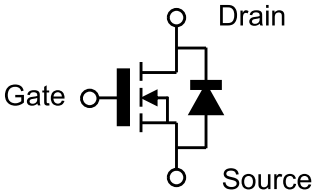
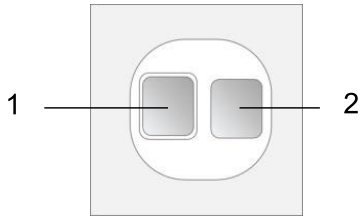
# Silicon Carbide MOSFET

2000V, 25Ω SiC MOSFET – Falcon M2 Series

## Product Information:




**Bare Chip**

## Features

- Optimized $R_{DS(on)}$ with relay applications
- Compatible with standard PVG
- Low leakage current at 1800V
- Low input capacitance
- Low output capacitance
- Low reverse capacitance
- Optimized for isolation detection applications
- RoHS Compliant and Halogen Free

| Terminal | Packaging Type |
|---|---|
| | Bare Die |
| Gate | 1 |
| Drain | Bottom |
| Source | 2 |

## Key Performance Parameters

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ @$T_{j(max)}$ | 2000 | V |
| Recommended Gate-Source Turn-On Voltage | $V_{GS}$ | 15 | |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | 25 | Ω |
| Nominal Drain Current | $I_{D,nom}$ | 40 | mA |
| Input Capacitance | $C_{iss}$ | 25.7 | pF |
| Output Capacitance | $C_{oss}$ | 0.6 | pF |
| Junction & Storage Temperature | $T_j$, $T_{stg}$ | -55 to 175 | °C |

| Part Number | Package | Marking |
|---|---|---|
| FF2025KM2 | Bare die | N/A |
| | | |
| | | |

For further information about comparable products, please contact (www.fastsic.com).

## Maximum Ratings: ($T_j$ = 25°C, unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | 2000 | -- | -- | V | $V_{GS}$=0V, $I_D$=100μA |
| Continous Drain Current* | $I_D$ | -- | 90 | -- | mA | $V_{GS}$=15V, $T_C$=25°C |
| Pulse Drain Current* | $I_{D,\ pulse}$ | -- | | -- | | $t_{pulse}$ *limited by* $T_{j,max}$ |
| Operate Gate Source Voltage | $V_{GS,\ op}$ | -8~0 | -- | 12~15 | V | Recommended operating values |
| Transient Gate Source Voltage | $V_{GS,\ tran.}$ | -10 | -- | 19 | | Transient operating limit (AC $f$ > 1Hz, pulse width < 100ns) |
| Power Dissipation* | $P_{tot}$ | -- | | -- | W | $T_c$=25°C |
| Junction Temperature | $T_j$ | -55 | -- | 175 | °C | -- |
| Storage Temperature | $T_{stg}$ | -55 | -- | 175 | | |
| Soldering Temperature | $T_L$ | -- | -- | 260 | | |
| Junction Temperature | $T_{j,ext}$ | -55 | -- | 200 | °C | t <100 hours |

* With thermal resistance Rth-jc < 100 K/W, reduced with higher thermal resistance.

## Electrical Characteristics:

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| **DC Characteristics (at $T_j$ = 25°C, unless otherwise specified)** | | | | | | |
| Drain-source Breakdown Voltage | $V_{(BR)DSS}$ | 2000 | -- | -- | V | $V_{GS}$=0V, $I_D$=100μA, $T_j$=25°C |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | --<br>-- | 20<br>25 | 50<br>-- | Ω | $V_{GS}$=15V, $I_D$=20mA, $T_j$=25°C<br>$V_{GS}$=12V, $I_D$=20mA, $T_j$=25°C |
| Gate-Source Threshold Voltage | $V_{th}$ | -- | 2.6 | -- | V | $V_{GS}$=$V_{DS}$, $I_D$=100μA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | -- | <1 | | μA | $V_{DS}$=1800V, $V_{GS}$=0V, $T_j$=25°C |
| Gate-Source Leakage Current | $I_{GSS}$ | -- | -- | 100 | nA | $V_{GS}$=15V, $V_{DS}$=0V |
| Body Diode Forward Voltage | $V_{SD}$ | -- | 1.7 | -- | V | $V_{GS}$=0V, $I_S$=1mA, $T_j$=25°C |
| **AC Characteristics (at $T_j$ = 25°C, unless otherwise specified)** | | | | | | |
| Input Capacitance | $C_{iss}$ | -- | 25.7 | -- | pF | $V_{DS}$=1500V, $V_{GS}$=0V, $f$=100kHz, $V_{AC}$=25mV |
| Output Capacitance | $C_{oss}$ | -- | 0.6 | -- | | |
| Reverse Capacitance | $C_{rss}$ | -- | 0.15 | -- | | |

## Revision History

| Date | Revision | Changes |
|---|---|---|
| 2025.06 | Tentative | First issue. |
| | | |
| | | |

## Important Note (Disclaimer)

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Published by:
Fast SiC Semiconductor Inc.
Hsinchu, Taiwan