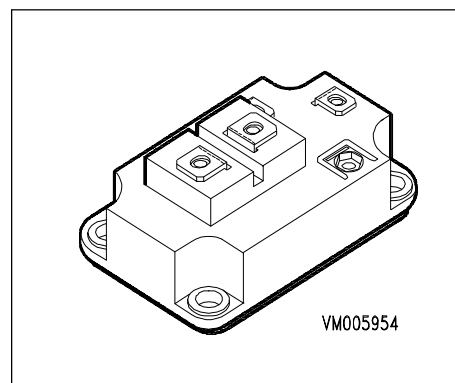


IGBT Power Module

- Single switch
- Including fast free-wheeling diodes
- Package with insulated metal base plate



| Type | V_{CE} | I_C | Package | Ordering Code |
|----------------------|----------|-------|-----------------|------------------|
| BSM 200 GA 120 DN2 | 1200V | 300A | SINGLE SWITCH 1 | C67076-A2006-A70 |
| BSM 200 GA 120 DN2 S | 1200V | 300A | SSW SENSE 1 | C67070-A2006-A70 |

Maximum Ratings

| Parameter | Symbol | Values | Unit |
|--------------------------------------------------------------------------------------------------------------------------|-------------|---------------|------------------|
| Collector-emitter voltage | V_{CE} | 1200 | V |
| Collector-gate voltage $R_{GE} = 20 \text{ k}\Omega$ | V_{CGR} | 1200 | |
| Gate-emitter voltage | V_{GE} | ± 20 | |
| DC collector current $T_C = 25 \text{ }^\circ\text{C}$ $T_C = 80 \text{ }^\circ\text{C}$ | I_C | 300 200 | A |
| Pulsed collector current, $t_p = 1 \text{ ms}$ $T_C = 25 \text{ }^\circ\text{C}$ $T_C = 80 \text{ }^\circ\text{C}$ | I_{Cpuls} | 600 400 | |
| Power dissipation per IGBT $T_C = 25 \text{ }^\circ\text{C}$ | P_{tot} | 1550 | W |
| Chip temperature | T_j | + 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -40 ... + 125 | |
| Thermal resistance, chip case | R_{thJC} | ≤ 0.08 | K/W |
| Diode thermal resistance, chip case | R_{thJCD} | ≤ 0.15 | |
| Insulation test voltage, $t = 1 \text{ min.}$ | V_{is} | 2500 | Vac |
| Creepage distance | - | 20 | mm |
| Clearance | - | 11 | |
| DIN humidity category, DIN 40 040 | - | F | sec |
| IEC climatic category, DIN IEC 68-1 | - | 40 / 125 / 56 | |

Electrical Characteristics, at $T_j = 25\text{ °C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|-----------|--------|--------|------|------|------|
| | | min. | typ. | max. | |

Static Characteristics

| | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|------------|----------|----|
| Gate threshold voltage $V_{GE} = V_{CE}, I_C = 8\text{ mA}$ | $V_{GE(th)}$ | 4.5 | 5.5 | 6.5 | V |
| Collector-emitter saturation voltage $V_{GE} = 15\text{ V}, I_C = 200\text{ A}, T_j = 25\text{ °C}$ $V_{GE} = 15\text{ V}, I_C = 200\text{ A}, T_j = 125\text{ °C}$ | $V_{CE(sat)}$ | - | 2.5 3.1 | 3 3.7 | |
| Zero gate voltage collector current $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_j = 25\text{ °C}$ $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_j = 125\text{ °C}$ | I_{CES} | - | 3 12 | 4 - | mA |
| Gate-emitter leakage current $V_{GE} = 20\text{ V}, V_{CE} = 0\text{ V}$ | I_{GES} | - | - | 200 | |

AC Characteristics

| | | | | | |
|-----------------------------------------------------------------------------------------------|-----------|-----|----|---|----|
| Transconductance $V_{CE} = 20\text{ V}, I_C = 200\text{ A}$ | g_{fs} | 108 | - | - | S |
| Input capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$ | C_{iss} | - | 13 | - | |
| Output capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$ | C_{oss} | - | 2 | - | nF |
| Reverse transfer capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$ | C_{rss} | - | 1 | - | |

Electrical Characteristics, at $T_j = 25\text{ °C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|-----------|--------|--------|------|------|------|
| | | min. | typ. | max. | |

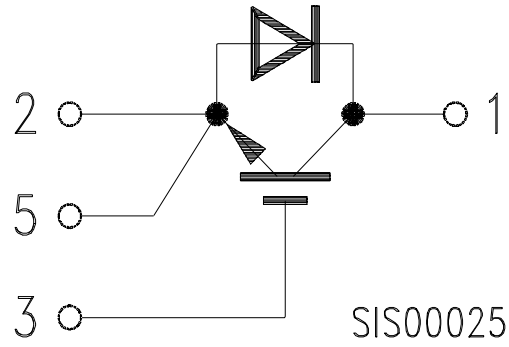
Switching Characteristics, Inductive Load at $T_j = 125\text{ °C}$

| | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|---|-----|-----|----|
| Turn-on delay time $V_{CC} = 600\text{ V}$, $V_{GE} = 15\text{ V}$, $I_C = 200\text{ A}$ $R_{Gon} = 4.7\ \Omega$ | $t_{d(on)}$ | - | 110 | 220 | ns |
| Rise time $V_{CC} = 600\text{ V}$, $V_{GE} = 15\text{ V}$, $I_C = 200\text{ A}$ $R_{Gon} = 4.7\ \Omega$ | t_r | - | 80 | 160 | |
| Turn-off delay time $V_{CC} = 600\text{ V}$, $V_{GE} = -15\text{ V}$, $I_C = 200\text{ A}$ $R_{Goff} = 4.7\ \Omega$ | $t_{d(off)}$ | - | 550 | 800 | |
| Fall time $V_{CC} = 600\text{ V}$, $V_{GE} = -15\text{ V}$, $I_C = 200\text{ A}$ $R_{Goff} = 4.7\ \Omega$ | t_f | - | 80 | 120 | |

Free-Wheel Diode

| | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|-----|-----|---------------|
| Diode forward voltage $I_F = 200\text{ A}$, $V_{GE} = 0\text{ V}$, $T_j = 25\text{ °C}$ $I_F = 200\text{ A}$, $V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$ | V_F | - | 2.3 | 2.8 | V |
| Reverse recovery time $I_F = 200\text{ A}$, $V_R = -600\text{ V}$, $V_{GE} = 0\text{ V}$ $di_F/dt = -2000\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$ | t_{rr} | - | 0.5 | - | |
| Reverse recovery charge $I_F = 200\text{ A}$, $V_R = -600\text{ V}$, $V_{GE} = 0\text{ V}$ $di_F/dt = -2000\text{ A}/\mu\text{s}$ $T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ | Q_{rr} | - | 12 | - | μC |
| | | - | 36 | - | |

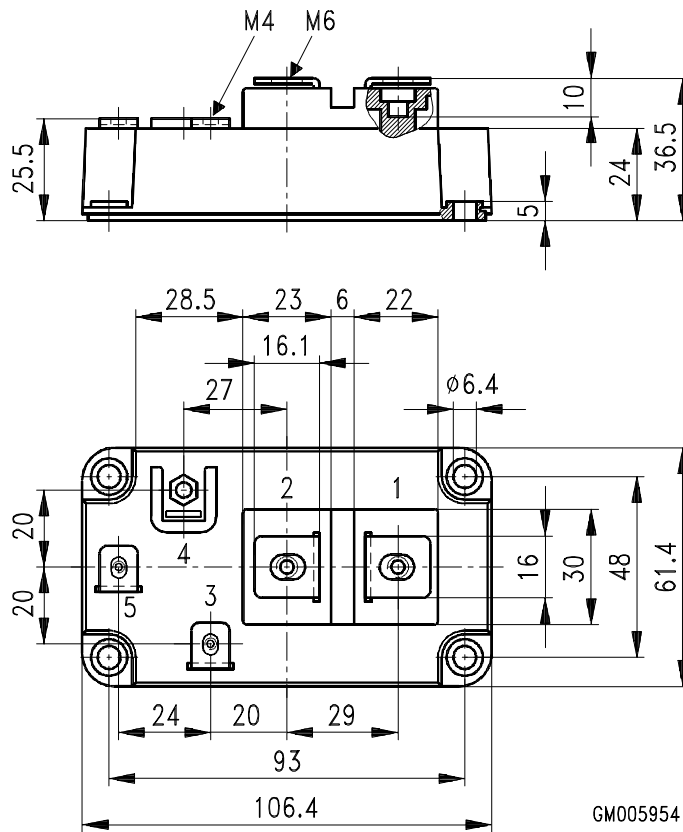
Circuit Diagram



Package Outlines

Dimensions in mm

Weight: 420 g





Anhang C-Serie
Appendix C-series

Gehäuse spezifische Werte
Housing specific values

| | | typ. | |
|----------------------------------------------|-----------|------|----|
| Modulinduktivität stray inductance module | L_{sCE} | 20 | nH |

Gehäusemaße C-Serie
Package outline C-series

