

IGBT MODULE (L series)

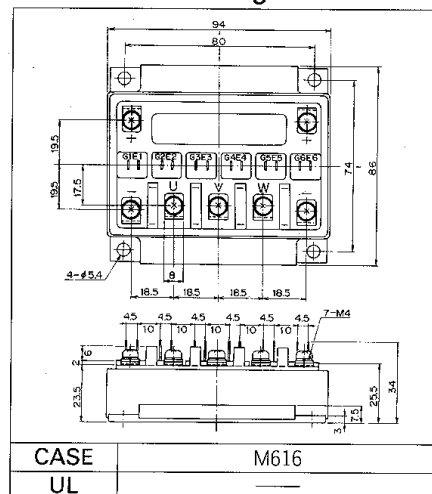
■ Features

- 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

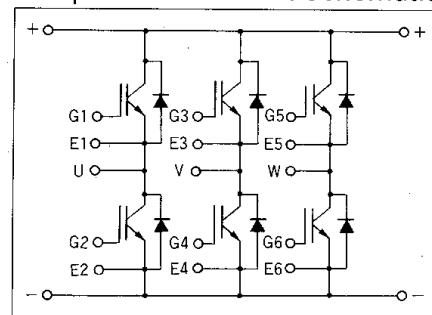


■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings

Items		Symbols	RATINGS	Units
Collector-Emitter Voltage		V_{CES}	1200	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	Continuous	I_C	25	A
	1ms	$I_{C \text{ pulse}}$	50	
	Continuous	$-I_C$	25	
	1ms	$-I_{C \text{ pulse}}$	50	
Max. Power Dissipation		P_C	250	W
Operating Temperature		T_j	+150	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-40 to +125	$^{\circ}\text{C}$
Net. Weight			510	g
Isolation Voltage	AC. 1min.	V_{isol}	2500	V
Screw Torque		Mounting *1	35	kg*cm
		Terminals *2	17	

■ Equilavent Circuit Schematic



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

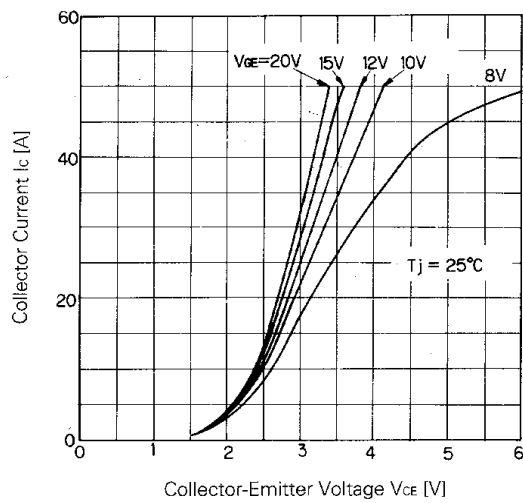
*2 Recommendable Value 13 to 17kg•cm (M4)

● Electrical Characteristics (T_c=25°C)

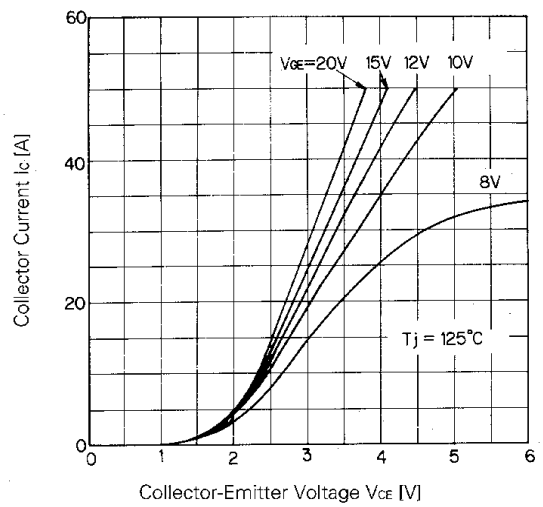
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Zero Gate Voltage Collector Current	I _{CES}	V _{GE} =0V V _{CE} =1200V T _c =25°C			1.0	mA
		V _{GE} =0V V _{CE} =1200V T _c =125°C			–	mA
Gate-Emitter Leakage Current	I _{GES}	V _{CE} =0V V _{GE} =±20V			100	nA
Gate-Emitter Threshold Voltage	V _{GE (th)}	V _{CE} =20V I _c =25mA	3.0		6.0	V
Collector-Emitter Saturation Voltage	V _{CE (sat)}	V _{GE} =15V I _c =25A		2.7	3.5	V
Input Capacitance	C _{ies}	V _{CE} =0V		4500		pF
Output Capacitance	C _{oes}	V _{CE} =10V		–		
Reverse Transfer Capacitance	C _{res}	f=1MHz		–		
Turn-on Time	t _{on}	V _{CC} =600V		0.5	0.8	μs
	t _r	I _c =25A		0.3	0.6	
Turn-off Time	t _{off}	V _{GE} =±15V		0.8	1.5	
	t _f	R _G =50Ω		0.3	0.5	
Diode Forward On-Voltage	V _F	I _F =25A V _{GE} =0V			2.5	V
Reverse Recovery Time	t _{rr}	I _F =25A –di/dt=75A/μs V _{GE} =–10V		200	350	ns

● Thermal Characteristics

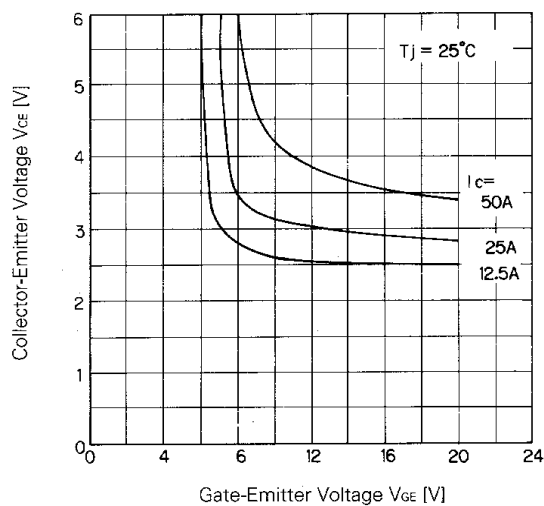
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(j-c)}$	IGBT			0.50	°C/W
	$R_{th(j-c)}$	Diode			1.00	
	$R_{th(c-f)}$	With Thermal compound		0.05		



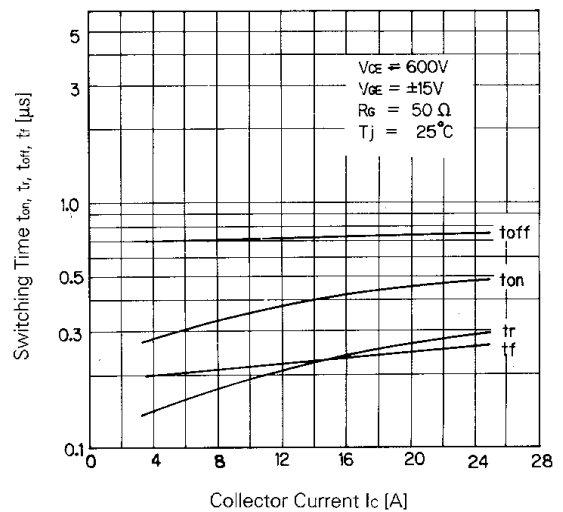
Collector Current vs. Collector-Emitter Voltage



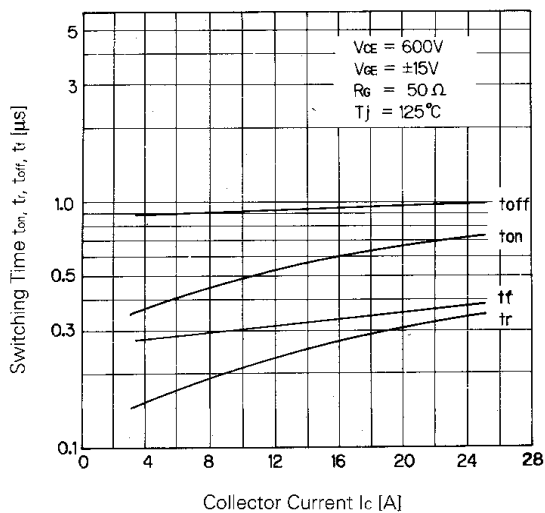
Collector Current vs. Collector-Emitter Voltage



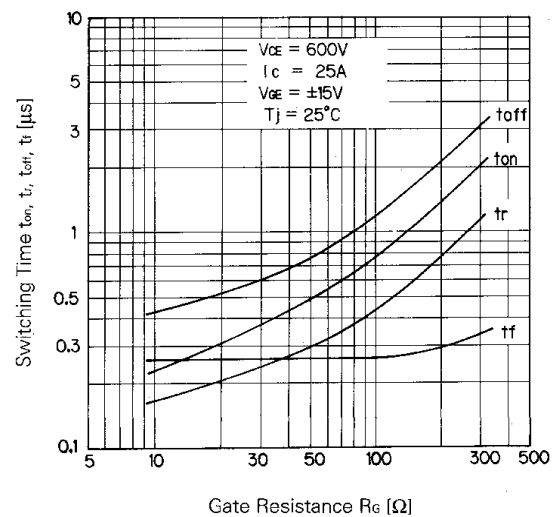
Collector-Emitter Voltage vs. Gate-Emitter Voltage



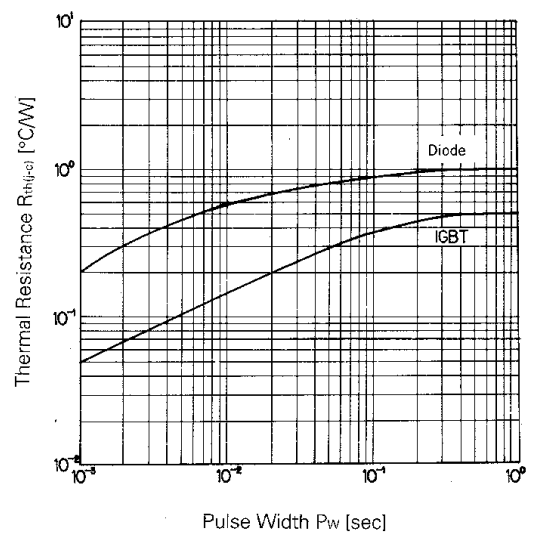
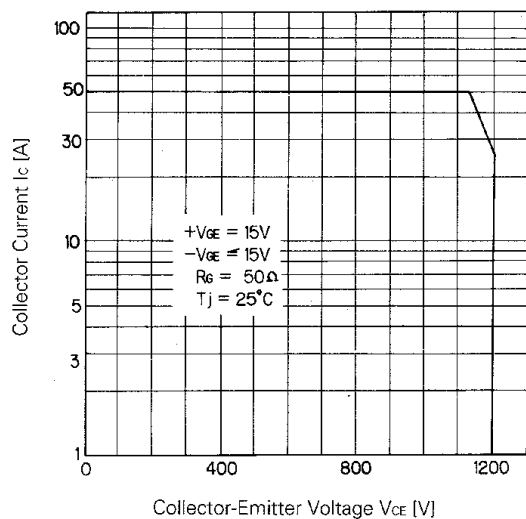
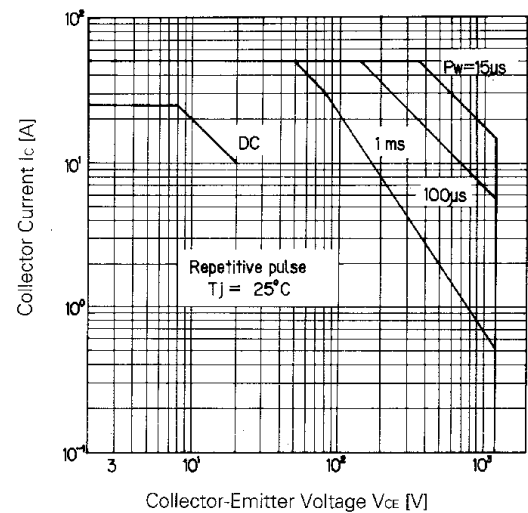
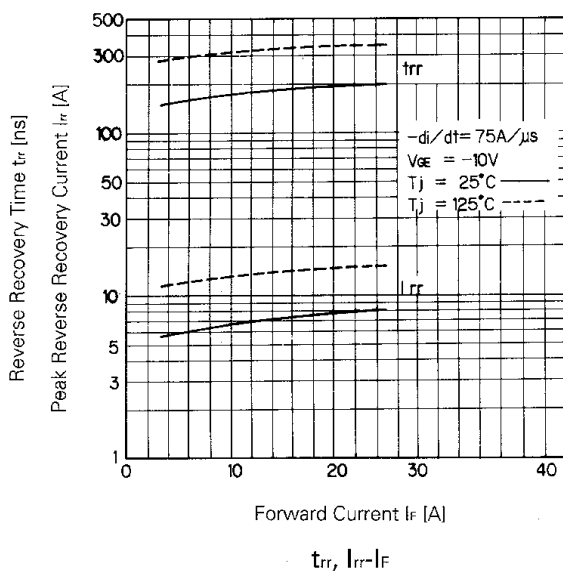
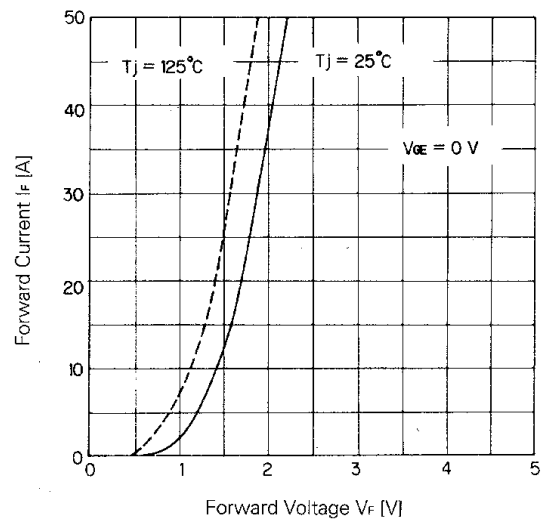
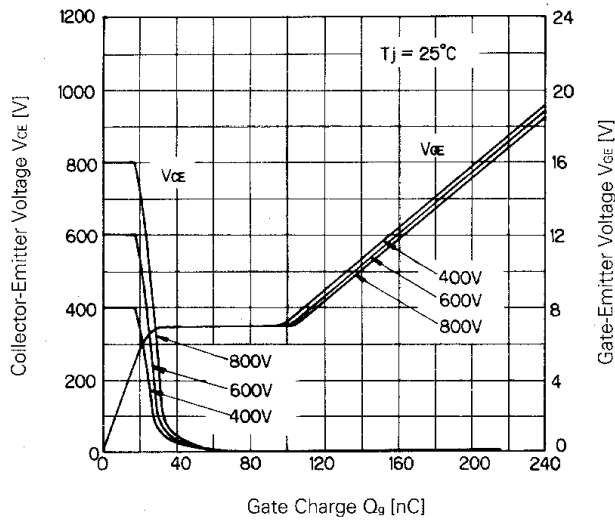
Switching Time



Switching Time



Switching Time-Gate Resistance



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