# MOSFET MODULE

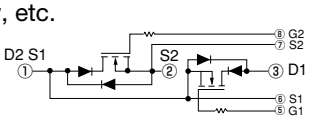
# FCA50CC50

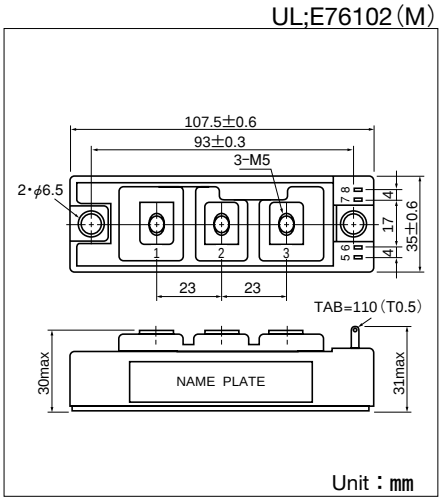
UL;E76102(M)

**FCA50CC50** is a dual power MOSFET module designed for fast swiching applications of high voltage and current. (2 devices are serial connected with a fast recovery diode (trr≦100ns) reverse connected across each MOSFET.) The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D$=50A, $V_{DSS}$=500V
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr}$≦**100ns** fast recovery diode for free wheel.

(**Applications**)
UPS(CVCF), Motor Control, Switching Power Supply, etc.




## ■Maximum Ratings

(Tj=25℃ unless otherwise specified)

| Symbol | Item | | Conditions | Ratings | Unit |
|---|---|---|---|---|---|
| | | | | FCA50CC50 | |
| $V_{DSS}$ | Drain-Source Voltage | | | 500 | V |
| $V_{GSS}$ | Gate-Source Voltage | | | ±20 | V |
| $I_D$ | Drain Current | DC | Duty 55% | 50 | A |
| $I_{DP}$ | | Pulse | | 100 | |
| -$I_D$ | Source Current | | | 50 | A |
| $P_T$ | Total Power Dissipation | | Tc=25℃ | 330 | W |
| Tj | Channel Temperature | | | −40 to +150 | ℃ |
| Tstg | Storage Temperature | | | −40 to +125 | ℃ |
| $V_{ISO}$ | Isolation Voltage (R.M.S.) | | A.C. 1minute | 2500 | V |
| | Mounting Torque | Mounting (M6) | Recommended Value 2.5-3.9 (25-40) | 4.7 (48) | N·m (kgf·cm) |
| | | Terminal (M5) | Recommended Value 1.5-2.5 (15-25) | 2.7 (28) | |
| | Mass | | Typical Value | 240 | g |

## ■Electrical Charactistics

(Tj=25℃ unless otherwise specified)

| Symbol | Item | | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| $I_{GSS}$ | Gate Leakage Current | | $V_{GS}$=±20V, $V_{DS}$=0V | | | ±1.0 | μA |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | | $V_{GS}$=0V, $V_{DS}$=500V | | | 1.0 | mA |
| $V_{(BR)DSS}$ | Darin-Source Breakdown Voltage | | $V_{GS}$=0V, $I_D$=1mA | 500 | | | V |
| $V_{GS(th)}$ | Gate-Source Threshold Voltage | | $V_{DS}$=$V_{GS}$, $I_D$=10mA | 1.0 | | 5.0 | V |
| $R_{DS(on)}$ | Drain-Source On-State Resistance | | $I_D$=25A, $V_{GS}$=15V | | | 140 | mΩ |
| $V_{DS(on)}$ | Drain-Source On-State Voltage | | $I_D$=25A, $V_{GS}$=15V | | | 3.5 | V |
| gfs | Forward Transconductance | | $V_{DS}$=10V, $I_D$=25A | | 30 | | S |
| Ciss | Input Capacitance | | $V_{GS}$=0V, $V_{DS}$=25V, f=1.0MHz | | | 10000 | pF |
| Coss | Output Capacitance | | $V_{GS}$=0V, $V_{DS}$=25V, f=1.0MHz | | | 1900 | pF |
| Crss | Reverse Transfer Capacitance | | $V_{GS}$=0V, $V_{DS}$=25V, f=1.0MHz | | | 750 | pF |
| td(on) | Switching Time | Turn-on Delay Time | $V_{DD}$=300V, $V_{GS}$=15V<br>$I_D$=25A, $R_G$=5Ω | | 60 | | ns |
| tr | | Rise Time | | | 100 | | |
| td(off) | | Turn-off Delay Time | | | 520 | | |
| tf | | Fall Time | | | 140 | | |
| $V_{SDS}$ | Diode Forward Voltage | | $I_S$=25A, $V_{GS}$=0V | | | 2.0 | V |
| trr | Reverse Recovery Time | | $I_S$=25A, $V_{GS}$=−5V, di/dt=100A/μs | | 80 | 100 | ns |
| Rth(j-c) | Thermal Resistance | | MOSFET | | | 0.38 | ℃/W |
| | | | Diode | | | 1.67 | |



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