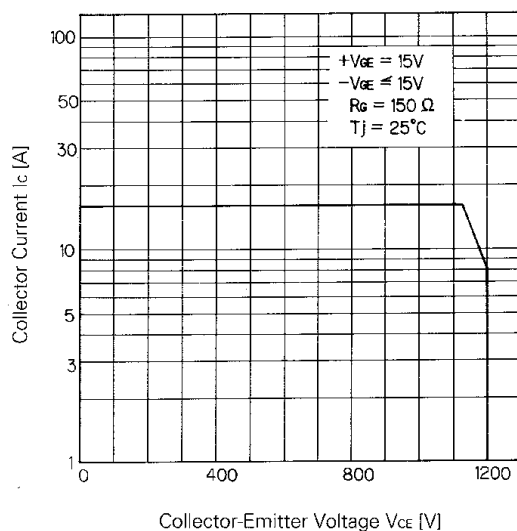
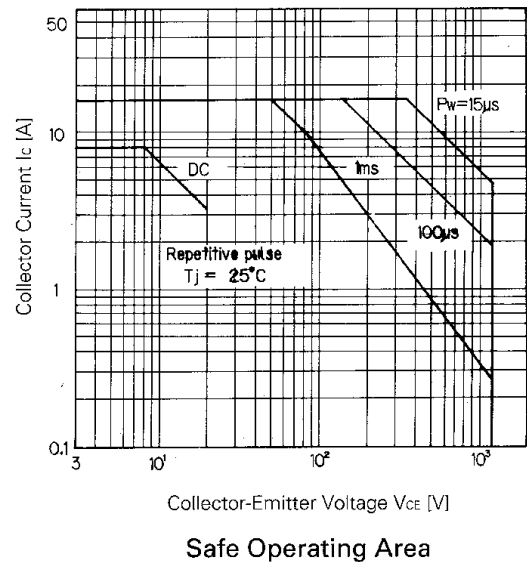
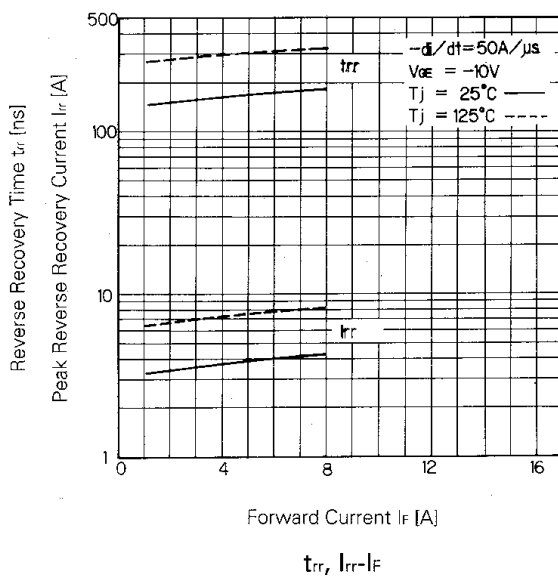
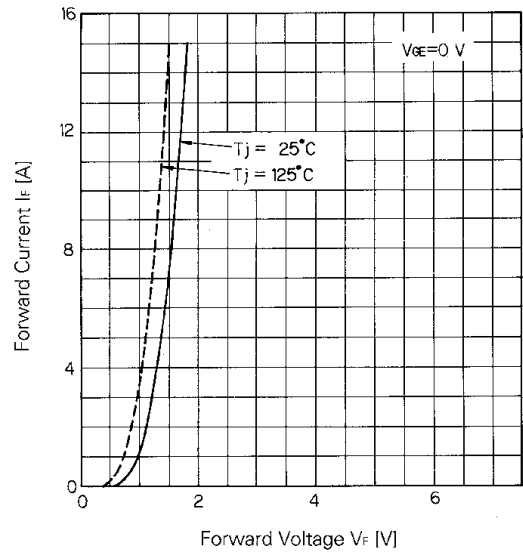
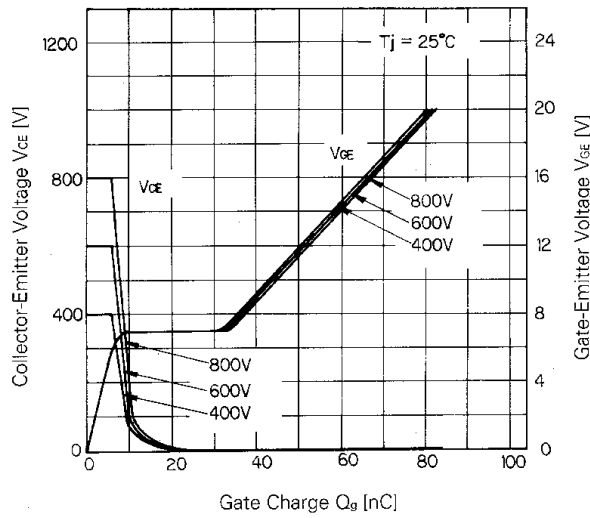
Switching Time



Switching Time



Switching Time-Gate Resistance



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