SCOMES

MRI200.17

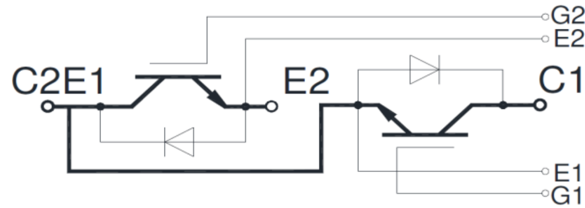
2 in 1 IGBT Modules

Features:

- Low $V_{CE(sat)}$ trench IGBT technology
- Low switching losses
- $V_{CE(sat)}$ with positive temperature coefficient
- 10µs short circuit capability

Typical applications:

- AC motor control
- Inverter and power supplies
- Motion/servo control
- Photovoltaic/Fuel cell



Symbol	Characteristcs	Test Conditions	Value			Unit
			Min	Typ	Max	
V_{CES}	Collector-Emitter voltage	Tj = 25°C			1700	V
V_{GES}	Gate-Emitter voltage	Tj = 25°C			±20	V
I_C	Collector current	Continuous @ T_c = 80 °C, Tjmax = 175°C			200	A
I_{CM}	Repetive peak collector current	T_p = 1 ms			400	A
P_C	Collector power dissipation	Tj = 175°C, 1 device			1515	W
T_j	Junction temperature	/	-40		175	°C
T_{stg}	Storage temperature	/	-40		125	°C
V_{ISO}	Isolation between terminal and copper base	Tj = 25°C, AC: 1 minute	4000			V
Screw torque	Mounting (M6)	/	3.0		5.0	N·m
	Terminals (M6)	/	2.5		5.0	N·m
I_{CES}	Zero gate voltage collector current	Tj = 25°C, $V_{CE} = V_{CES}$, V_{GE} = 0V			3.0	mA
I_{GES}	Gate-Emitter leakage current	Tj = 25°C, V_{CE} = 0V, V_{GE} = ±20V			±0.4	µA
$V_{GE(th)}$	Gate-Emitter threshold voltage	TJ = 25°C, V_{CE} = 20V, I_C = 8mA	5.2	5.8	6.4	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	Tj = 25°C, V_{GE} = 15V, I_C = 200A		2.0		V
		Tj = 125°C, V_{GE} = 15V, I_C = 200A		2.4		V
R_{Gint}	Internal gate resistor	Tj = 25°C		3.8		Ω
C_{ies}	Input capacitance	Tj = 25°C, V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		18.0		nF
C_{res}	Reverse transfer capacitance			0.60		nF
t_{on}	Turn-on time	Tj = 25°C, 'V_{CC} = 900V, I_C = 200A, V_{GE} = ±15V, R_G = 6.8Ω, inductive load		310		ns
t_r				98		ns
t_{off}	Turn-off time			1008		ns
t_f				202		ns
E_{on}	Turn-on energy loss per pulse			78		mJ
E_{off}	Turn-off energy loss per pulse			63		mJ
I_{SC}	SC data	t_{SC} ≤ 10µs, V_{GE} = 15V, Tj = 125°C, Vcc = 1000V, V_{CEM} ≤ 1700V		800		A
t_{SC}	Short circuit withstandt time	Tj = 125°C	10			µs
V_F	Forward on voltage	Tj = 25°C, I_F = 200A		1.80		V
		Tj = 125°C, I_F = 200A		1.90		V
I_{RM}	Peak reverse recovery current	I_F = 200A, -diF/dt = 3600A/µs, V_R = 900V, V_{GE} = -15V, Tj = 125°C		231		A
Q_r	Recovered charge			85.4		µC
E_{rec}	Reverse recovery energy			48		mJ
$R_{th(j-c)}$	Thermal resistance (1 device)	IGBT			0.099	°C/W
		FWD			0.19	°C/W
$R_{th(c-f)}$	Contact thermal resistance (1 devide)	with termal compound		0.035		°C/W
W_t	Weight				300	g
Outline	454H3P					

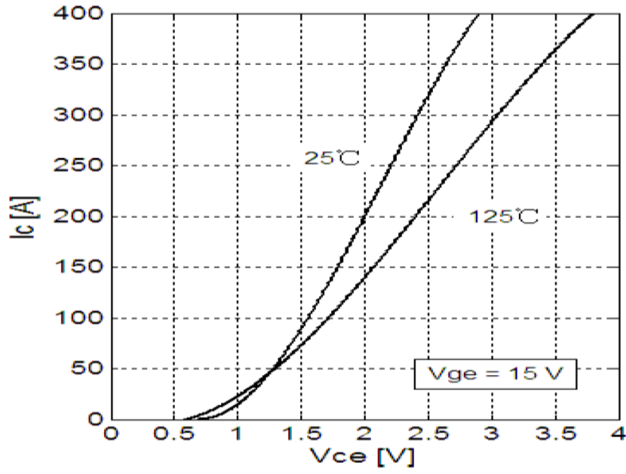


Fig 1. IGBT Typical Output Characteristics

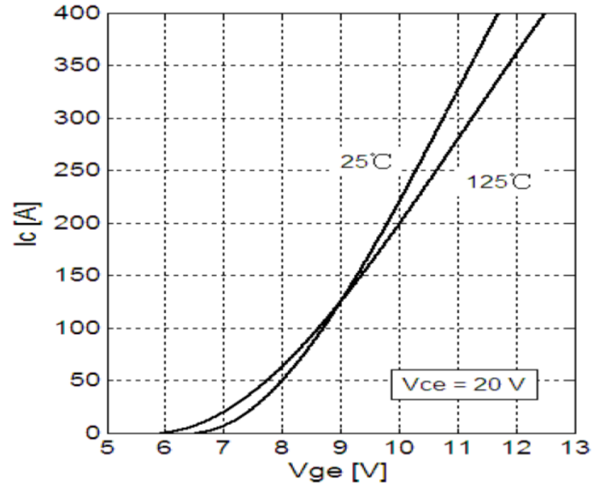


Fig 2. IGBT Typical Transfer Characteristics

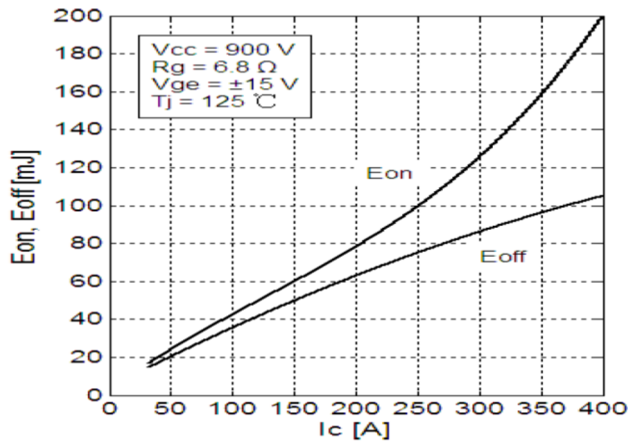


Fig 3. IGBT Switching Loss vs. Collector Current

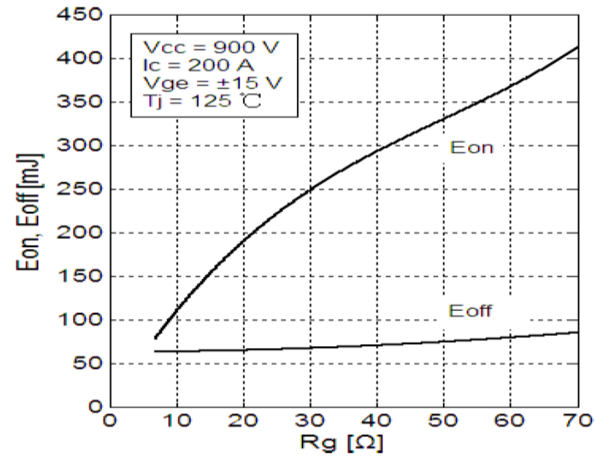


Fig 4. IGBT Switching Loss vs. Gate Resistor

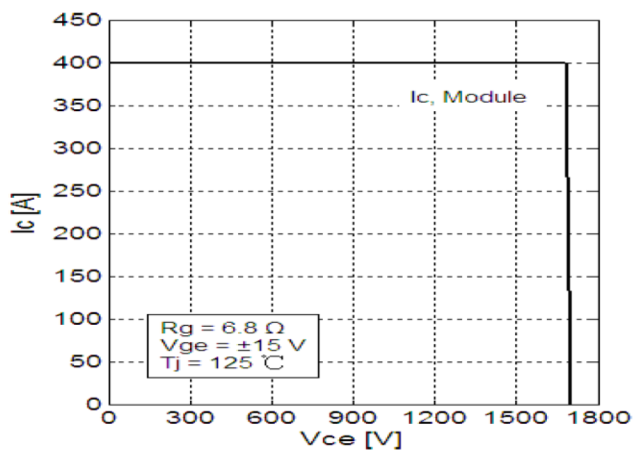


Fig 5. RBSOA

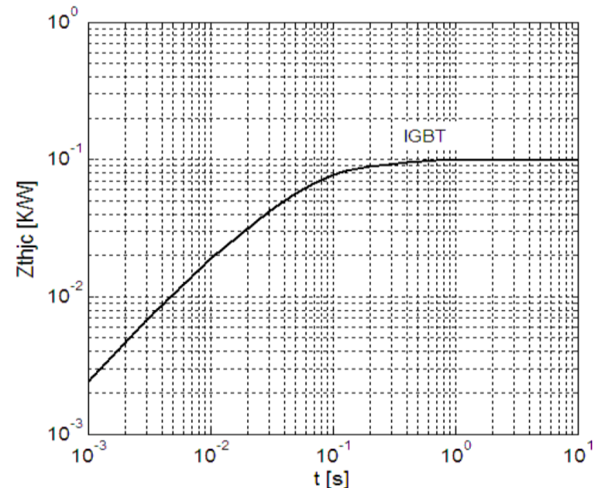


Fig 6. IGBT Transient Thermal Impedance

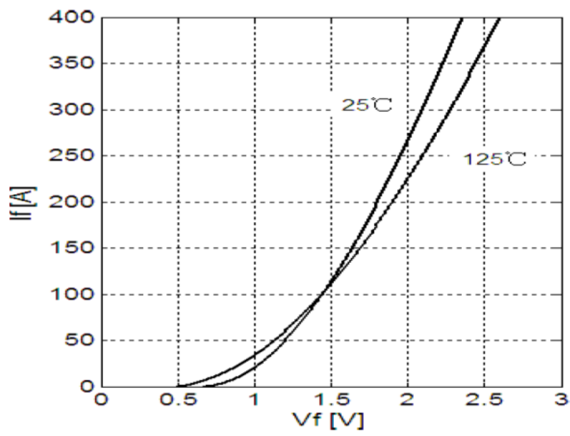


Fig 7. Forward Characteristics of Diode

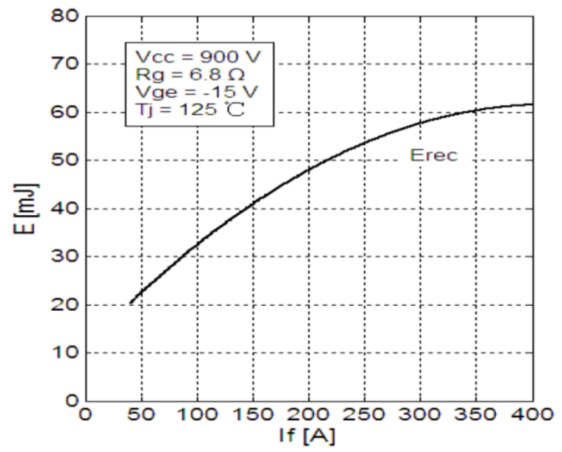


Fig 8. Diode Switching Loss vs. Collector Current

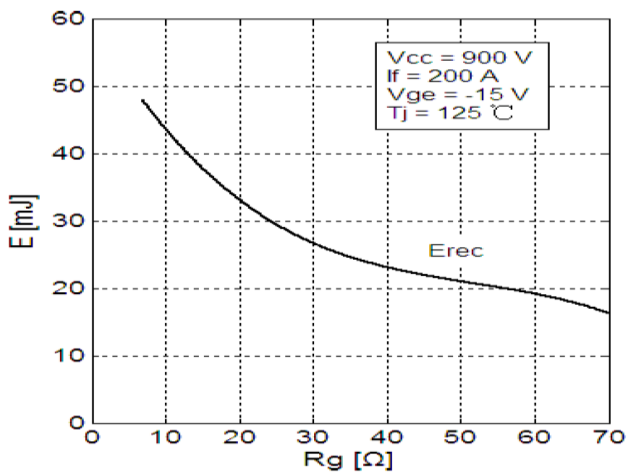


Fig9. Diode Switching Loss vs. Gate Resistor

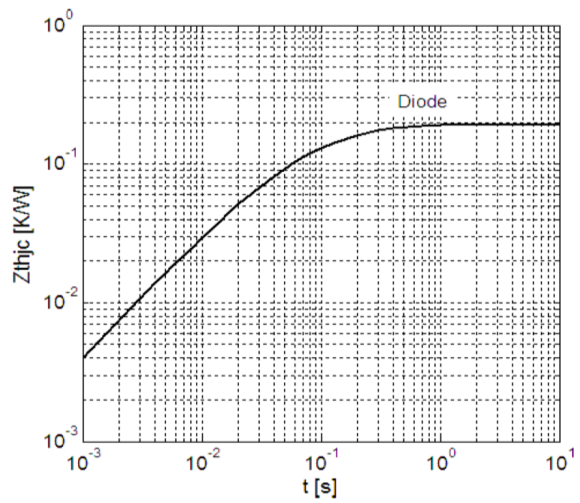


Fig 10. Diode Transient Thermal Impedance

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Outline:

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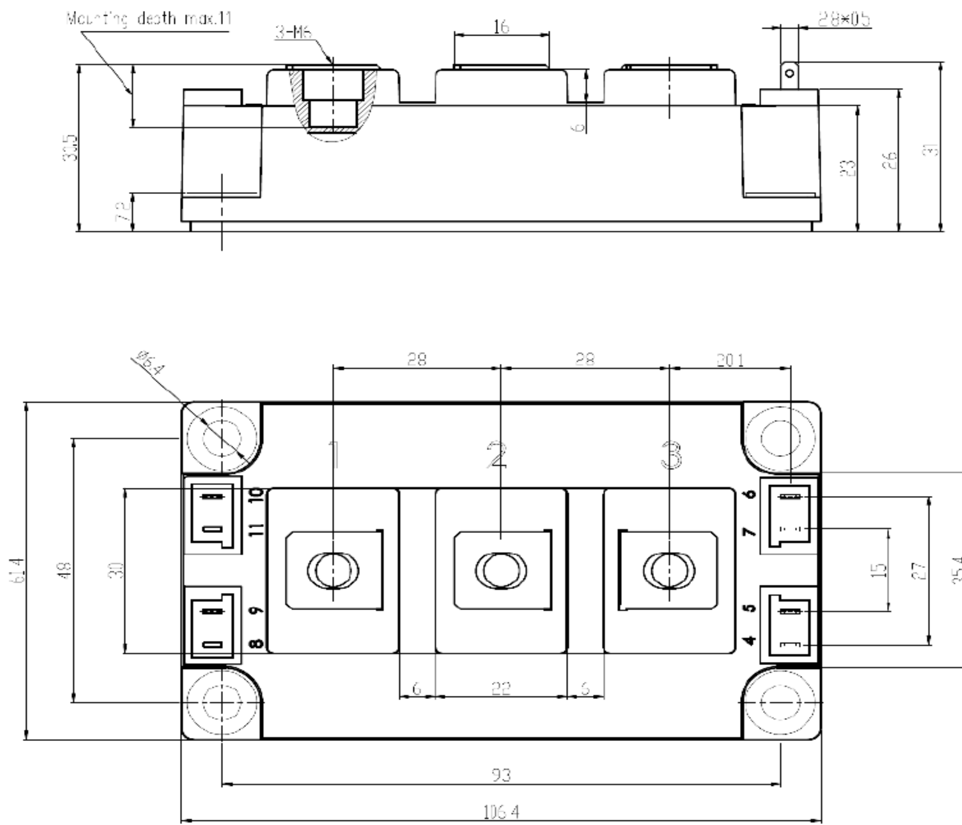

(dimensions in mm)

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Scomes Srl reserves the right to change any specification without notice