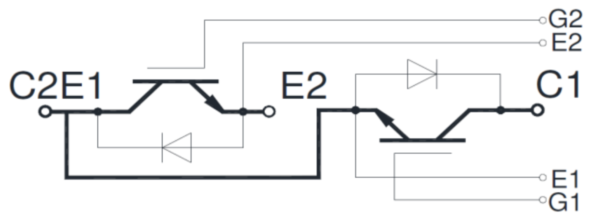
MRI100.17

2 in 1 IGBT Modules

Features:

- VCE(sat) with positive temperature coefficient
- Low VCE(SAT) Trench IGBT technology
- Maximum junction temperature 175°C
- 10µs short circuit capability
- Low inductance case
- Fast & soft reverse recovery anti-parallel FWD
- Isolated copper baseplate using DBC technology



Typical applications:

- Inverter for Motor Drive
- AC and DC servo drive amplifier
- Uninterruptible Power Supply

Symbol	Characteristcs	Test Conditions	Value Min	Value Typ	Value Max	Unit
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 = 25 °C			168	A
		Continuous @ T_c = 100 °C			100	A
I_{CM}	Repetive peak collector current	T_p = 1 ms			200	A
P_C	Collector power dissipation	Tj = 175°C, 1 device			632	W
T_j	Junction temperature	/	-40		175	°C
T_{stg}	Storage temperature	/	-40		125	°C
V_{ISO}	Isolation between terminal and copper base	f = 50Hz, AC: 1 minute	4000			V
Screw torque	Mounting (M6)	/	2.5		6.0	N·m
	Terminals (M5)	/	3.0		5.0	N·m
I_{CES}	Zero gate voltage collector current	Tj = 25°C, V_{CE} = V_{CES}, V_{GE} = 0V			5	mA
I_{GES}	Gate-Emitter leakage current	Tj = 25°C, V_{CE} = 0V, V_{GE} = ±20V			400	nA
$V_{GE(th)}$	Gate-Emitter threshold voltage	Tj = 25°C, V_{CE} = V_{GE}, I_C = 4mA	5.6	6.2	6.8	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	Tj = 25°C, V_{GE} = 15V, I_C = 100A		1.85	2.20	V
		Tj = 125°C, V_{GE} = 15V, I_C = 100A		2.25		V
t_{on}	Turn-on time	V_{CC} = 900V, I_C = 100A, V_{GE} = ±15V, R_G = 4.8Ω, inductive load; Tj = 25°C		218		ns
		Tj = 125°C		238		ns
t_r		Tj = 25°C		31		ns
		Tj = 125°C		44		ns
t_{off}	Turn-off time	V_{CC} = 900V, I_C = 100A, V_{GE} = ±15V, R_G = 4.8Ω, inductive load; Tj = 25°C		797		ns
		Tj = 125°C		1140		ns
t_f		Tj = 25°C		363		ns
		Tj = 125°C		637		ns
V_F	Forward on voltage	Tj = 25°C, I_F = 100A		1.80	2.25	V
		Tj = 125°C, I_F = 100A		1.90		V
t_{rr}	Reverse recovery time	Tj = 125°C, I_F = 100A		1.16		µs
		Tj = 25°C, I_F = 100A		0.89		µs
$R_{th(j-c)}$	Thermal resistance (per chip)	IGBT			0.160	°C/W
		FWD			0.268	°C/W
W_t	Weight				150	g
Outline	251H3P					

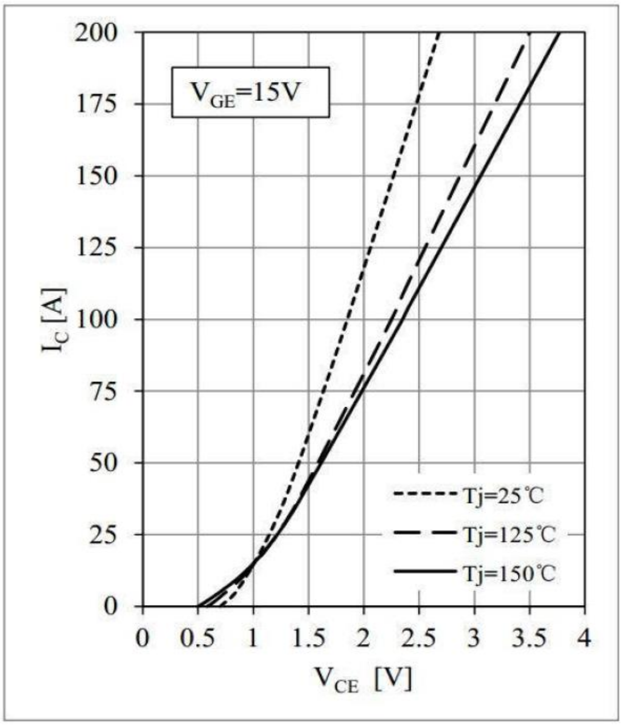


Fig 1. IGBT Output Characteristics

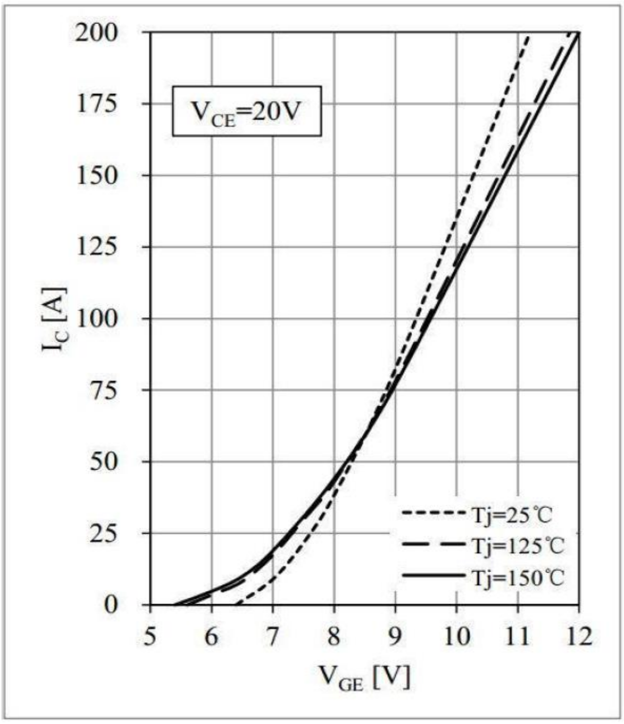


Fig 2. IGBT Transfer Characteristics

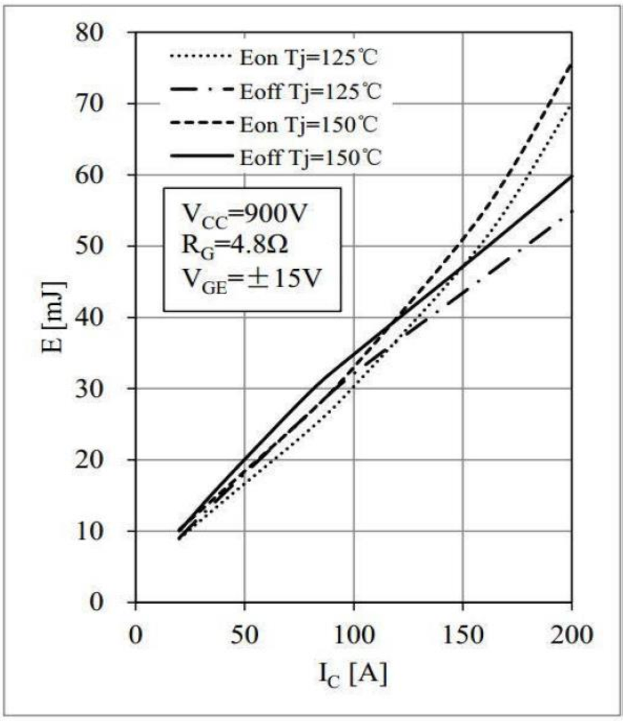


Fig 3. IGBT Switching Loss vs. I_C

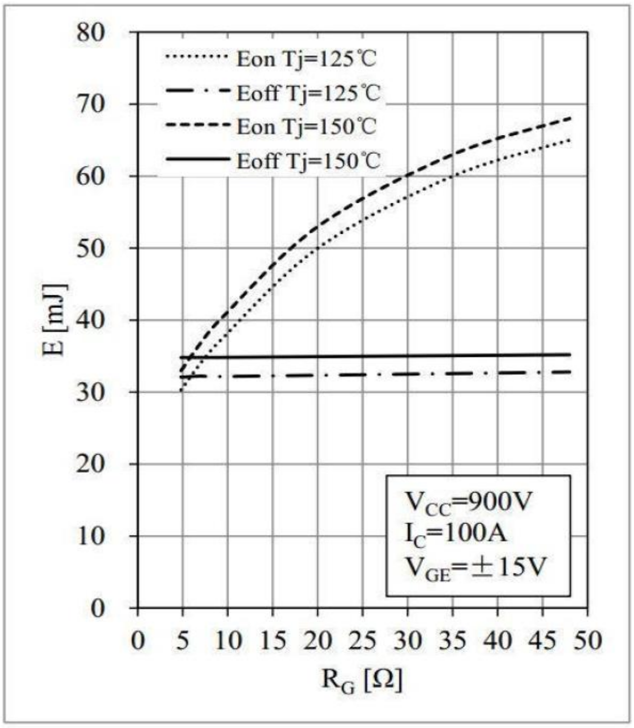


Fig 4. IGBT Switching Loss vs. R_G

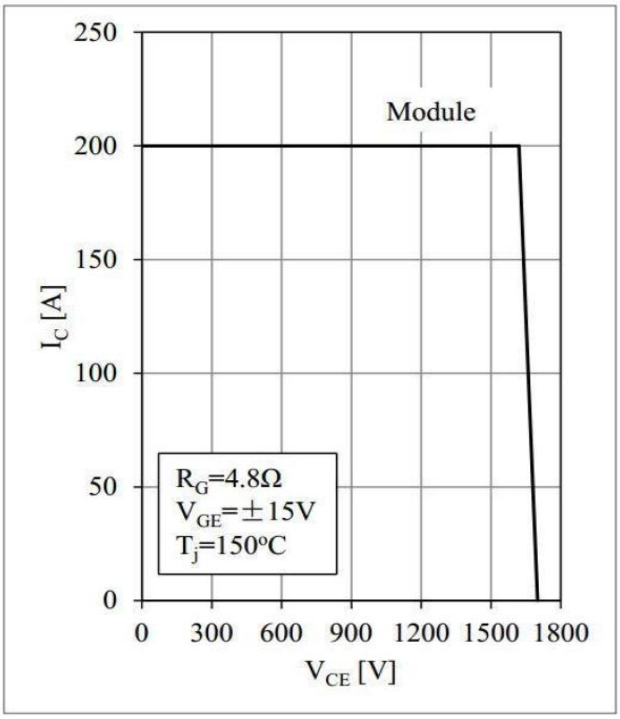


Fig 5. RBSOA

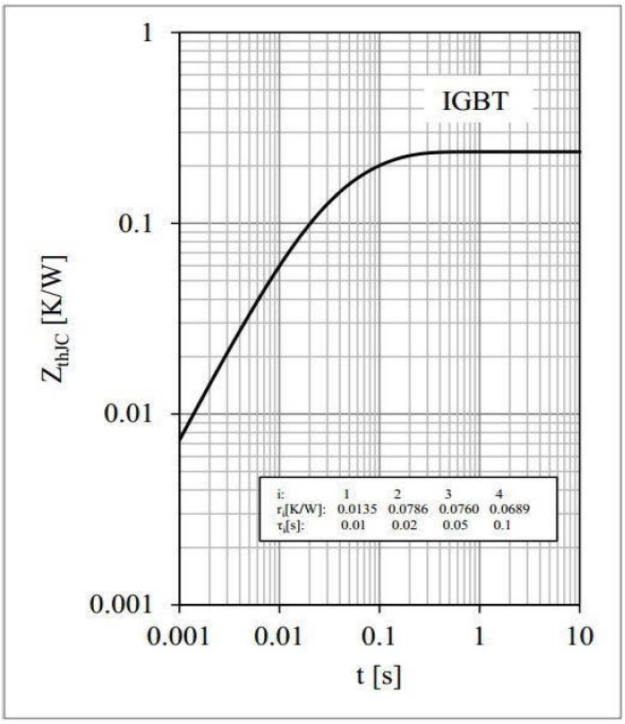


Fig 6. IGBT Transient Thermal Impedance

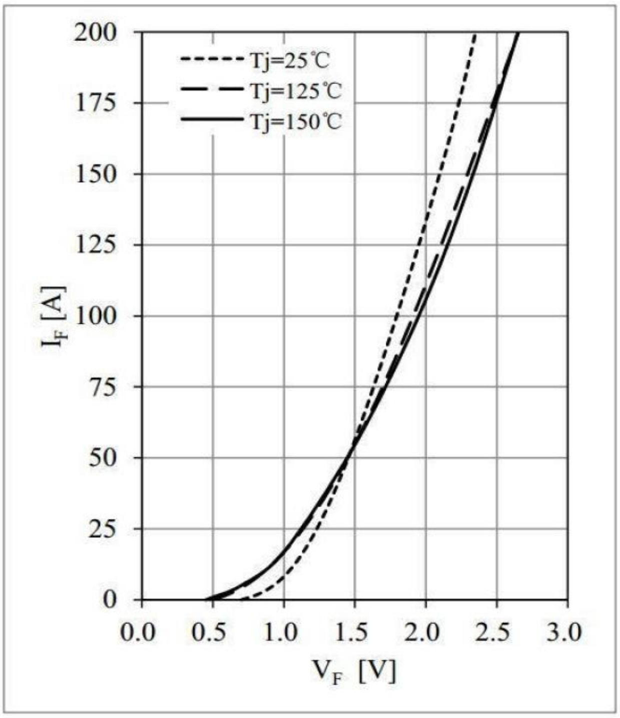


Fig 7. Diode Forward Characteristics

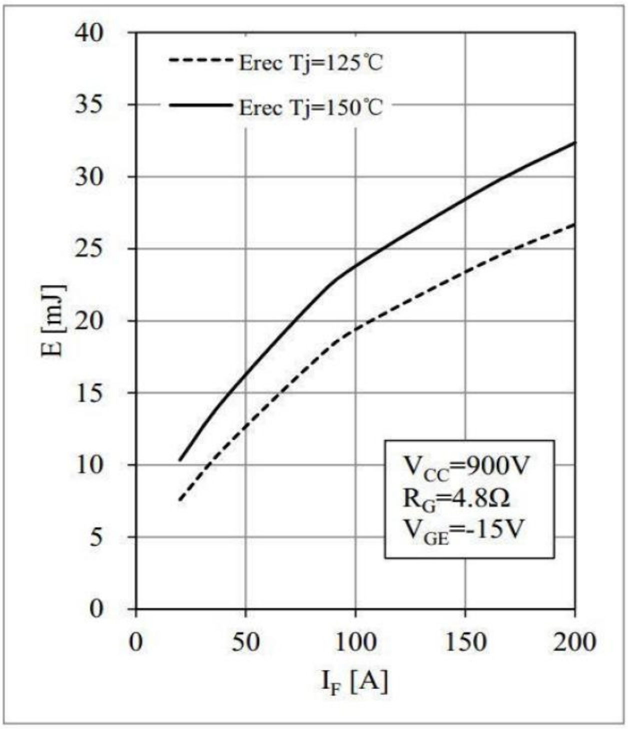


Fig 8. Diode Switching Loss vs. I_F

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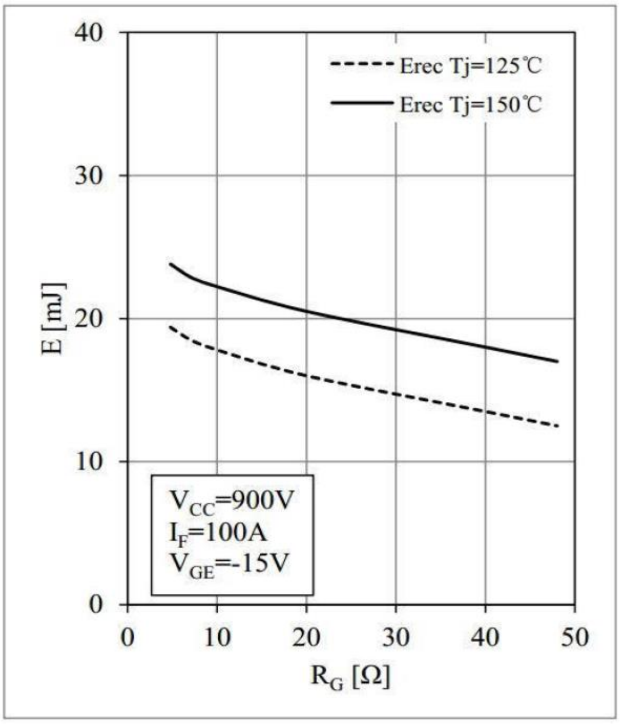


Fig 9. Diode Switching Loss vs. R_G

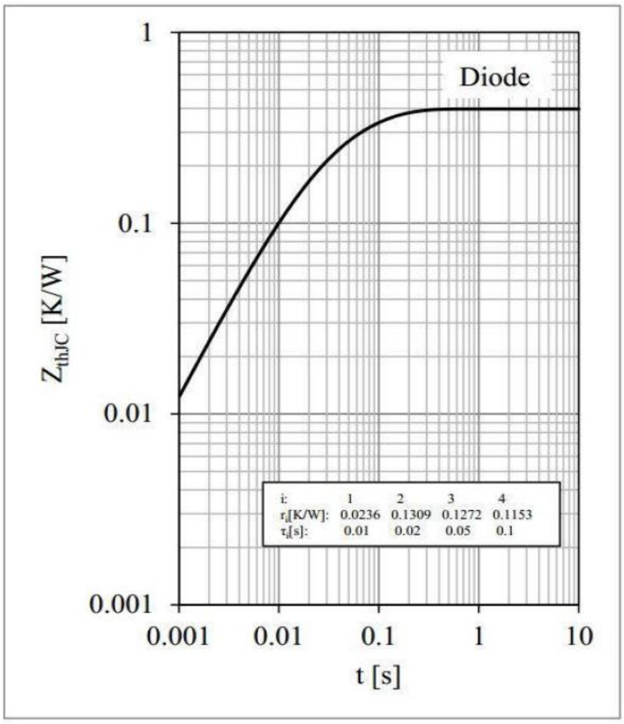
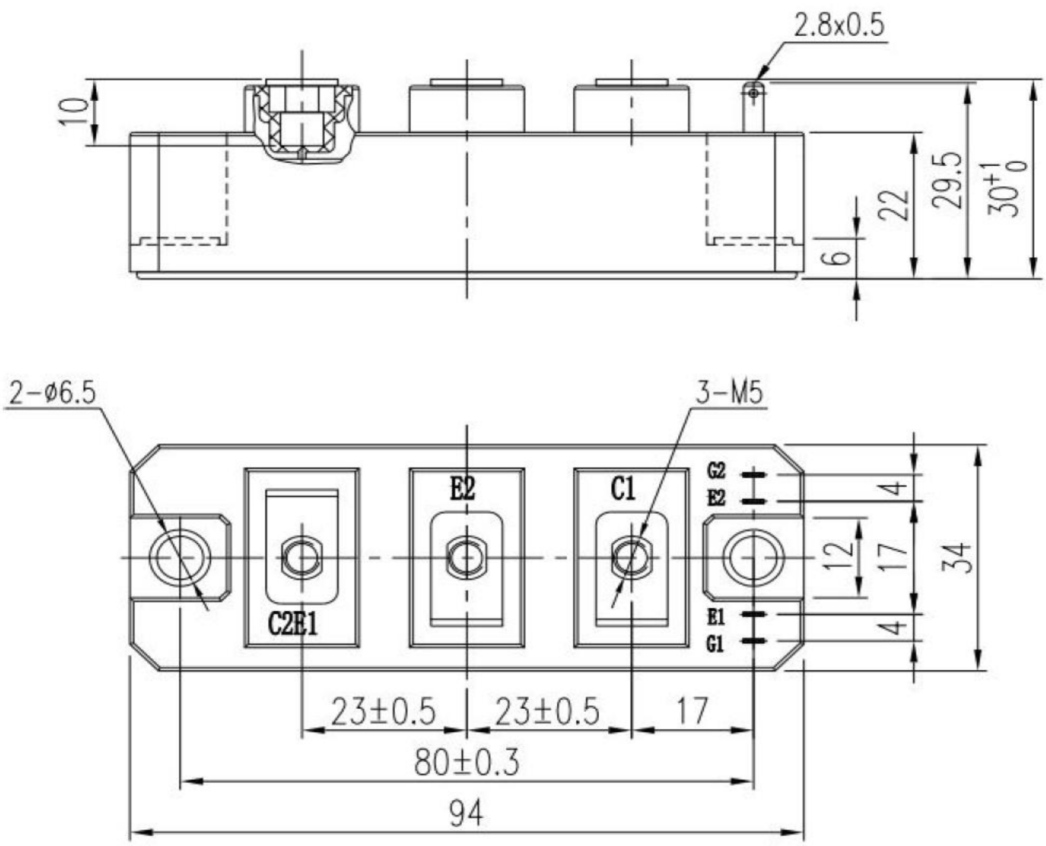


Fig 10. Diode Transient Thermal Impedance

Outline:



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