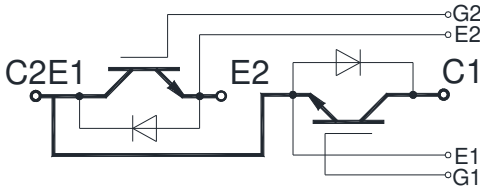




MRI 100.17

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 | CHARACTERISTIC | TEST CONDITIONS | VALUE | | | UNIT |
|-----------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------|------|-------|------|
| | | | Min | Type | Max | |
| V _{CES} | Collector-Emitter voltage | T _j =25°C | | | 1700 | V |
| V _{GES} | Gate-Emitter voltage | T _j =25°C | | | ±20 | V |
| I _C | Collector current | Continuous @T _C =25°C | | | 168 | A |
| | | Continuous @T _C =100°C | | | 100 | A |
| I _{CM} | Repetitive Peak Collector Current | t _p =1ms | | | 200 | A |
| P _D | Collector power dissipation | T _j =175°C | | | 632 | W |
| T _j | Junction temperature | / | -40 | | 150 | °C |
| T _{stg} | Storage temperature | / | -40 | | 125 | °C |
| V _{iso} | Isolation between terminal and copper base | f =50Hz, AC: 1minute | 4000 | | | V |
| Screw torque | Mounting(M6) | / | 2.5 | | 5.0 | N·m |
| | Terminals(M5) | / | 3.0 | | 5.0 | N·m |
| I _{CES} | Zero gate voltage collector current | T _j =25°C ,V _{CE} = V _{CES} , V _{GE} =0V | | | 5.0 | mA |
| I _{GES} | Gate-Emitter leakage current | T _j =25°C ,V _{CE} =0V, V _{GE} =±20V | | | 400 | nA |
| V _{GE(th)} | Gate-Emitter threshold voltage | T _j =25°C ,V _{CE} = V _{GE} , I _C =4mA | 5.6 | 6.2 | 6.8 | V |
| V _{CE(sat)} | Collector-Emitter saturation voltage | T _j =25°C ,V _{GE} =15V, I _C =100A | | 1.85 | 2.20 | V |
| | | T _j =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 | T _j =25°C | | 218 | ns |
| | | | T _j =125°C | | 238 | ns |
| T _j =25°C | | | | 31 | ns | |
| T _j =125°C | | | | 44 | ns | |
| t _{off} | Turn-off time | V _{CC} =900V, I _C =100A, V _{GE} =±15V, R _G =4.8Ω, Inductive load | T _j =25°C | | 797 | ns |
| | | | T _j =125°C | | 1140 | ns |
| T _j =25°C | | | | 363 | ns | |
| T _j =125°C | | | | 637 | ns | |
| V _F | Forward on voltage | T _j =25°C ,I _F =100A | | 1.80 | 2.25 | V |
| | | T _j =125°C ,I _F =100A | | 1.90 | | V |
| t _{rr} | Reverse recovery time | T _j =125°C ,I _F =100A | | 1.16 | | µs |
| | | T _j =25°C ,I _F =100A | | 0.89 | | µs |
| R _{th(j-c)} | Thermal resistance(1 device) | IGBT | | | 0.160 | °C/W |
| | | Diode | | | 0.268 | °C/W |
| W _t | Weight | | | | 150 | g |
| Outline | 251H3P | | | | | |

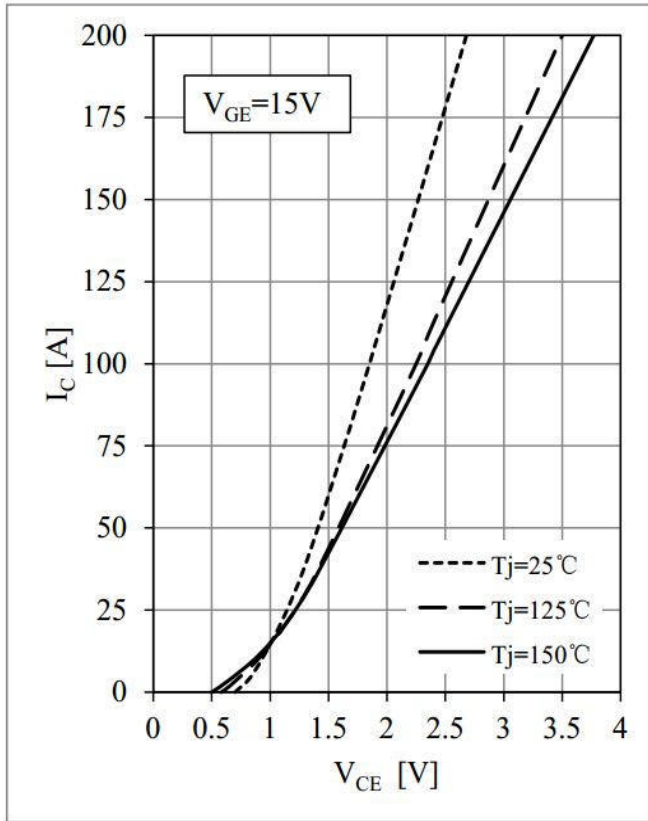


Fig 1. IGBT Output Characteristics

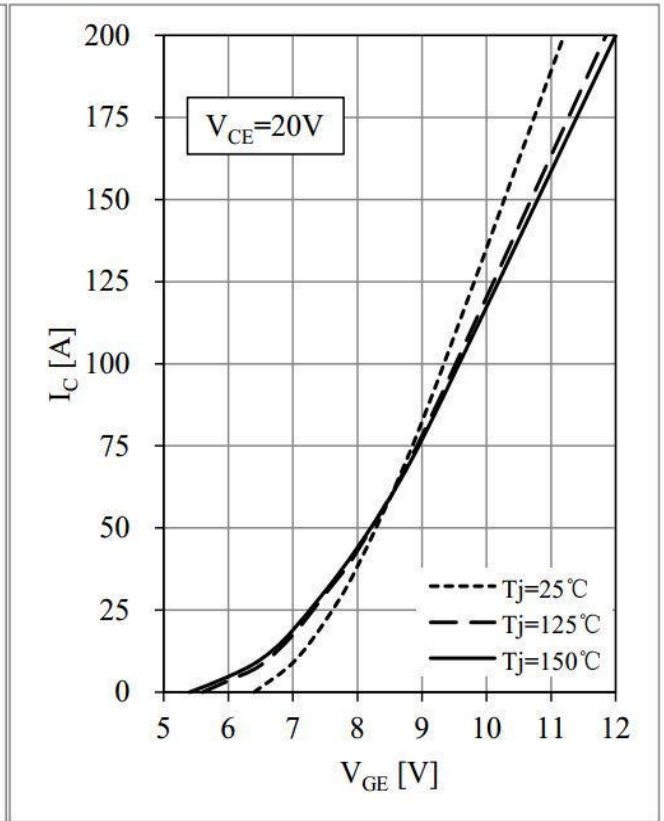


Fig 2. IGBT Transfer Characteristics

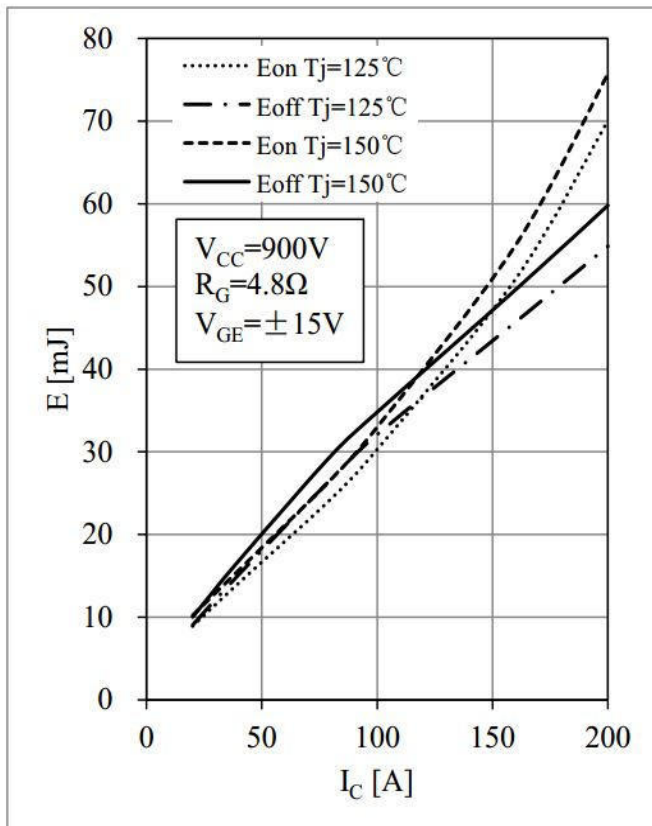


Fig 3. IGBT Switching Loss vs. I_c

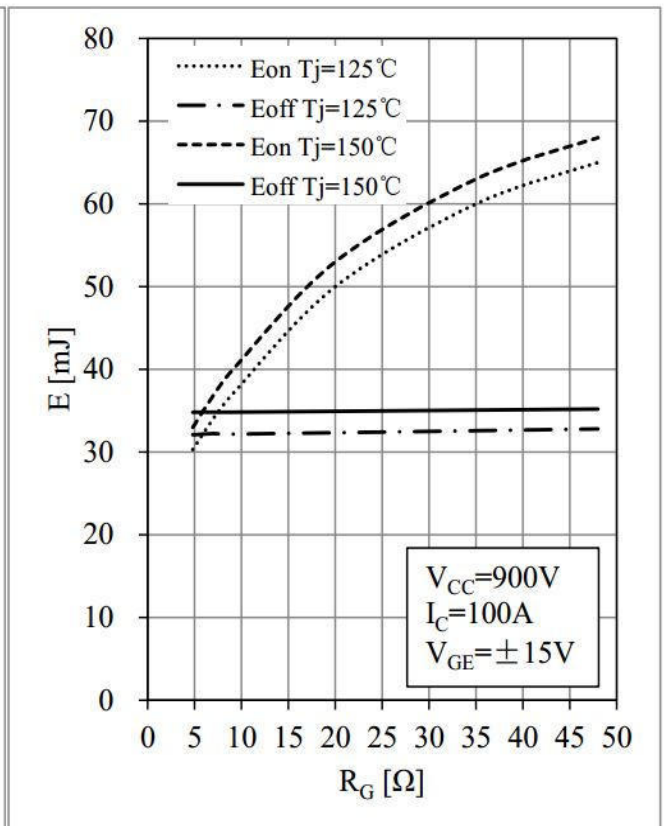


Fig 4. IGBT Switching Loss vs. R_G

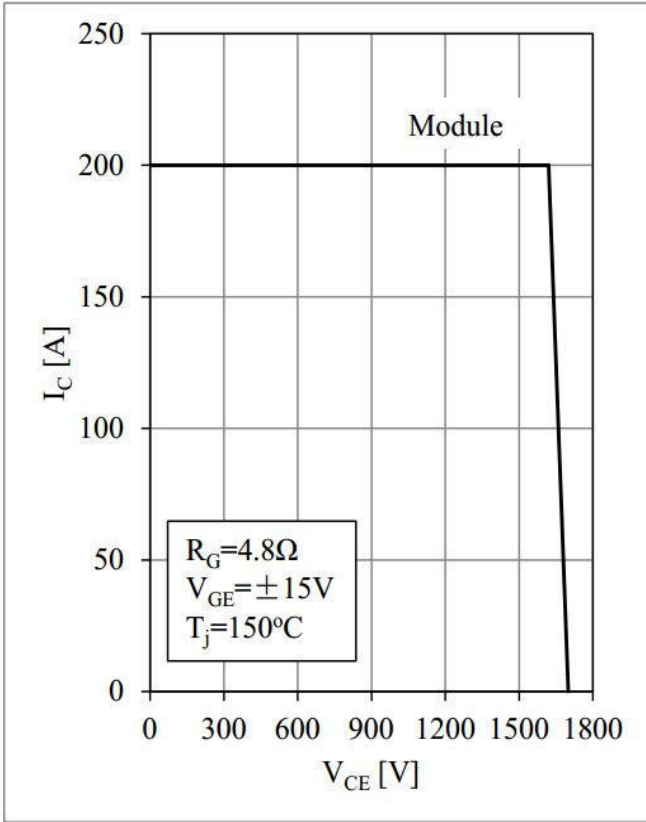


Fig 5. RBSOA

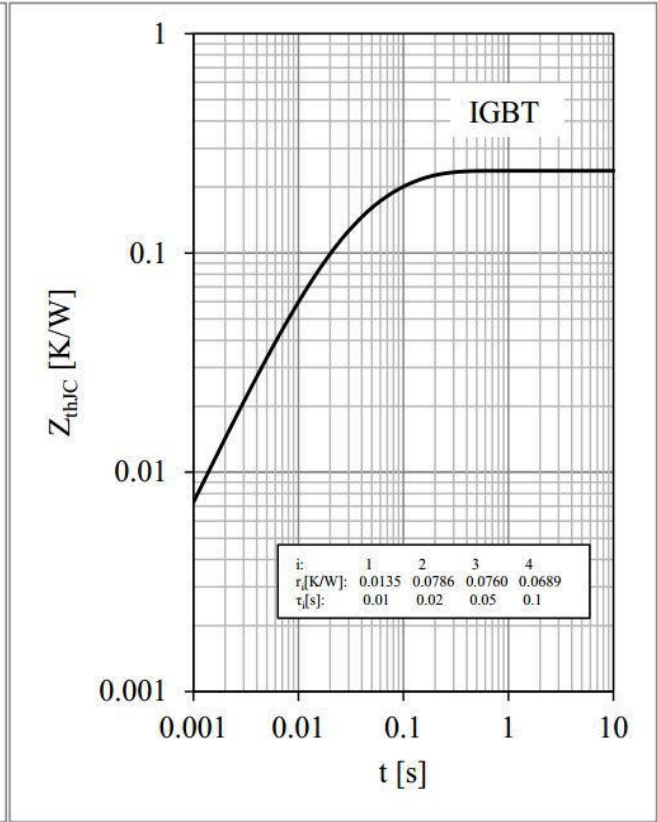


Fig 6. IGBT Transient Thermal Impedance

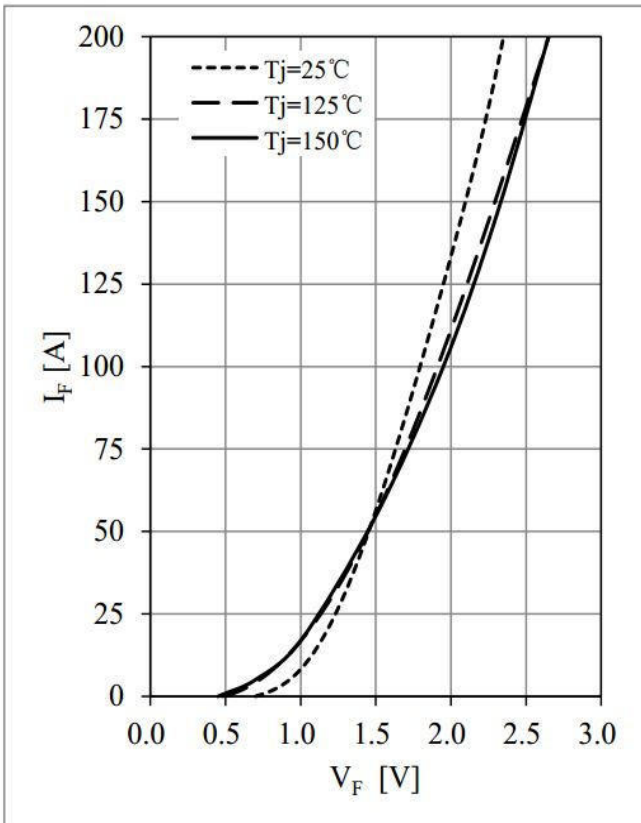


Fig 7. Diode Forward Characteristics

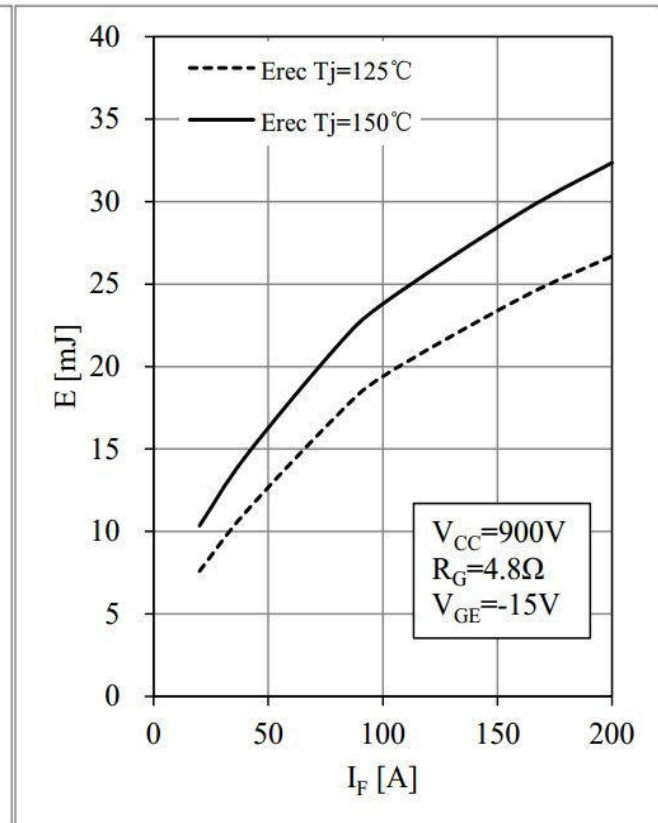


Fig 8. Diode Switching Loss vs. I_F

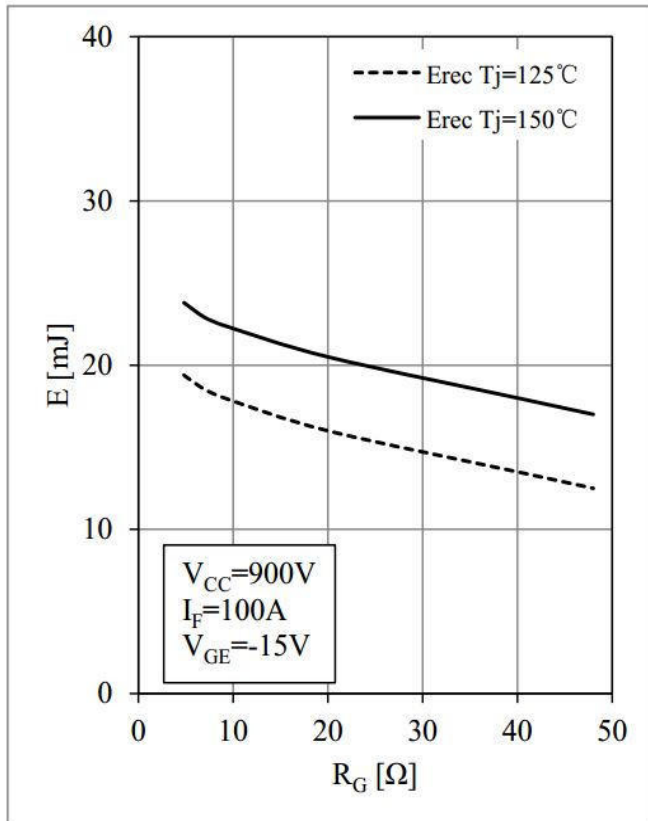


Fig 9. Diode Switching Loss vs. R_G

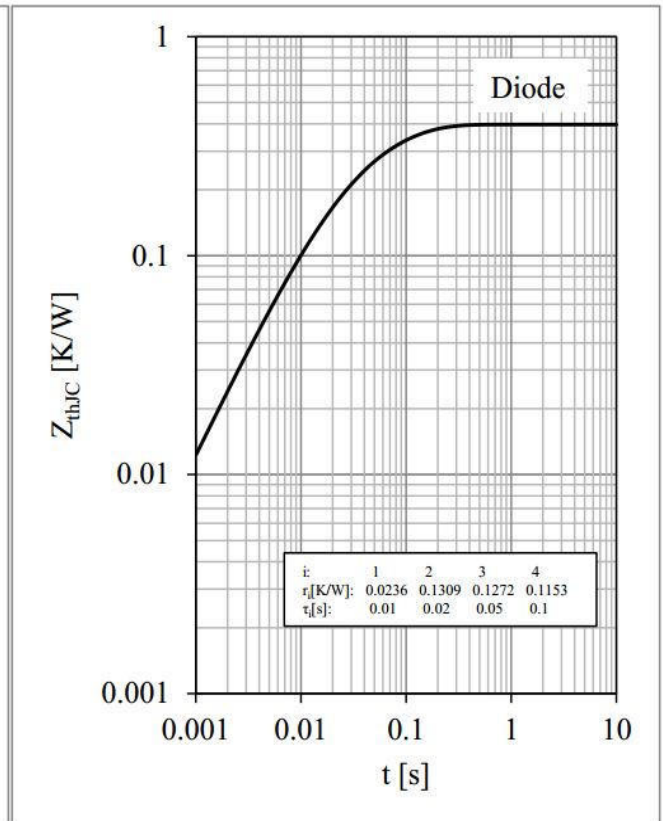


Fig 10. Diode Transient Thermal Impedance

Outline:

