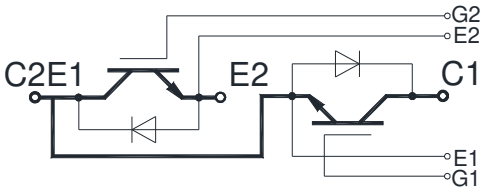
www.scomes.com

# MRI225.065

## 2 in 1 IGBT Modules

### Electrical features

- $V_{CES}$=650V
- $I_{C\ nom}$=225A / $I_{CRM}$=450A
- Low switching losses
- Low inductance
- Fast switching and short tail current
- High power and thermal cycling capability




## Typical Applications

- High Frequency Switching Application
- Motor drives
- UPS system

## 4. IGBT, Inverter

### 4.1 Maximum Rated Values

| Parameter | Note or test condition | Symbol | Values | Unit |
|---|---|---|---|---|
| Collector-emitter voltage | $T_{vj}$ = 25°C | $V_{CES}$ | 650 | V |
| Continuous DC collector current | $T_C$ = 90°C, $T_{vj}$ max = 175°C | $I_{C\ nom}$ | 225 | A |
| Repetitive peak collector current | $t_P$ = 1 ms | $I_{CRM}$ | 450 | A |
| Total power dissipation | $T_C$ = 90°C, $T_{vj\ max}$ = 175℃ | $P_{tot}$ | 830 | W |
| Gate-emitter peak voltage | | $V_{GES}$ | +/- 20 | V |

### 4.2 Characteristic value

| Parameter | Note or test condition | | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| Collector-emitter saturation voltage | $I_C$ = 225 A, $V_{GE}$ = 15 V | $T_{vj}$ = 25°C | $V_{CE,sat}$ | | 1.20 | | V |
| | | $T_{vj}$ = 125°C | | | 1.24 | | V |
| | | $T_{vj}$ = 150°C | | | 1.25 | | V |
| Gate threshold voltage | $I_C$ = 1mA, $V_{CE}$ = $V_{GE}$, $T_{vj}$ = 25°C | | $V_{GE,th}$ | 4.4 | 5.4 | 6.4 | V |
| Gate charge | $V_{GE}$ = -15 V ... +15 V | | $Q_G$ | | 2.4 | | µC |
| Internal gate resistor | $T_{vj}$ = 25°C | | $R_{Gint}$ | | 2.25 | | Ω |
| Input capacitance | f=1MHz, $T_{vj}$=25°C, $V_{CE}$=25V, $V_{GE}$=0V | | $C_{ies}$ | | 34 | | nF |
| Reverse transfer capacitance | f=1MHz, $T_{vj}$=25°C, $V_{CE}$=25V, $V_{GE}$=0V | | $C_{res}$ | | 0.47 | | nF |
| Collector-emitter cut-off current | $V_{CE}$ = 650 V, $V_{GE}$ = 0 V, $T_{vj}$ = 25°C | | $I_{CES}$ | | | 1 | mA |
| Gate-emitter leakage current | $V_{CE}$ = 0 V, $V_{GE}$ = 20 V, $T_{vj}$ = 25°C | | $I_{GES}$ | | | 100 | nA |
| Thermal resistance, junction to case | Per IGBT | | $R_{th,JC}$ | | 0.27 | | K/W |

## 5. Diode, Inverter

### 5.1 Maximum Rated Values

| Parameter | Note or test condition | Symbol | Values | Unit |
|---|---|---|---|---|
| Repetitive peak reverse voltage | $T_{vj}$ = 25°C | $V_{RRM}$ | 650 | V |
| Continuous DC forward current | | $I_F$ | 225 | A |
| Repetitive peak forward current | $t_P$ = 1 ms | $I_{FRM}$ | 450 | A |

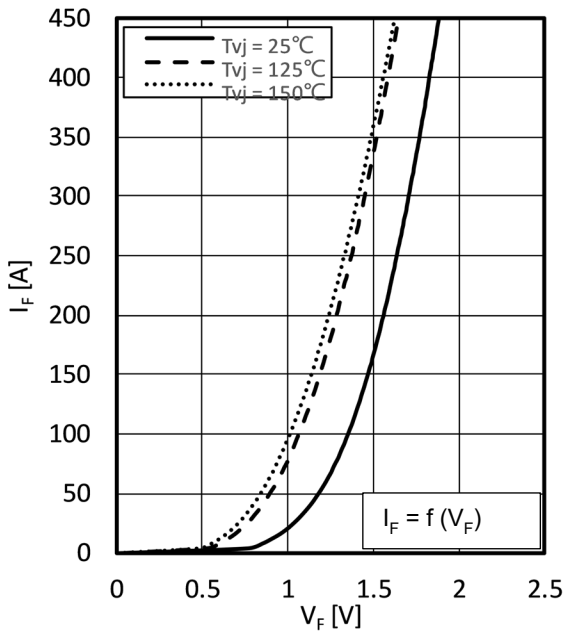
### 5.2 Characteristic value

| Parameter | Note or test condition | | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| Forward voltage | $I_F$ = 225 A, $V_{GE}$ = 0 V | $T_{vj}$ = 25°C | $V_F$ | | 1.60 | | V |
| | | $T_{vj}$ = 125°C | | | 1.33 | | V |
| | | $T_{vj}$ = 150°C | | | 1.29 | | V |
| Thermal resistance, junction to case | Per diode | | $R_{th,JC}$ | | 0.495 | | K/W |

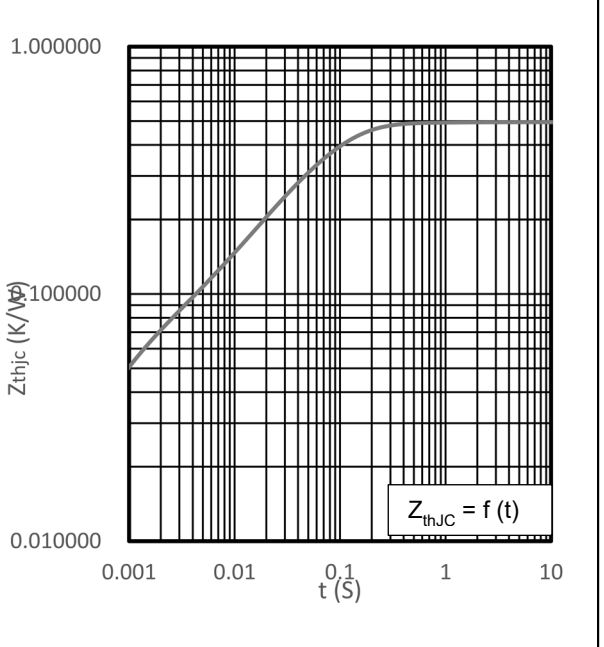
# 6. Module

## 6.1 Characteristic value

| Parameter | Note or test condition | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Isolation Voltage | RMS, f=50HZ,1min | $V_{ISOL}$ | | | 4000 | V |
| Stray inductance module | | $L_{sCE}$ | | 30 | | nH |
| Operation Junction Temperature | | $T_{jop}$ | -40 | | 150 | ˚C |
| Storage Temperature Range | | $T_{stg}$ | -40 | | 125 | ˚C |
| Mounting Torque | Screw M6 | M | 3.0 | | 5.0 | N.m |
| Terminal Connection Torque | Screw M5 | M | 2.5 | | 5.0 | N.m |
| Weight of Module | | G | | 163 | | g |

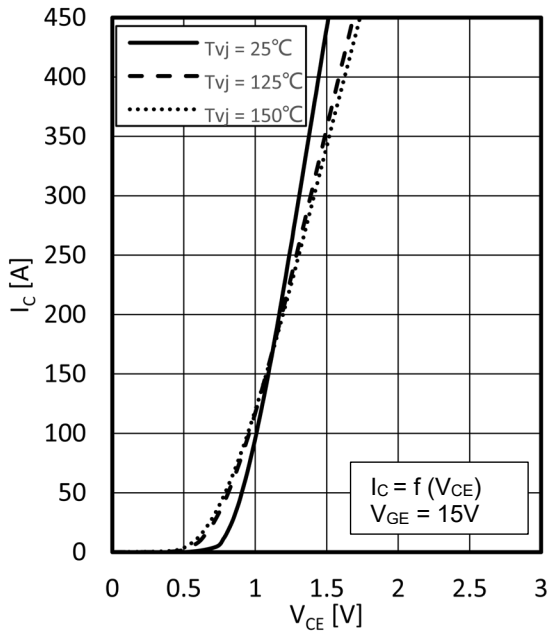



Forward characteristic of Diode (typical)

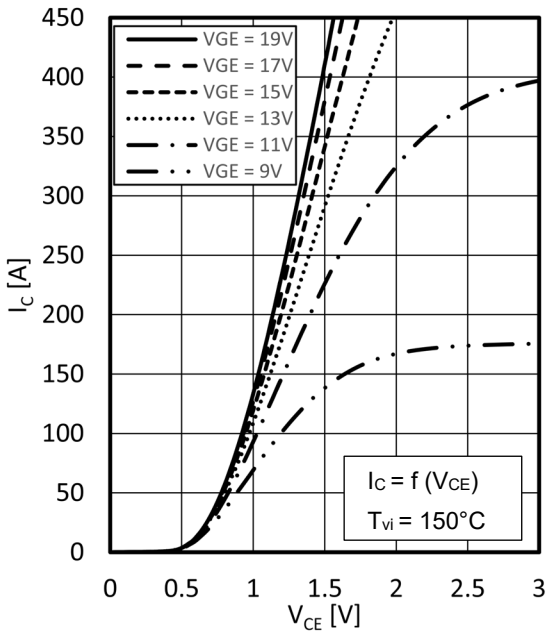



Transient thermal impedance Diode

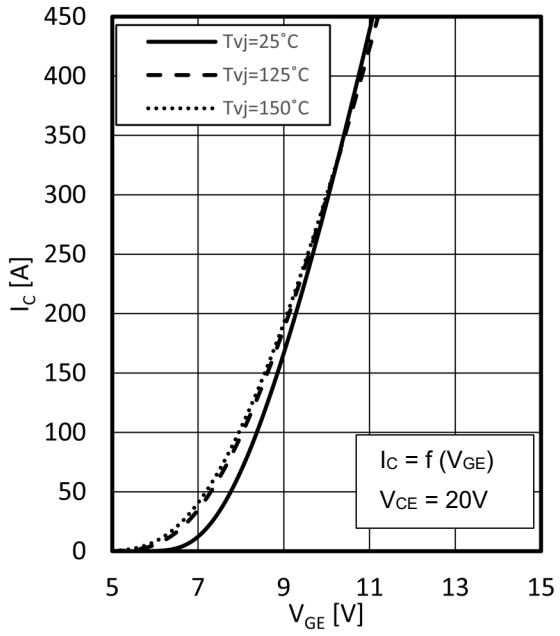
## 7. Characteristics Diagrams



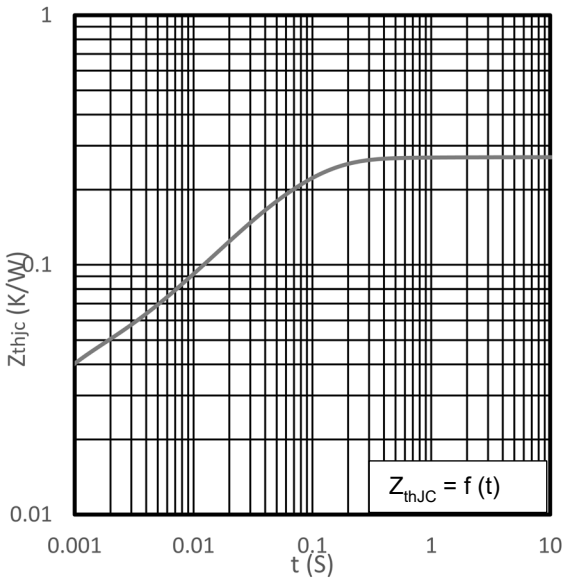

Output characteristic IGBT (typical)




Output characteristic IGBT (typical)



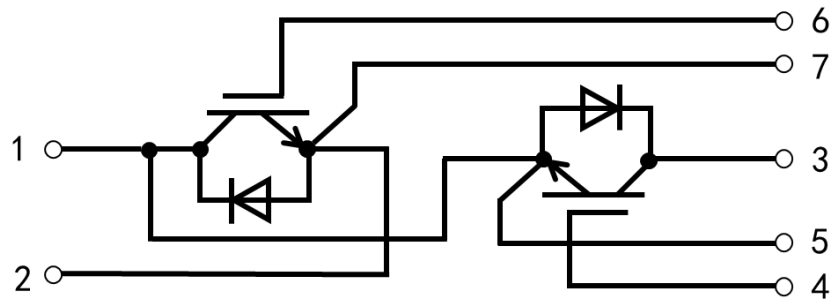

Transfer characteristic IGBT (typical)



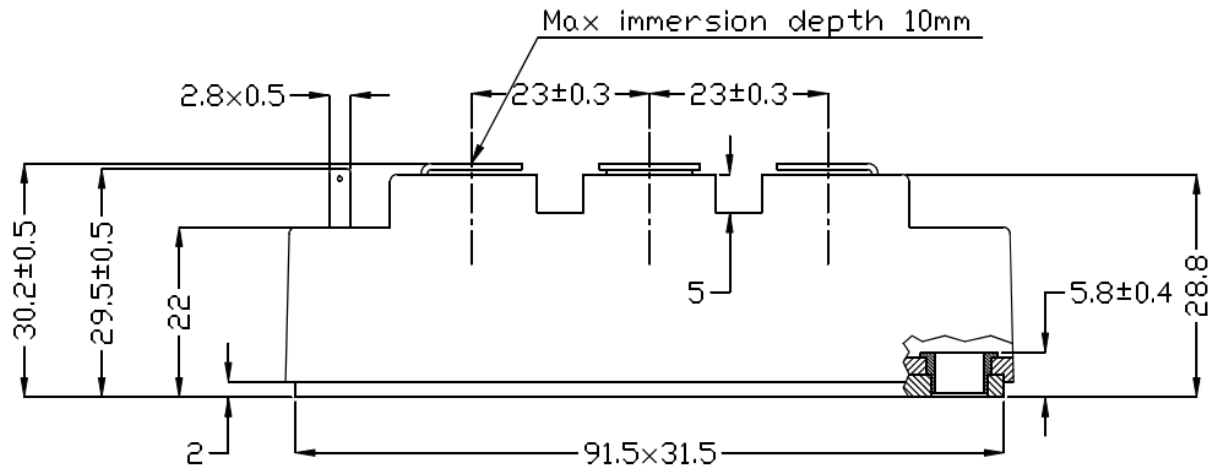

Transient thermal impedance IGBT

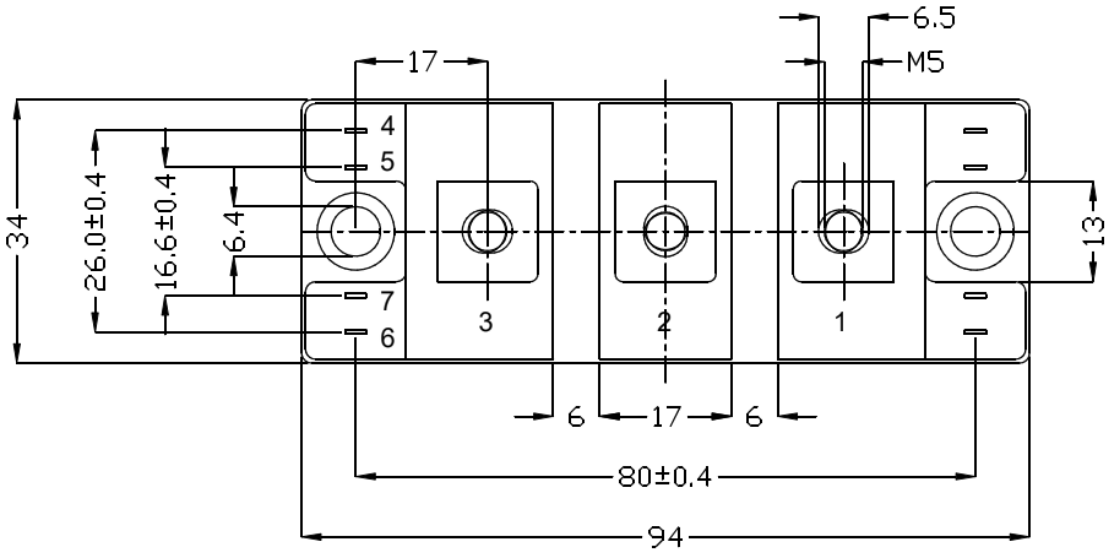
# Outline:

## Circuit Diagram




## Package Outlines








**S.CO.M.E.S. srl** Via Enrico Mattei,6/8 26823 Castiglione d'Adda(LO)-IT
Phone:+39 0377 901243 Fax:+39 0377 900206