

IGBT MODULE (L series)

■ Features

- High Speed Switching
- Low Saturation Voltage
- Voltage Drive
- Isolated Package

■ Applications

- Ideal for Chopper Application
- AC and DC Servo Drive Supply
- Uninterruptible Power Supply
- Industrial Machines, such as Welding Machines

■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V _{CES}	600	V
Gate-Emitter Voltage	V _{GES}	±20	V
Collector Current	Continuous	I _C	30
	1ms	I _{C pulse}	60
			A
Max. Power Dissipation	P _C	120	W
Operating Temperature	T _J	+150	°C
Storage Temperature	T _{stg}	-40 to +125	°C
Isolation Voltage	AC, 1min.	V _{is}	2500
Screw Torque	Mounting *1	1.7	N•m
	Terminals *1	1.7	

● Electrical Characteristics (T_J=25°C)

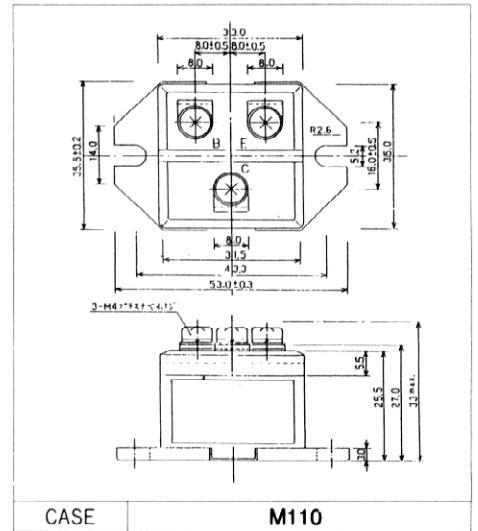
Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Zero Gate Voltage Collector Current	I _{CES}	V _{GE} =0V V _{CE} =600V T _J =25°C			4.0	mA
Gate-Emitter Leakage Current	I _{GES}	V _{CE} =0V V _{GE} =±20V			100	nA
Gate-Emitter Threshold Voltage	V _{GE(th)}	V _{CE} =20V I _C =30mA	3.0	4.5	6.0	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V _{GE} =15V I _C =30A		2.7	3.5	V
Input Capacitance	C _{ies}	V _{GE} =0V		2850		pF
Output Capacitance	C _{Oes}	V _{CE} =10V		-		
Reverse Transfer Capacitance	C _{res}	f=1MHz		-		μs
Turn-on Time *2	t _{on}	V _{CC} =300V		0.4	0.8	
	t _r	I _C =30A		0.3	0.6	
Turn-off Time *3	t _{off}	V _{GE} =±15V		0.6	1.0	
	t _f	R _G =82Ω		0.2	0.35	

*2 t_{on}, t_r: Resistive Load *3 t_{off}, t_f: Inductive Load

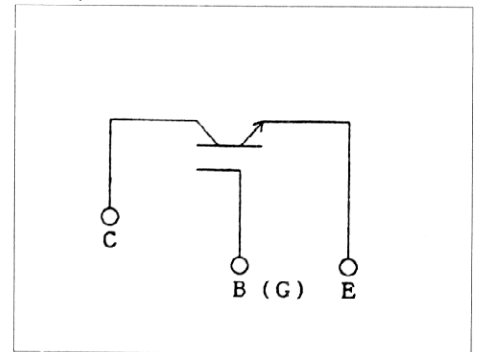
● Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	R _{th(j-c)}	IGBT			1.04	°C/W
	R _{th(c-f)}	With Thermal compound		0.06		

■ Outline Drawings

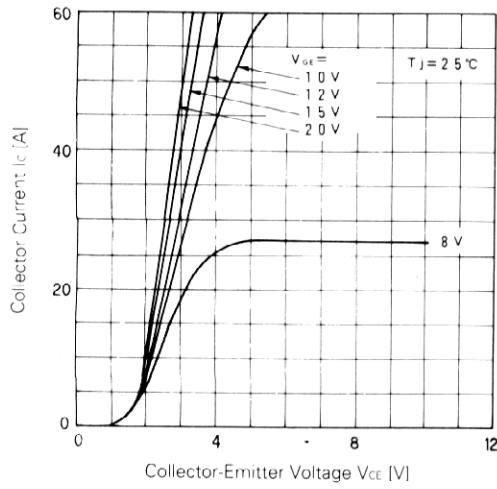


■ Equivalent Circuit Schematic

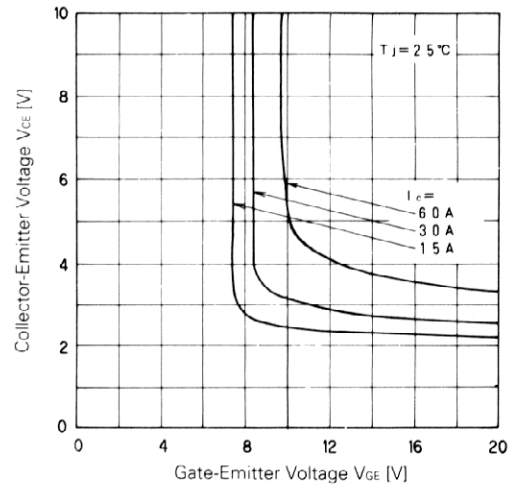


*1 Recommendable Value 1.3 ~ 1.7 N•m (M4)

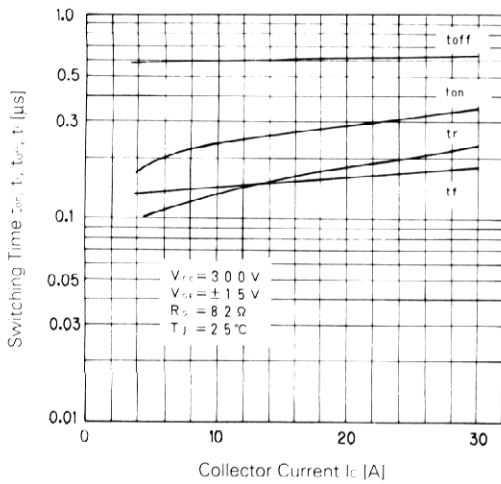
Characteristics



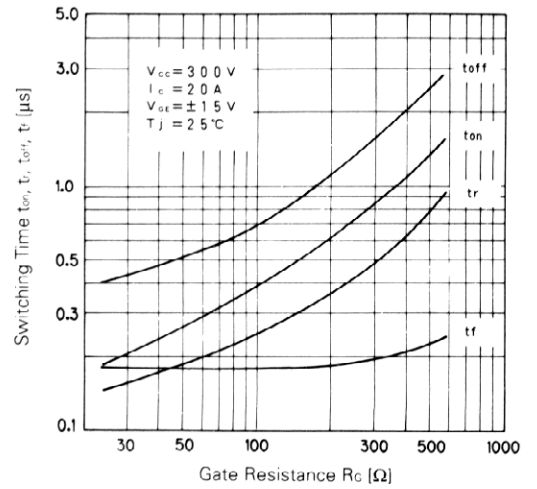
Collector Current vs. Collector-Emitter Voltage



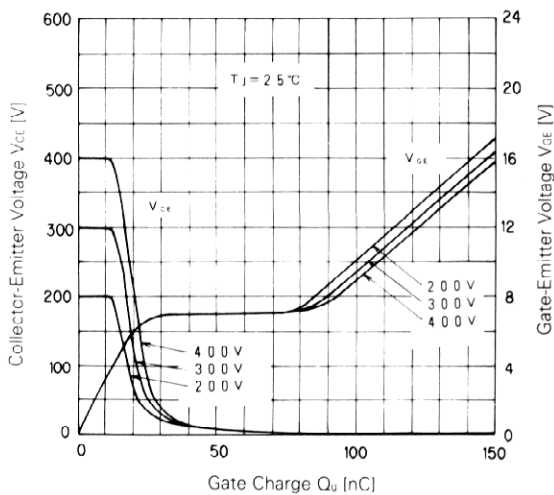
Collector-Emitter Voltage vs. Gate-Emitter Voltage



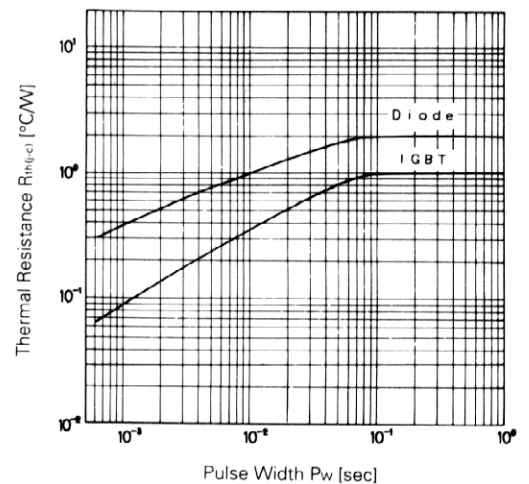
Switching Time



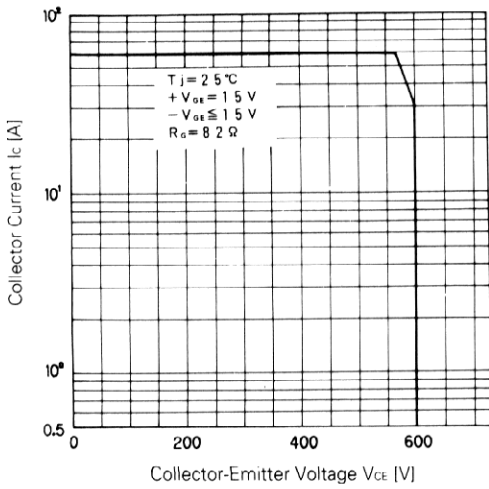
Switching Time-Gate Resistance



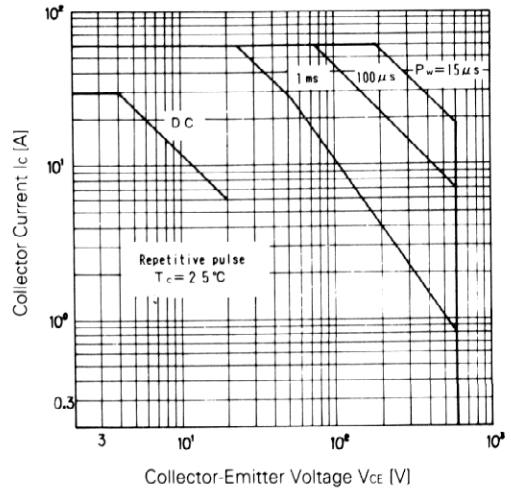
Dynamic Input Characteristic



Transient Thermal Resistance



Reverse Biased Safe Operating Area



Safe Operating Area