

## MRI400.12

### 2 in 1 IGBT Modules

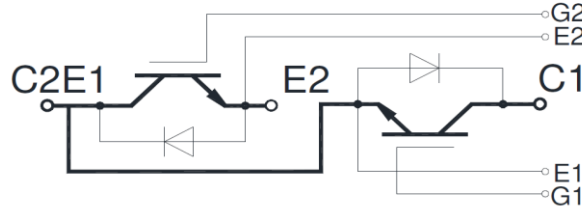


#### Features:

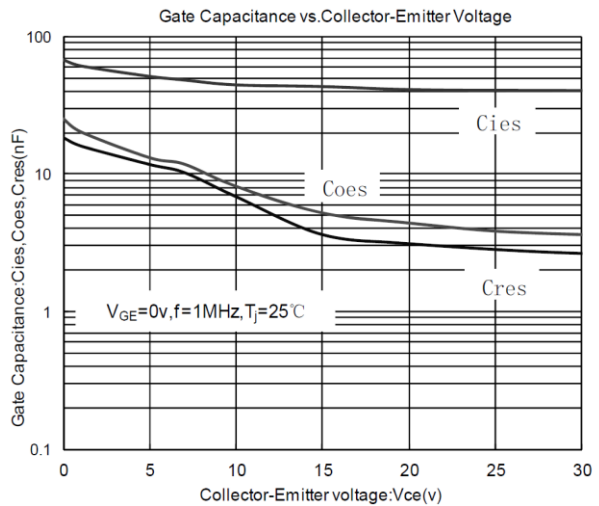
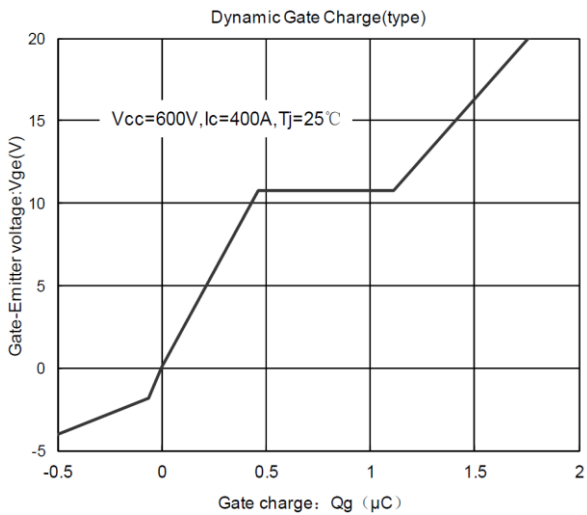
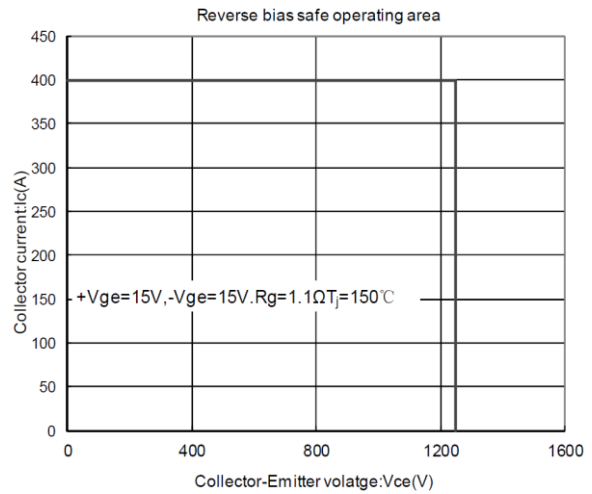
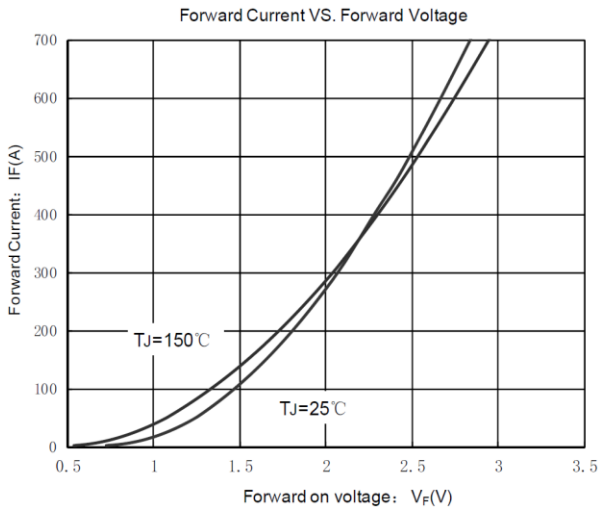
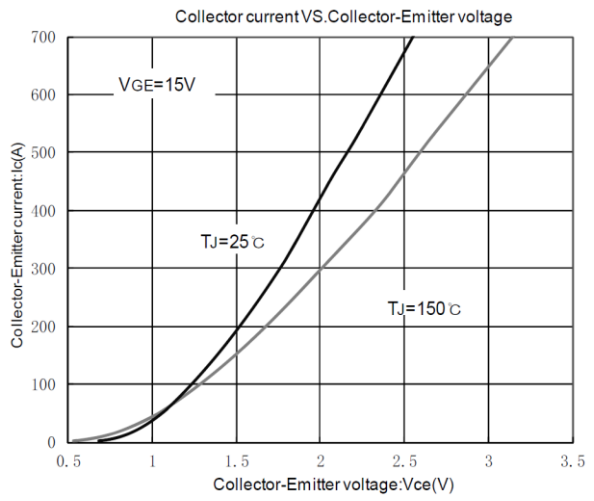
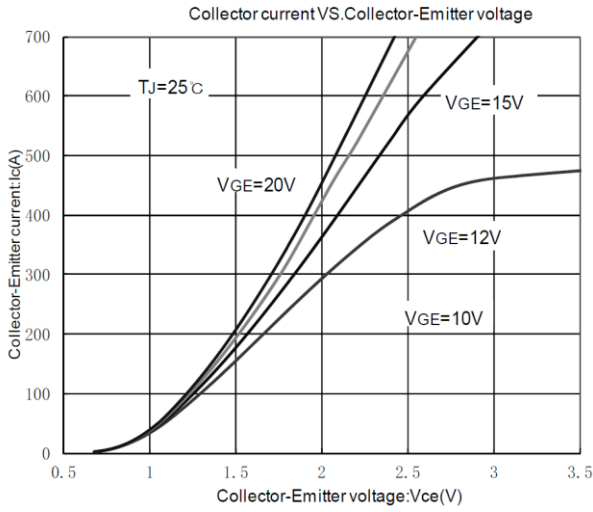
- High speed switching
- Voltage drive
- Low inductance module structure
- Simple mounting

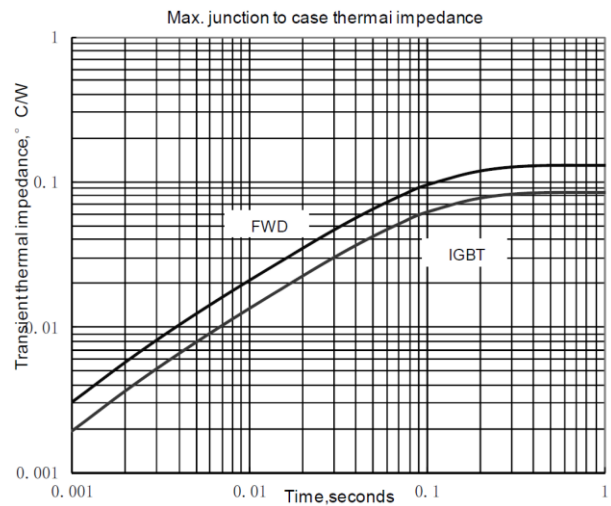
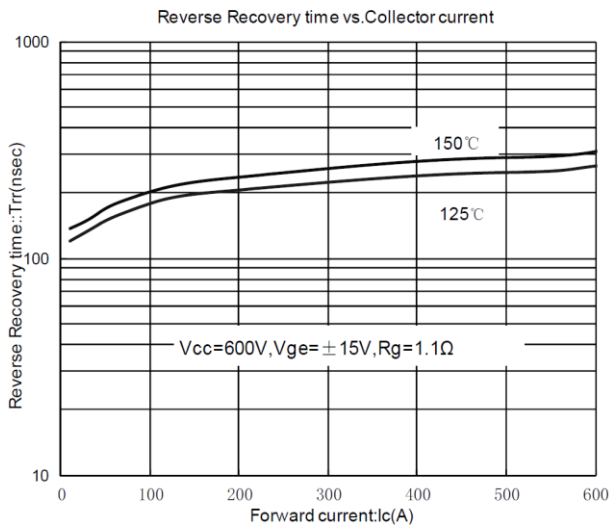
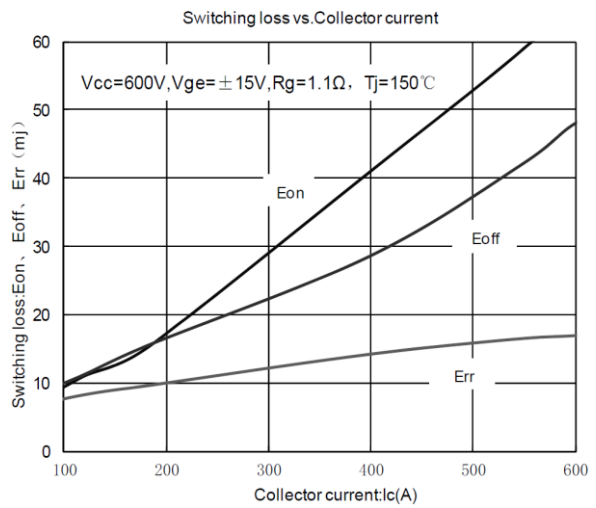
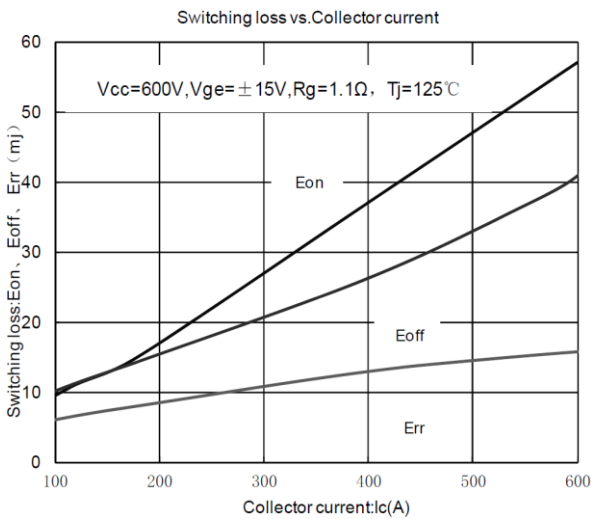
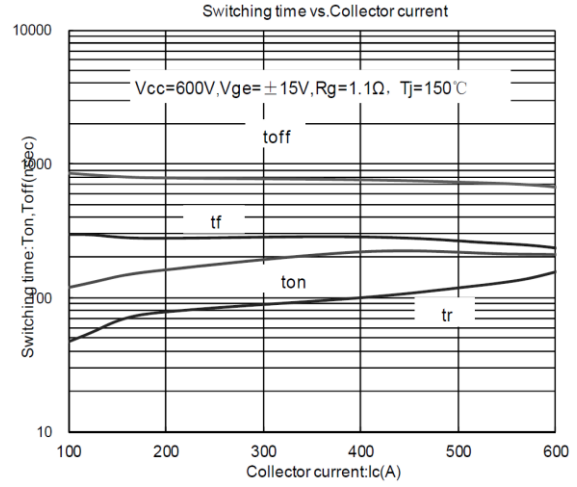
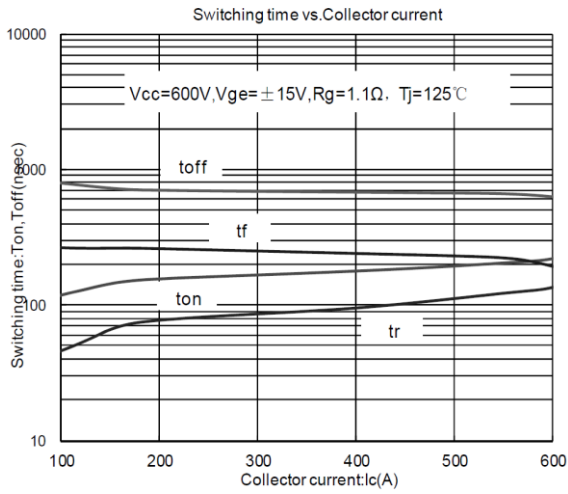
#### Typical applications:

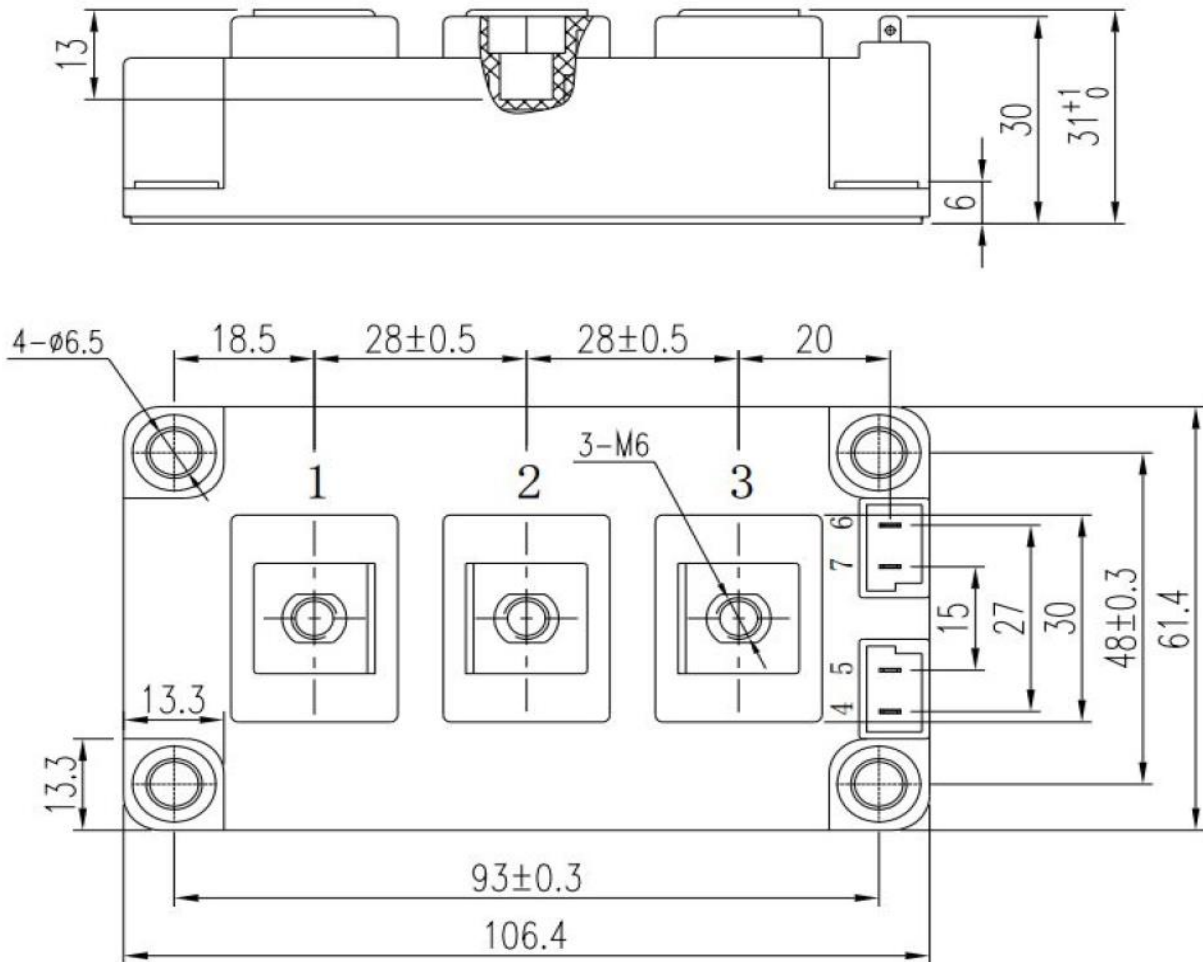
- Inverter for Motor Drive
- Inverter for Welding machine
- Uninterruptible Power Supply
- Industrial machines



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 @ $T_c = 100^\circ\text{C}$			400	A
$I_{CP}$		$T_j = 25^\circ\text{C}, T_p = 1\text{ ms}$			800	A
$P_C$	Collector power dissipation	$T_j = 25^\circ\text{C}, 1\text{ device}$			1471	W
$T_j$	Junction temperature	/	-40		150	$^\circ\text{C}$
$T_{stg}$	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)	/	3.0	4.5	6.0	N·m
	Terminals (M6)	/	2.5	4.0	5.0	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	$T_j = 25^\circ\text{C}, V_{CE} = 0\text{V}, V_{GE} = \pm 20\text{V}$			$\pm 20$	$\mu\text{A}$
$V_{GE(th)}$	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	$T_j = 25^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 400\text{A}$		1.96	2.50	V
		$T_j = 125^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 400\text{A}$		2.25		V
		$T_j = 150^\circ\text{C}, V_{GE} = 15\text{V}, I_C = 400\text{A}$		2.33		V
$C_{ies}$	Input capacitance	$T_j = 25^\circ\text{C}, V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		44.4		nF
$t_{on}$	Turn-on time	$T_j = 150^\circ\text{C}, V_{CC} = 600\text{V}, I_C = 400\text{A}, V_{GE} = \pm 15\text{V}, R_g = 1.1\Omega, \text{inductive load}$		220		ns
$t_r$				100		ns
$t_{off}$				760		ns
$t_f$				285		ns
$t_{SC}$	Short Circuit withstand time	$T_j = 150^\circ\text{C}, V_{CC} = 720\text{V}, V_{GE} = \pm 15\text{V}, R_g = 1.1\Omega$	10			$\mu\text{s}$
$V_F$	Forward on voltage	$T_j = 25^\circ\text{C}, I_F = 400\text{A}$		2.28	2.60	V
		$T_j = 125^\circ\text{C}, I_F = 400\text{A}$		2.26		V
		$T_j = 125^\circ\text{C}, I_F = 400\text{A}$		2.30		V
$t_{rr}$	Reverse recovery time	$T_j = 125^\circ\text{C}, I_F = 400\text{A}$		240		ns
		$T_j = 125^\circ\text{C}, I_F = 400\text{A}$		280		ns
$R_{th(j-c)}$	Thermal resistance (1 device)	IGBT			0.085	$^\circ\text{C/W}$
		FWD			0.13	$^\circ\text{C/W}$
$R_{th(c-f)}$	Contact thermal resistance (1 device)	With thermal compound		0.050		$^\circ\text{C/W}$
$W_t$	Weight				322	g
Outline	454H3					





**Outline:**

(dimensions in mm)

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