

MRI300.12

2 in 1 IGBT Modules

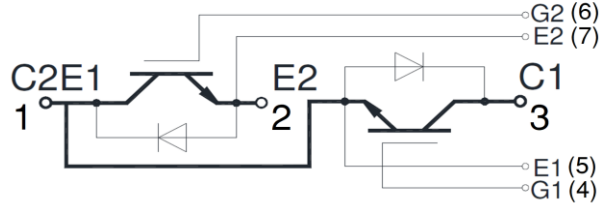


Features:

- High speed switching
- Voltage drive
- Low inductance module structure
- Simple mounting

Typical applications:

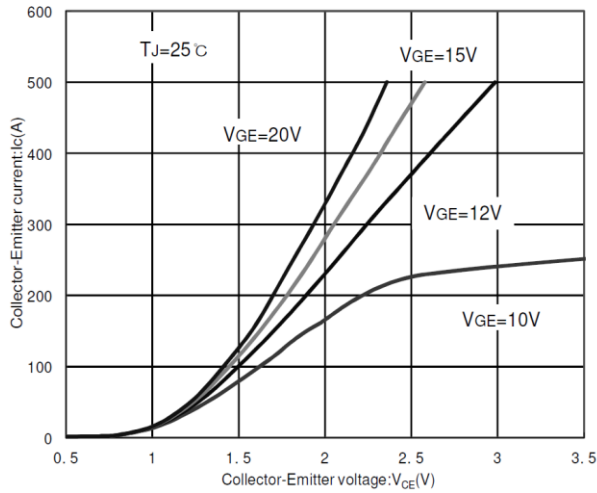
- Inverter for Motor Drive
- Inverter for Welding machine
- Uninterruptible Power Supply
- Industrial machines



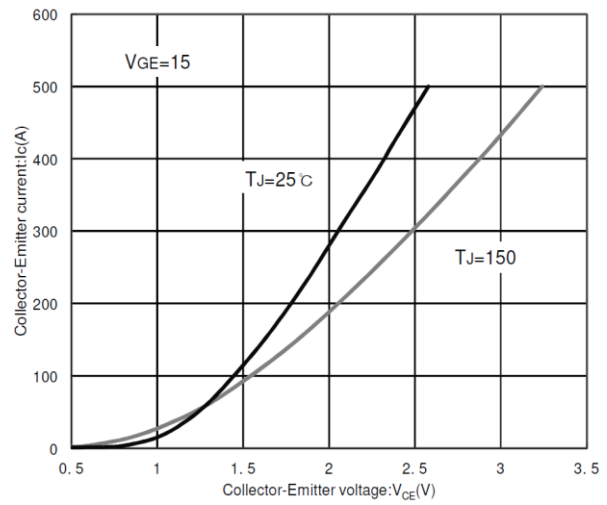
Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
V _{CES}	Collector-Emitter voltage	T _J = 25°C			1250	V
V _{GES}	Gate-Emitter voltage	T _J = 25°C			±30	V
I _C	Collector current	Continuous @ T _c = 100 °C			300	A
I _{CP}		T _p = 1 ms			600	A
P _C	Collector power dissipation	T _J = 175°C, 1 device			1363	W
T _j	Junction temperature	/	-40		+175	°C
T _{stg}	Storage temperature	/	-40		+125	°C
V _{ISO}	Isolation between terminal and copper base	T _J = 25°C, AC: 1 minute	2500			V
Screw torque	Mounting (M6)	/	4.5		6.0	N·m
	Terminals (M6)	/	4.5		6.0	N·m
I _{CES}	Zero gate voltage collector current	T _J = 25°C, V _{CE} = 1200V, V _{GE} = 0V			1.0	mA
I _{GES}	Gate-Emitter leakage current	T _J = 25°C, V _{CE} = 0V, V _{GE} = ±20V			±2	μA
V _{GE(th)}	Gate-Emitter threshold voltage	T _J = 25°C, V _{CE} = 20V, I _C = 150mA	4.5		8.5	V
V _{CE(sat)}	Collector-Emitter saturation voltage	T _J = 25°C, V _{GE} = 15V, I _C = 300A		2.00	2.40	V
		T _J = 125°C, V _{GE} = 15V, I _C = 300A		2.10		V
		T _J = 150°C, V _{GE} = 15V, I _C = 300A		2.25		V
C _{ies}	Input capacitance	T _J = 25°C, V _{CE} = 10V, V _{GE} = 0V, f = 1MHz		25.2		nF
t _{on}	Turn-on time	T _J = 150°C, V _{CC} = 600V, I _C = 300A, V _{GE} = ±15V, R _{gin} = 1.8Ω, R _{gext} = 1.5Ω, inductive load		150		ns
t _r				60		ns
t _{off}	Turn-off time			680		ns
t _f				250		ns
E _{on}	Turn-on energy				30	
E _{off}	Turn-off energy			28		mJ
E _{rr}	Reverse recovery energy			26		mJ
t _{SC}	Short Circuit withstand time	T _J = 150°C, V _{CC} = 720V, V _{GE} = ±15V, R _G = 1.5Ω	10			μs
V _F	Forward on voltage	T _J = 25°C, I _F = 300A		2.25	2.60	V
		T _J = 125°C, I _F = 300A		2.20		V
		T _J = 150°C, I _F = 300A		2.10		V
t _{rr}	Reverse recovery time	T _J = 125°C, I _F = 300A		150		ns
		T _J = 150°C, I _F = 300A		160		ns
R _{th(j-c)}	Thermal resistance (per chip)	IGBT			0.11	°C/W
		FWD			0.16	°C/W
R _{th(c-f)}	Contact thermal resistance (per module)	With thermal compound		0.01		°C/W
W _t	Weight				310	g
Outline	454H3					



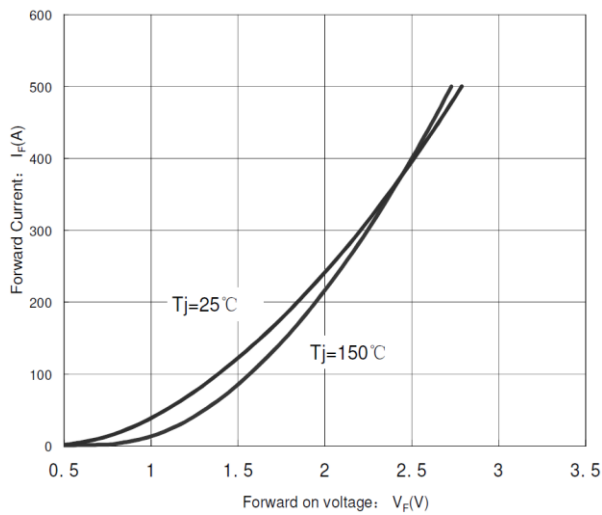
Collector current VS. Collector-Emitter voltage



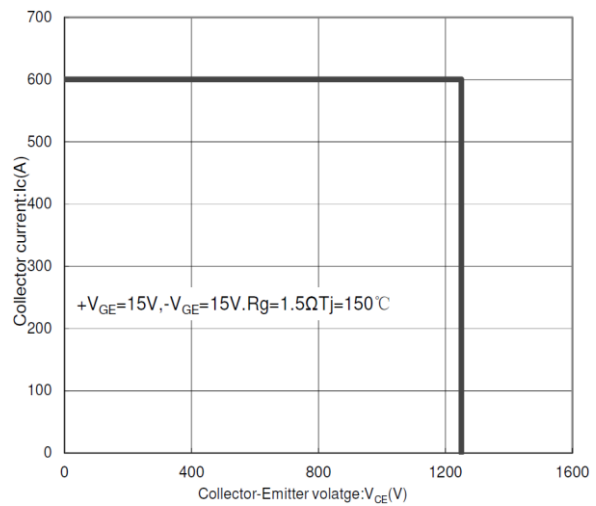
Collector current VS. Collector-Emitter voltage



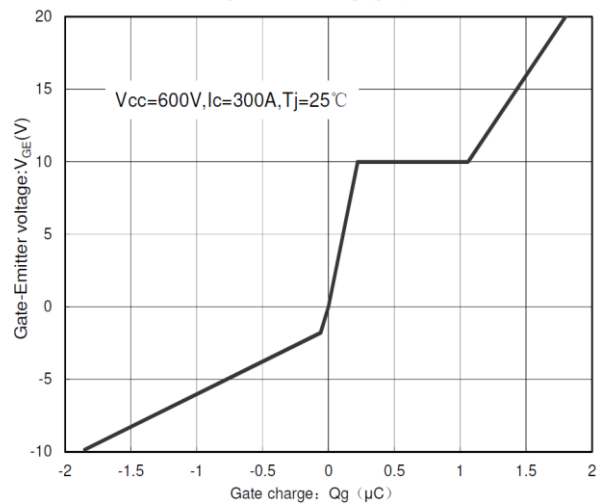
Forward Current VS. Forward Voltage



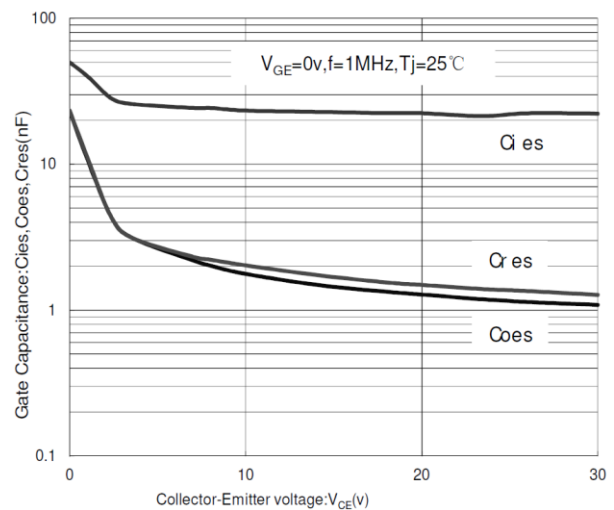
Reverse bias safe operating area

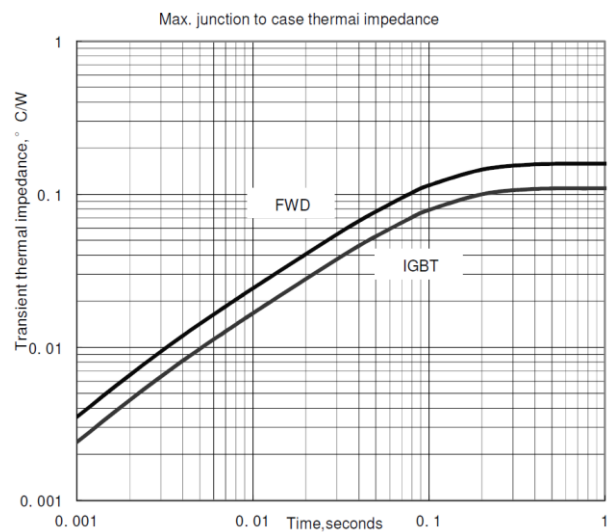
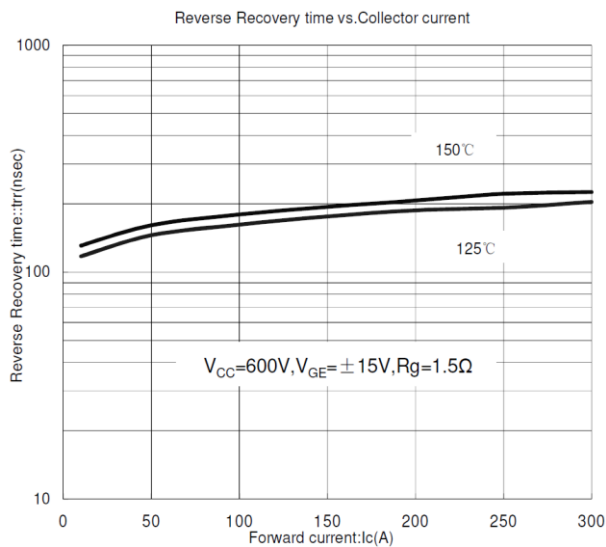
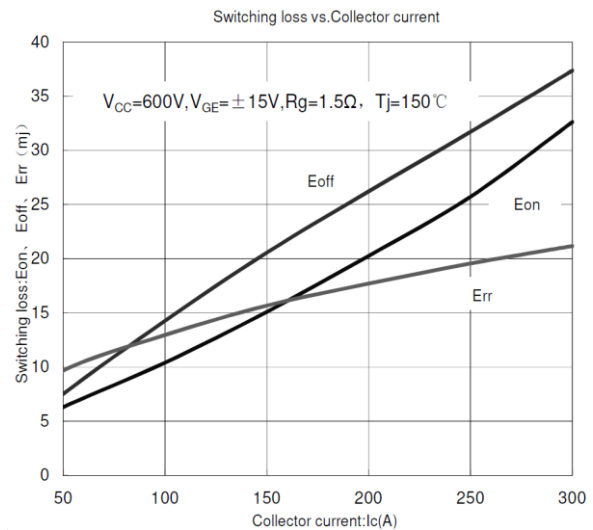
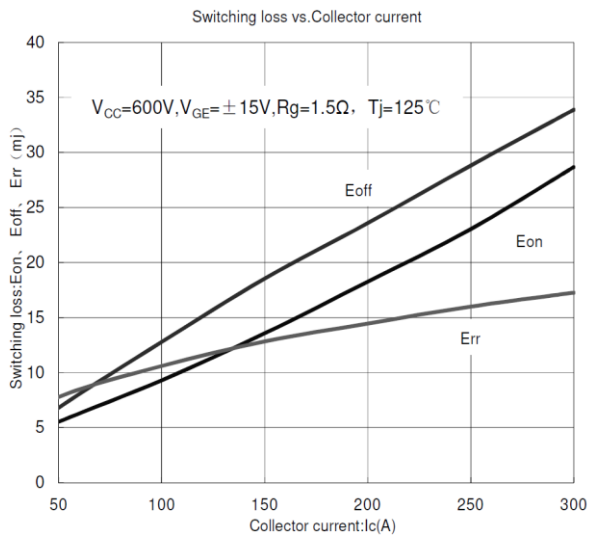
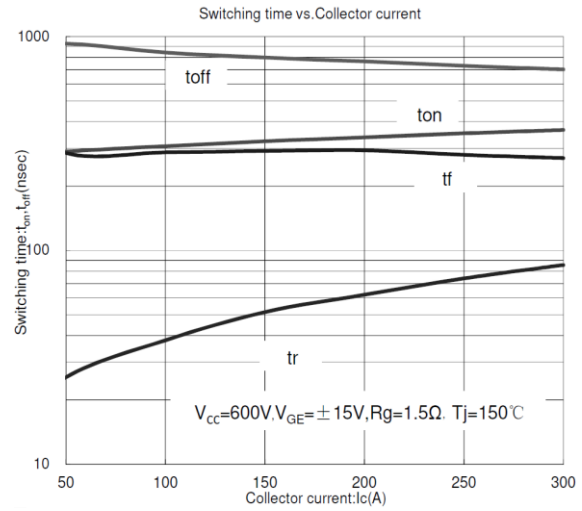
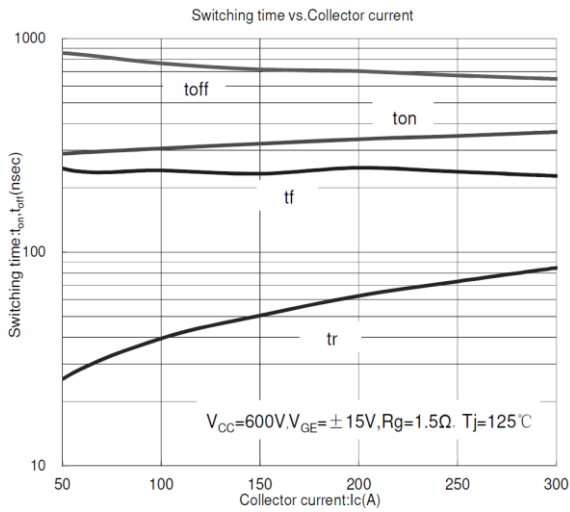


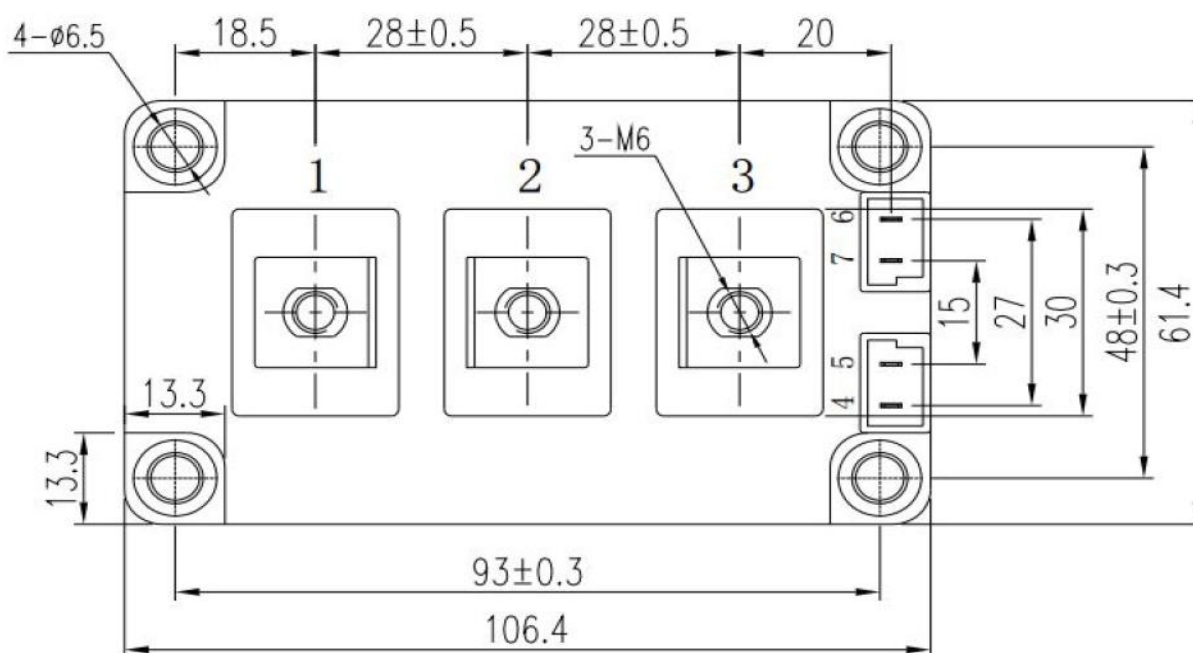
Dynamic Gate Charge(type)



Gate Capacitance vs. Collector-Emitter Voltage







4