

MRI150.12

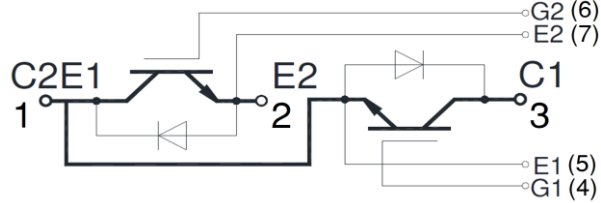
2 in 1 IGBT Modules

Features:

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

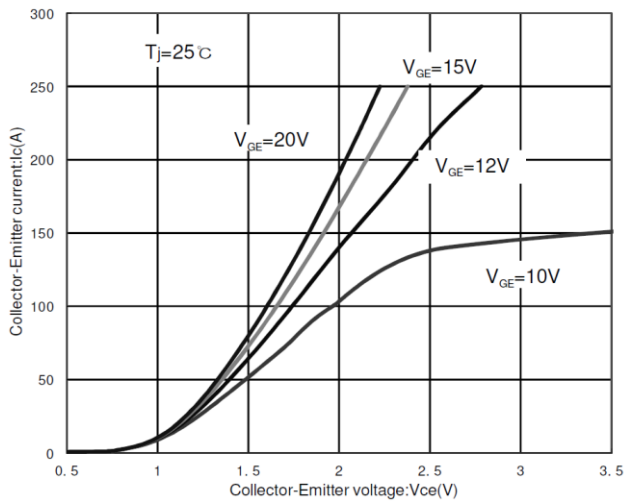
Typical applications:

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

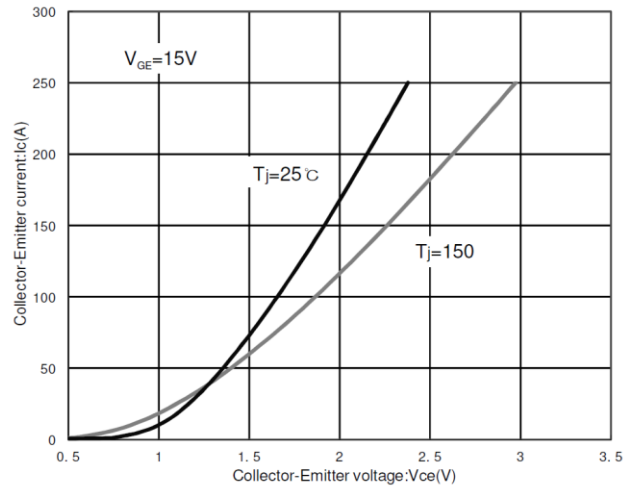


Symbol	Characteristics	Test Conditions	Value			Unit
			Min	Typ	Max	
V_{CES}	Collector-Emitter voltage	$T_j = 25^{\circ}\text{C}$			1250	V
V_{GES}	Gate-Emitter voltage	$T_j = 25^{\circ}\text{C}$			± 30	V
I_C	Collector current	Continuous @ $T_c = 100^{\circ}\text{C}$			150	A
I_{CP}		$T_p = 1\text{ ms}$			300	A
P_C	Collector power dissipation	$T_j = 150^{\circ}\text{C}$, 1 device			595	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	$T_j = 25^{\circ}\text{C}$, AC: 1 minute	2500			V
Screw torque	Mounting (M6)	/	4.5		6.0	N·m
	Terminals (M5)	/	2.5		4.5	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	$T_j = 25^{\circ}\text{C}$, $V_{CE} = 0\text{V}$, $V_{GE} = \pm 20\text{V}$			± 2	μA
$V_{GE(th)}$	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	$T_j = 25^{\circ}\text{C}$, $V_{GE} = 15\text{V}$, $I_C = 150\text{A}$		1.80	2.40	V
		$T_j = 125^{\circ}\text{C}$, $V_{GE} = 15\text{V}$, $I_C = 150\text{A}$		1.95		V
		$T_j = 150^{\circ}\text{C}$, $V_{GE} = 15\text{V}$, $I_C = 150\text{A}$		2.25		V
C_{ies}	Input capacitance	$T_j = 25^{\circ}\text{C}$, $V_{CE} = 10\text{V}$, $V_{GE} = 0\text{V}$, $f = 1\text{MHz}$		12.6		nF
t_{on}	Turn-on time	$T_j = 150^{\circ}\text{C}$, $V_{CC} = 600\text{V}$, $I_C = 150\text{A}$, $V_{GE} = \pm 15\text{V}$, $R_G = 5.1\Omega$, inductive load		160		ns
t_r				50		ns
t_{off}				680		ns
t_f				250		ns
E_{on}				14		mJ
E_{off}	Turn-off energy			17.5		mJ
E_{rr}	Reverse recovery energy			11		mJ
t_{SC}	Short Circuit withstand time	$T_j = 150^{\circ}\text{C}$, $V_{CC} = 720\text{V}$, $V_{GE} = \pm 15\text{V}$, $R_G = 10\Omega$	10			μs
V_F	Forward on voltage	$T_j = 25^{\circ}\text{C}$, $I_F = 150\text{A}$		2.10	2.60	V
		$T_j = 125^{\circ}\text{C}$, $I_F = 150\text{A}$		2.00		V
		$T_j = 150^{\circ}\text{C}$, $I_F = 150\text{A}$		1.90		V
t_{rr}	Reverse recovery time	$T_j = 125^{\circ}\text{C}$, $I_F = 150\text{A}$		150		ns
		$T_j = 150^{\circ}\text{C}$, $I_F = 150\text{A}$		160		ns
$R_{th(j-c)}$	Thermal resistance (per chip)	IGBT			0.21	$^{\circ}\text{C/W}$
		FWD			0.31	$^{\circ}\text{C/W}$
$R_{th(c-f)}$	Contact thermal resistance (per module)	With thermal compound		0.05		$^{\circ}\text{C/W}$
W_t	Weight				155	g
Outline	251H3					

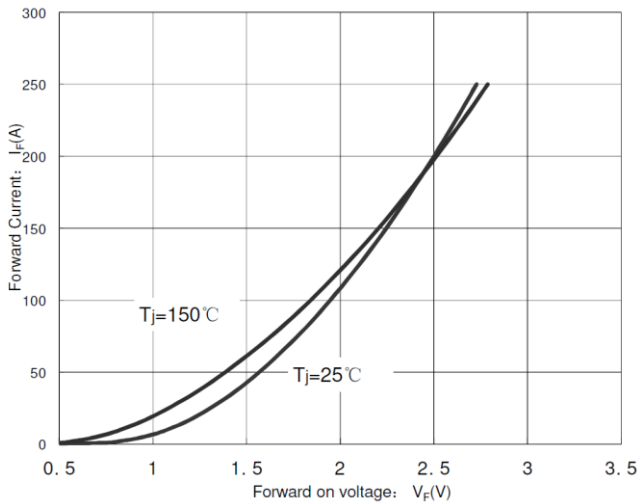
Collector current VS. Collector-Emitter voltage



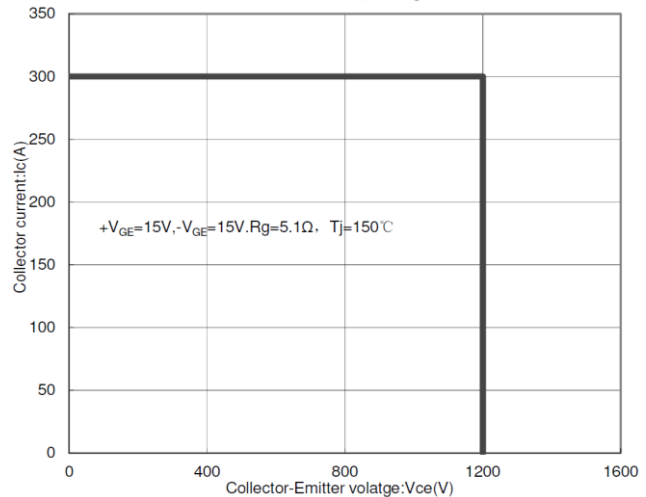
Collector current VS. Collector-Emitter voltage



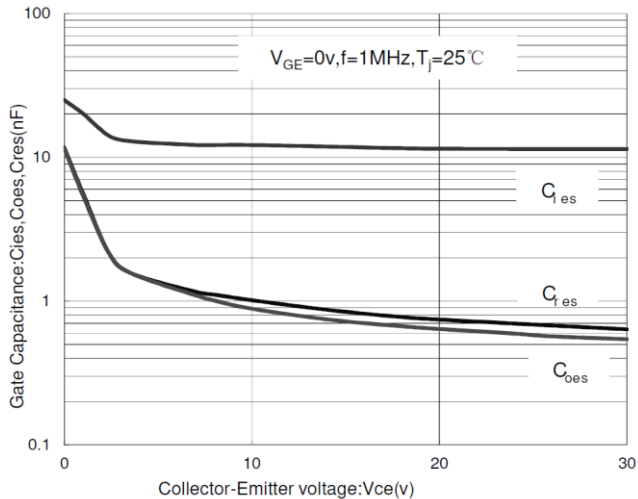
Forward Current VS. Forward Voltage



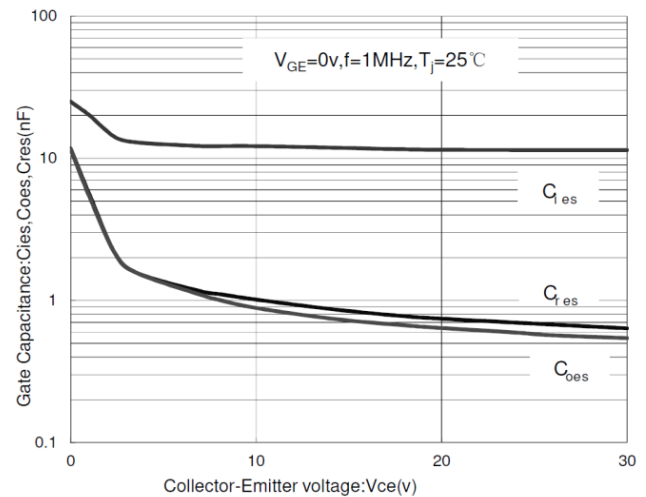
Reverse bias safe operating area

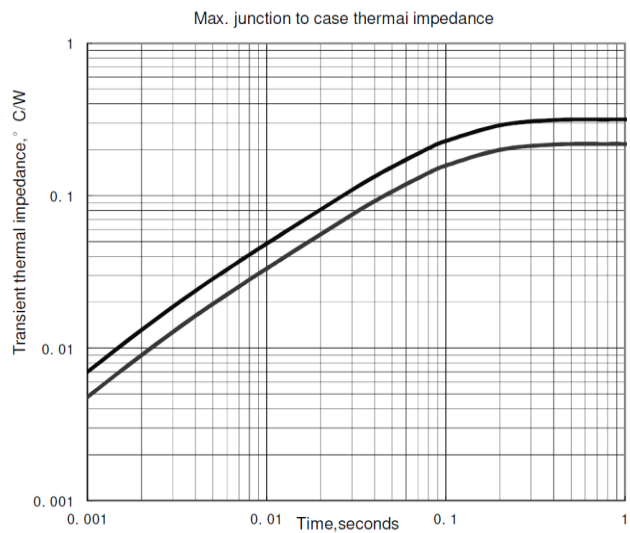
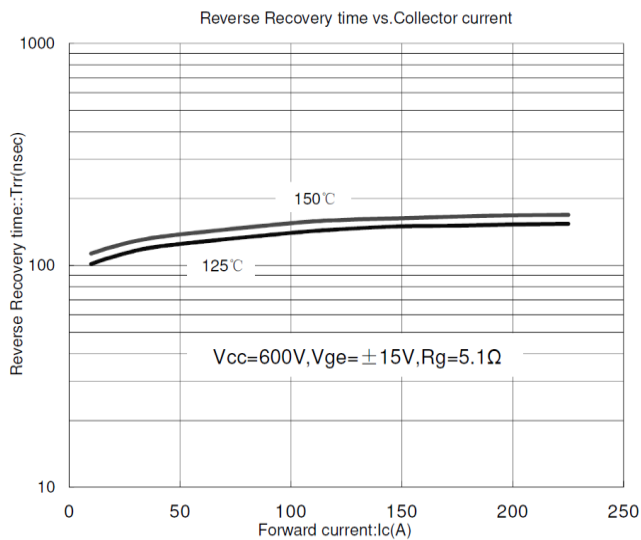
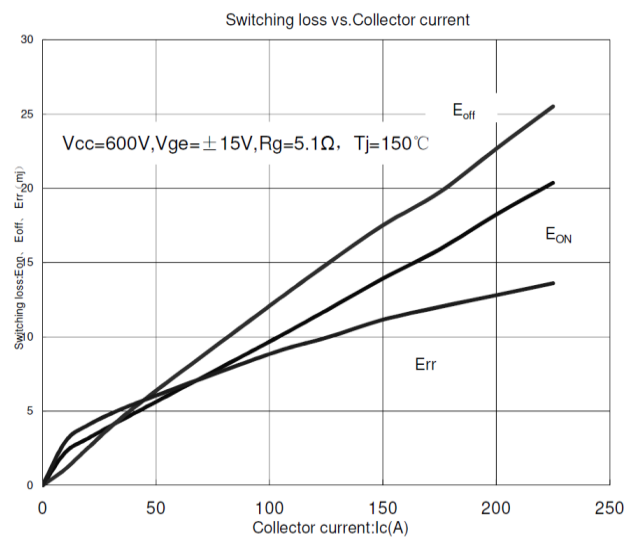
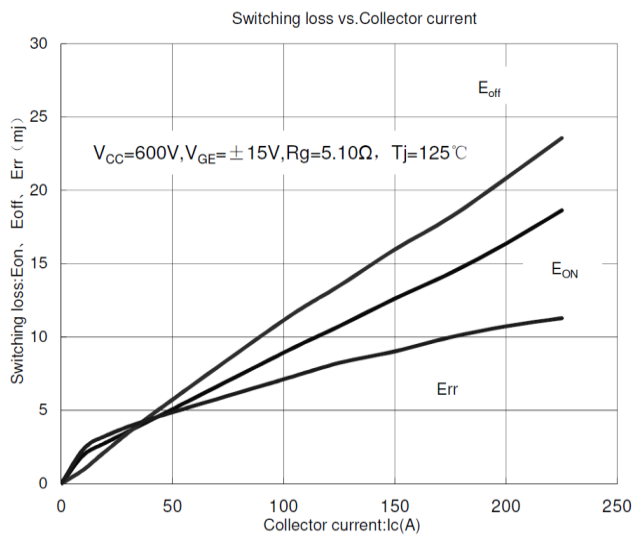
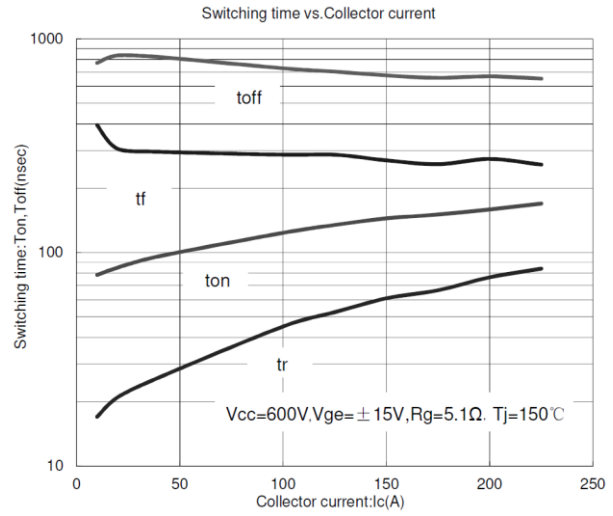
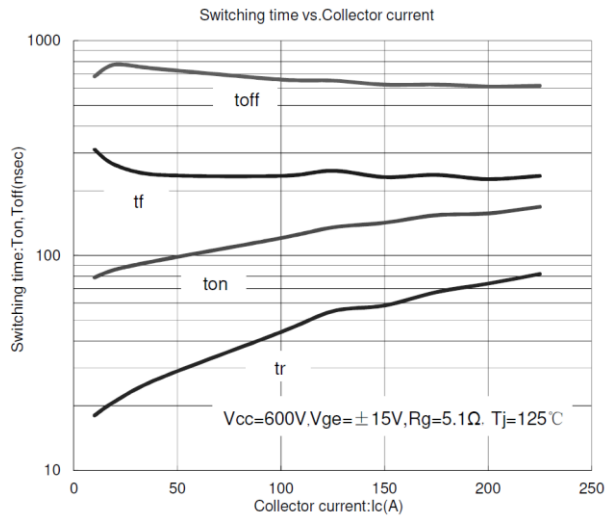


Gate Capacitance vs. Collector-Emitter Voltage

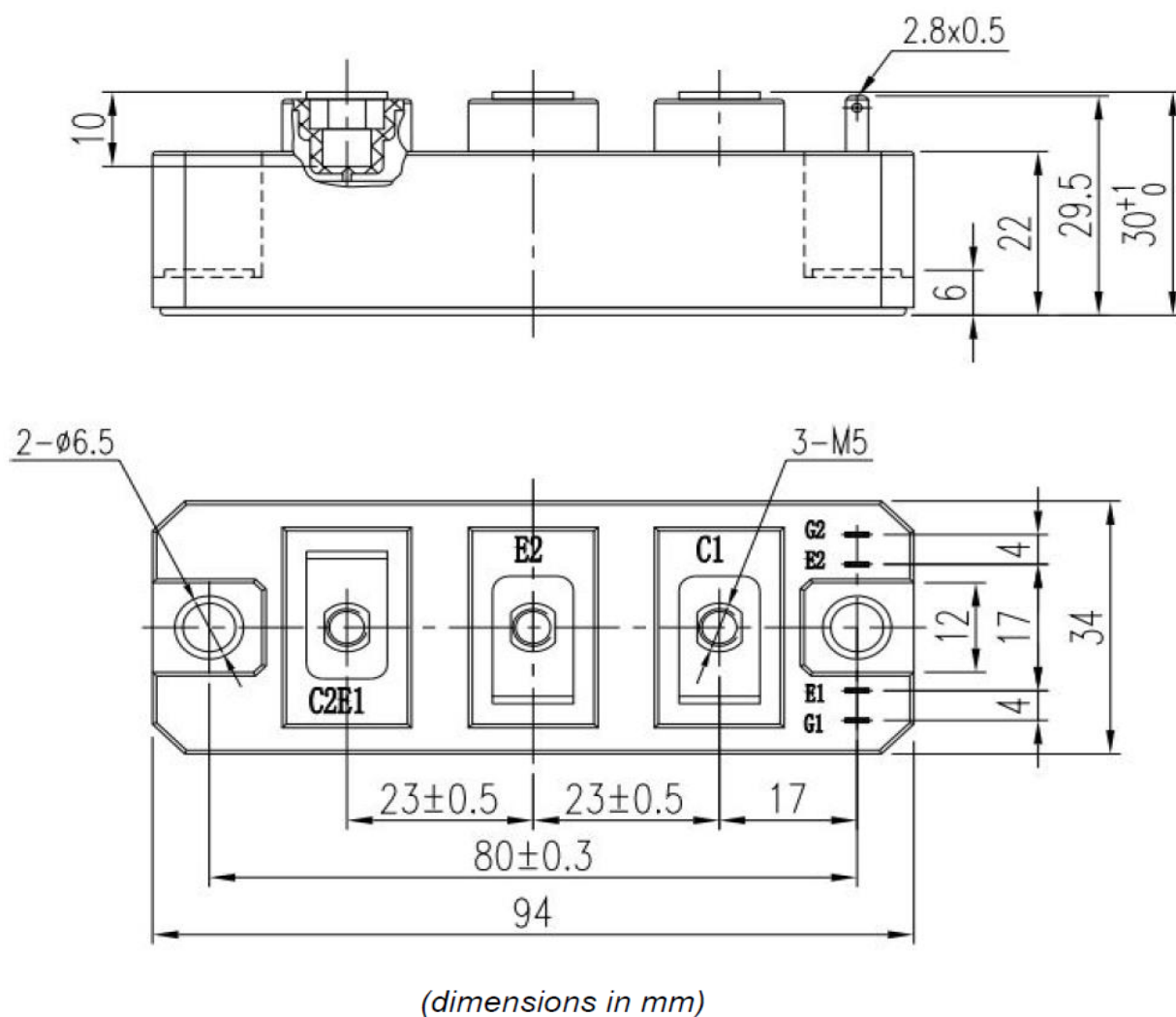


Gate Capacitance vs. Collector-Emitter Voltage





Outline:



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