

## MRI300.12

### 2 in 1 IGBT Modules

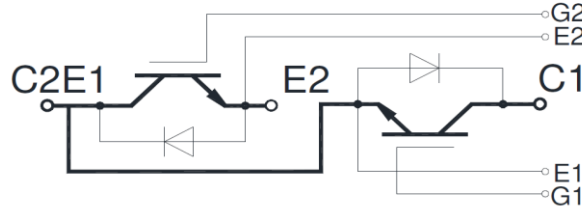


#### Features:

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

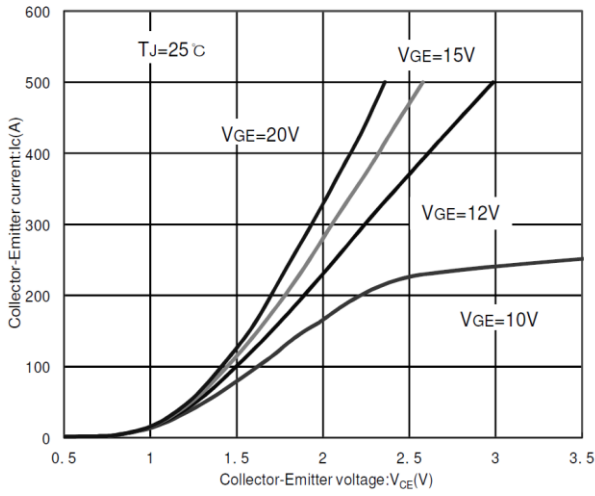
#### Typical applications:

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

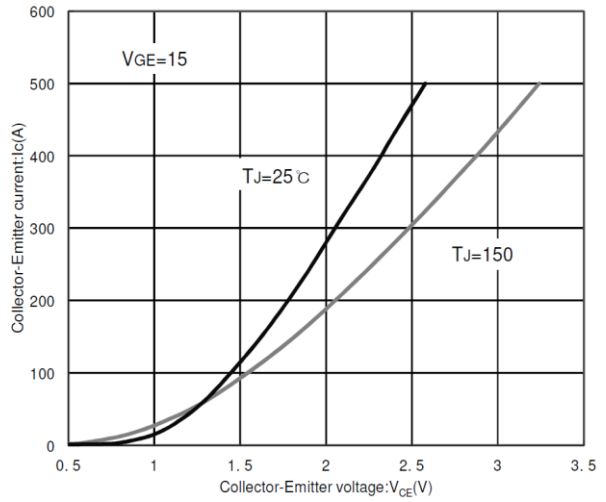


Symbol	Characteristics	Test Conditions	Value			Unit	
			Min	Typ	Max		
$V_{CES}$	Collector-Emitter voltage	$T_j = 25^\circ\text{C}$			1250	V	
$V_{GES}$	Gate-Emitter voltage	$T_j = 25^\circ\text{C}$			$\pm 30$	V	
$I_C$	Collector current	Continuous @ $T_c = 100^\circ\text{C}$			300	A	
$I_{CP}$		$T_j = 25^\circ\text{C}, T_p = 1\text{ ms}$			600	A	
$P_C$	Collector power dissipation	$T_j = 150^\circ\text{C}, 1\text{ device}$			1136	W	
$T_j$	Junction temperature	/	-40		175	$^\circ\text{C}$	
$T_{stg}$	Storage temperature	/	-40		125	$^\circ\text{C}$	
$V_{ISO}$	Isolation between terminal and copper base	$T_j = 25^\circ\text{C}, \text{AC: } 1\text{ minute}$	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	$T_j = 25^\circ\text{C}, V_{CE} = 1200\text{V}, V_{GE} = 0\text{V}$			1	mA	
$I_{GES}$	Gate-Emitter leakage current	$T_j = 25^\circ\text{C}, V_{CE} = 0\text{V}, V_{GE} = \pm 20\text{V}$			$\pm 2$	$\mu\text{A}$	
$V_{GE(th)}$	Gate-Emitter threshold voltage	$T_j = 25^\circ\text{C}, V_{CE} = 20\text{V}, I_C = 150\text{mA}$	4.5		8.5	V	
$V_{CE(sat)}$	Collector-Emitter saturation voltage	$T_j = 25^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 300\text{A}$		2.00	2.40	V	
		$T_j = 125^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 300\text{A}$		2.10		V	
		$T_j = 150^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 300\text{A}$		2.25		V	
$C_{ies}$	Input capacitance	$T_j = 25^\circ\text{C}, V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		25.2		nF	
$t_{on}$	Turn-on time	$T_j = 150^\circ\text{C}, V_{CC} = 600\text{V}, I_C = 300\text{A}, V_{GE} = \pm 15\text{V}, R_{gin} = 1.8\Omega, R_{gext} = 1.5\Omega, \text{inductive load}$		150		ns	
$t_r$				60		ns	
$t_{off}$			Turn-off time		680		ns
$t_f$					250		ns
$t_{SC}$	Short Circuit withstand time	$T_j = 150^\circ\text{C}, V_{CC} = 720\text{V}, V_{GE} = \pm 15\text{V}, R_G = 1.5\Omega$	10			$\mu\text{s}$	
$V_F$	Forward on voltage	$T_j = 25^\circ\text{C}, I_F = 300\text{A}$		2.25	2.60	V	
		$T_j = 125^\circ\text{C}, I_F = 300\text{A}$		2.20		V	
		$T_j = 150^\circ\text{C}, I_F = 300\text{A}$		2.10		V	
$t_{rr}$	Reverse recovery time	$T_j = 125^\circ\text{C}, I_F = 300\text{A}$		150		ns	
		$T_j = 150^\circ\text{C}, I_F = 300\text{A}$		160		ns	
$R_{th(j-c)}$	Thermal resistance (per chip)	IGBT			0.11	$^\circ\text{C/W}$	
		FWD			0.16	$^\circ\text{C/W}$	
$R_{th(c-f)}$	Contact thermal resistance (per module)	With thermal compound		0.01		$^\circ\text{C/W}$	
$W_t$	Weight				310	g	
Outline	454H3						

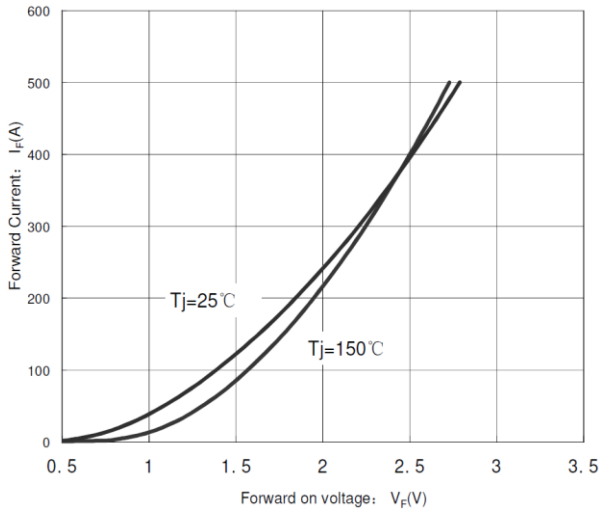
Collector current VS. Collector-Emitter voltage



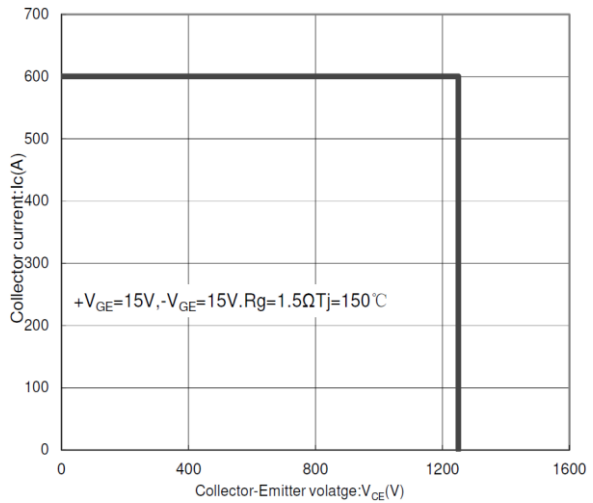
Collector current VS. Collector-Emitter voltage



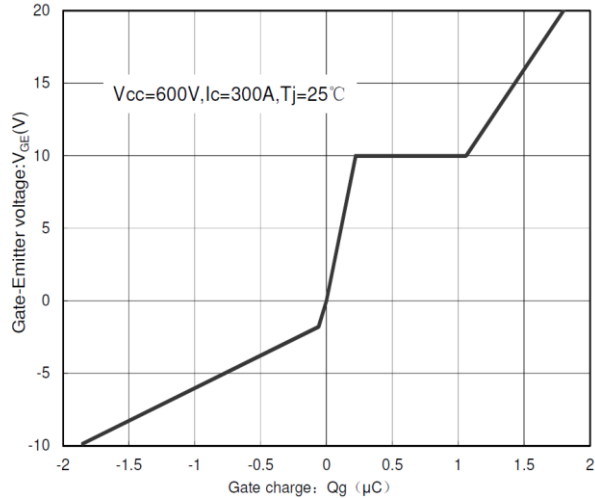
Forward Current VS. Forward Voltage



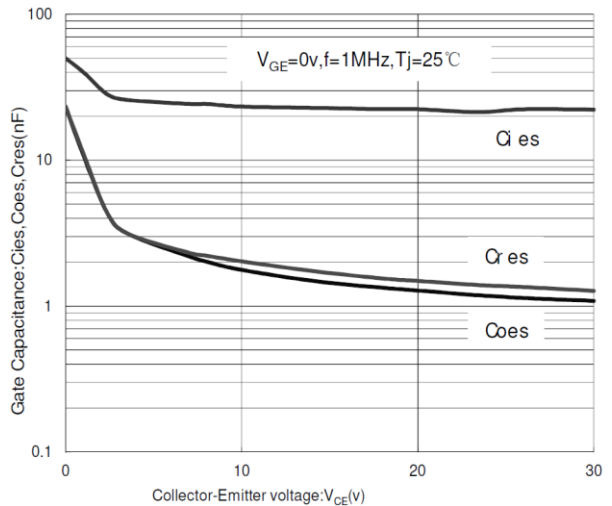
Reverse bias safe operating area

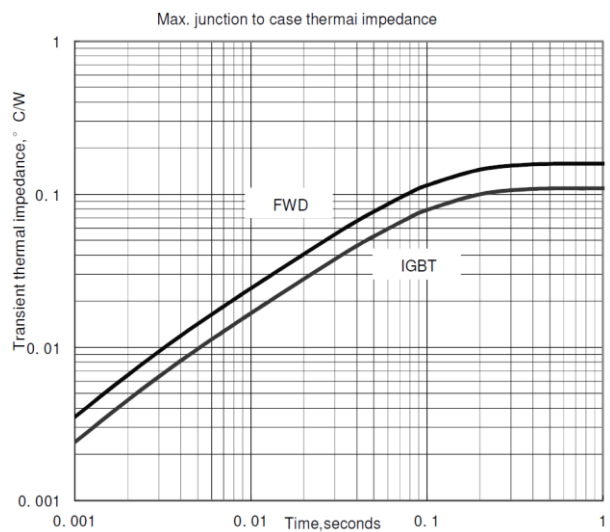
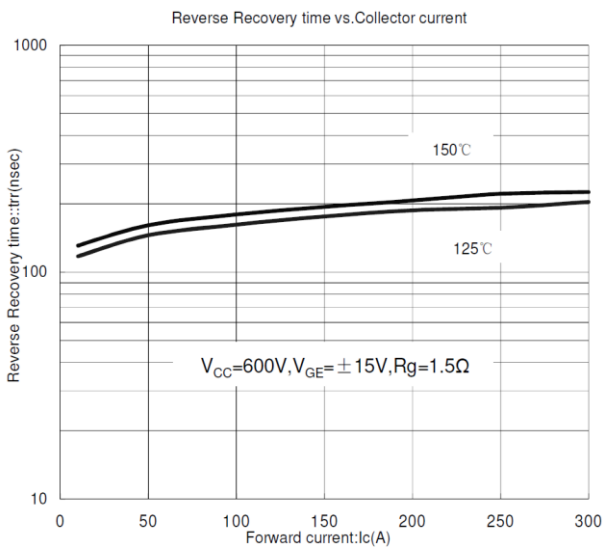
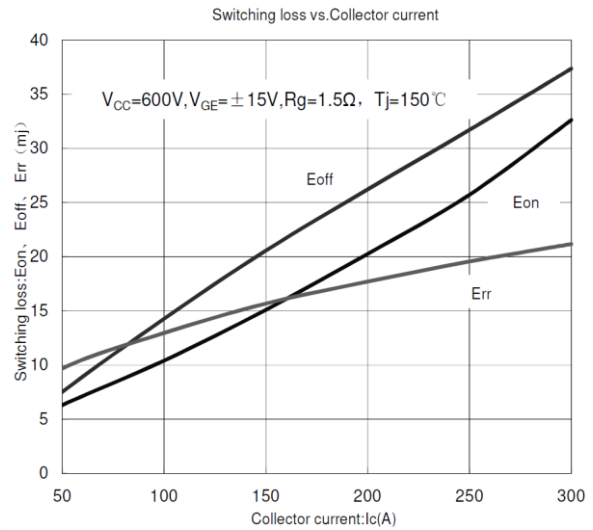
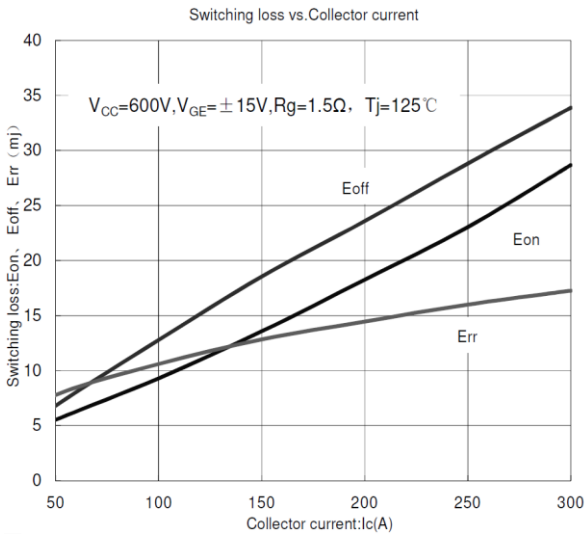
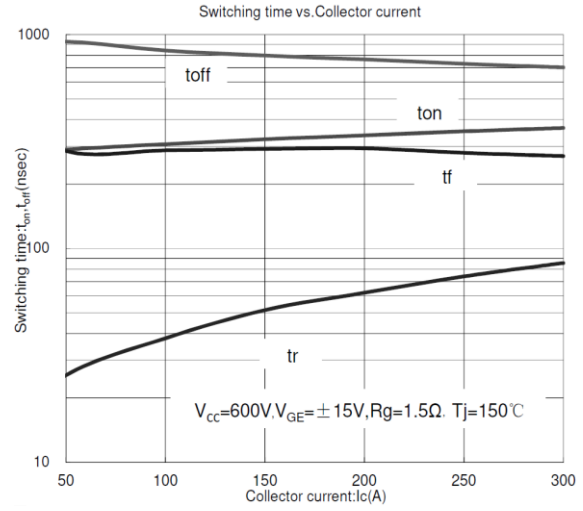
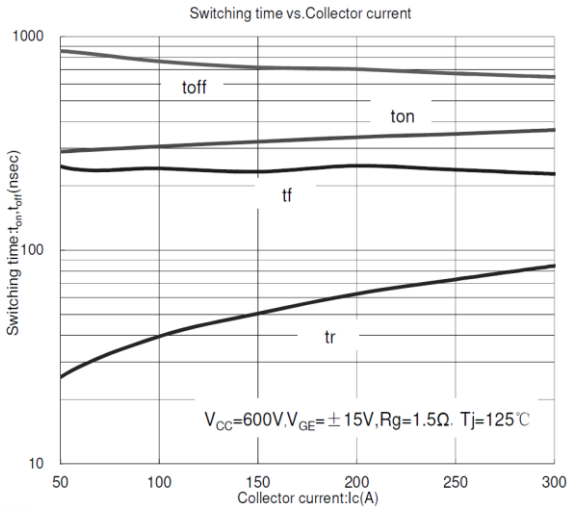


Dynamic Gate Charge (type)

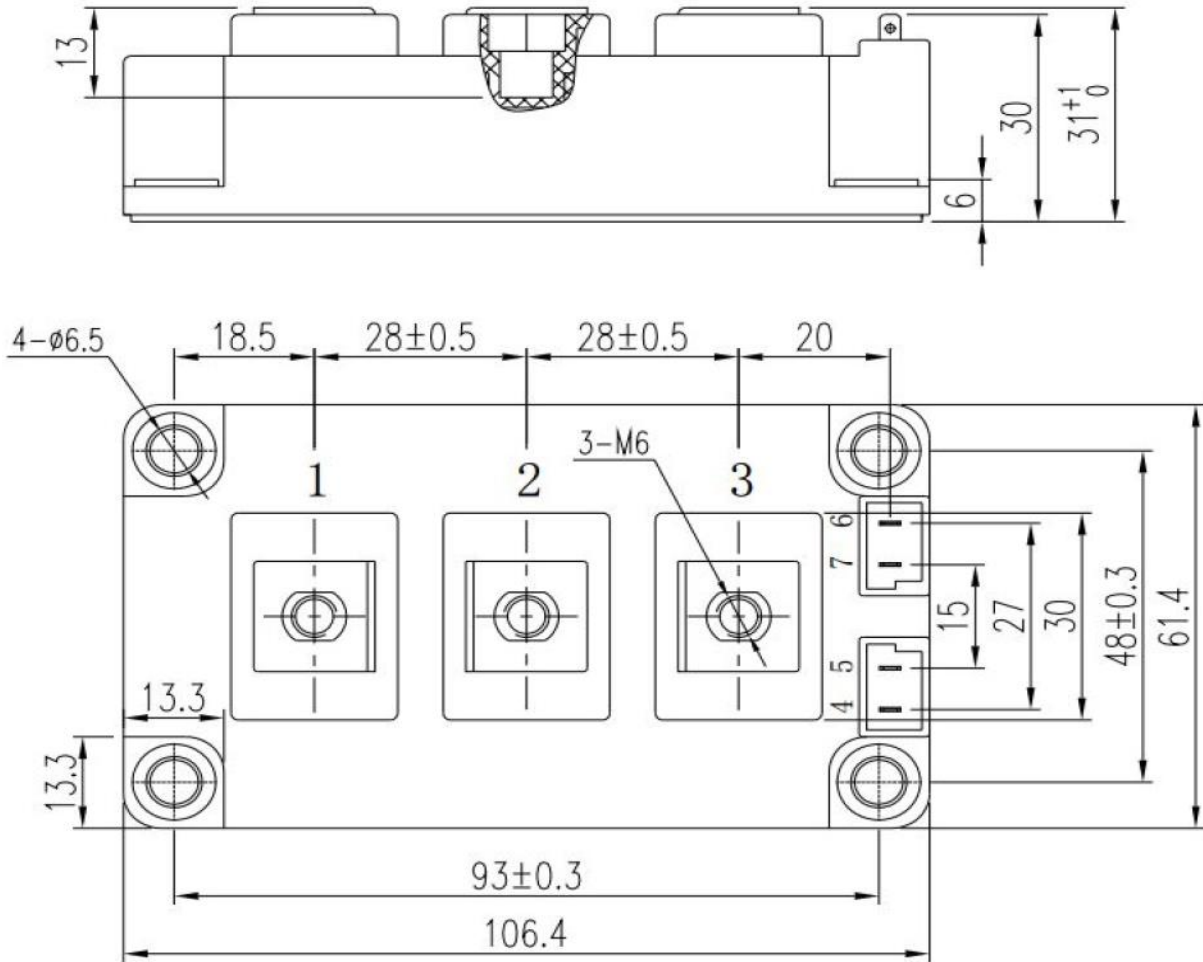


Gate Capacitance vs. Collector-Emitter Voltage





### Outline:



(dimensions in mm)

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