# MCA002

## MECHANICAL DATA
Dimensions in mm (inches)
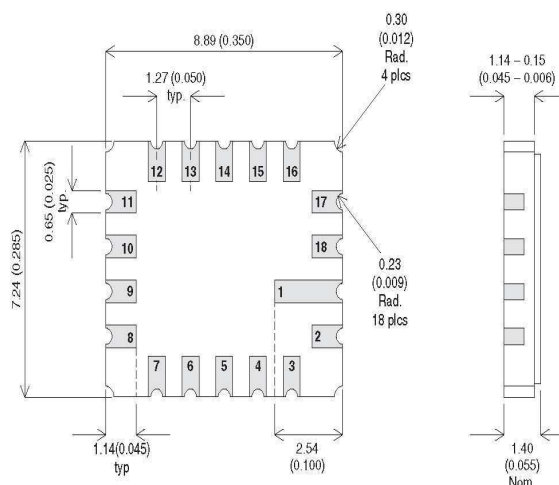


**N-CHANNEL DEVICES : 1-4**
**P-CHANNEL DEVICES : 5-8**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | = D3 | 6 | = D5 | 10 | = D7 | 15 | = D1 |
| 2 | = G3 | 7 | = G5 | 11 | = G7 | 16 | = G1 |
| 3 | = G4 | 8 | = G6 | 12 | = G8 | 17 | = G2 |
| 4 | = D4 | 9 | = D6 | 13 | = D8 | 18 | = D2 |

Pin 14 = N-Channel Common Source (devices 1,2,3,4)
Pin 15 = P-Channel Common Source (devices 5,6,7,8)

## MULTI CHIP ARRAY
## 4 COMMON SOURCE
## P-CHANNEL MOSFETS
## AND 4 COMMON SOURCE
## N-CHANNEL FETS

## DESCRIPTION
The MCA002 is a ceramic surface mount MOSFET array designed for high reliability applications.

It contains 4 common source P Channel and 4 N Channel common source MOSFETS.

## FEATURES
- Ceramic Surface Mount Package
- Screening Options Available

**N-Channel Devices**
- $V_{(BR)DSS} = 60V$
- $I_D = 200mA$
- $RDS_{(ON)MAX} = 5\Omega$
- Common Source Connection

**P-Channel Devices**
- $V_{(BR)DSS} = -60V$
- $I_D = 200mA$
- $RDS_{(ON)MAX} = 10\Omega$
- Common Source Connection

## ABSOLUTE MAXIMUM RATINGS

| TCASE = 25°C unless otherwise stated | | N Channel | P Channel |
|---|---|---|---|
| $V_{DS}$ | Drain Source Voltage | +60V | -60V |
| $V_{GS}$ | Gate Source Voltage | ±30V | ±30V |
| $I_D$ | Continuous Drain Current (per device) (25°C) | 200mA | 200mA |
| $P_D$ | Power Dissipation (per device) | 0.5W | 0.5W |
| $R_{\Theta j-c}$ | Thermal Resistance (junction to case) | 30°C/W | |
| $R_{\Theta j-a}$ | Thermal Resistance (junction to ambient) | 60°C/W | |
| $T_j, T_{stg}$ | Storage, Junction temperature | -55 to +150°C | |

## ELECTRICAL CHARACTERISTICS

### N-Channel (per device) ($T_{case}$ = 25°C unless otherwise stated)

| Parameter | | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| **Static Electrical Ratings** | | | | | | | |
| $V_{(BR)DSS}$ | Drain – Source Breakdown Voltage | $V_{GS} = 0V$ | $I_D = 100\mu A$ | 60 | 100 | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS} = V_{GS}$ | $I_D = 1.0mA$ | 0.8 | 1.6 | 2.5 | V |
| $I_{GSS}$ | Gate Body Leakage | $V_{DS} = 0V$ | $V_{GS} = \pm20V$ | | ±1.0 | ±100 | nA |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS} = 48V$ $V_{GS} = 0V$ | | | 0.02 | 1.0 | μA |
| | | | $T_J = 125°C$ | | 1.0 | 100 | |
| $I_{D(ON)}$ | On-State Drain Current[2] | $V_{DS} = 10V$ | $V_{GS} = 10V$ | 750 | 1000 | | mA |
| $R_{DS(ON)}$ | Drain – SourceOn – Resistance[1] | $V_{GS} = 4.5V$ | $I_D = 75mA$ | | 4 | 7.5 | Ω |
| | | $V_{GS} = 10V$ | $I_D = 0.2A$ | | 2.5 | 5.0 | |
| | | | $T_J = 125°C$ | | 4.4 | | |
| $g_{fs}$ | Forward Transconductance[1] | $V_{DS} = 10V$ | $I_D = 0.5A$ | 100 | 230 | | mS |
| $g_{os}$ | Common Source Output Conductance[1] | $V_{DS} = 5V$ | $I_D = 50mA$ | | 500 | | μS |
| **Dynamic Characteristics** | | | | | | | |
| $C_{iss}$ | Input Capacitance (f = 1Mhz) | $V_{DS} = 25V$ | $V_{GS} = 0 V$ | | 35 | | pF |
| $C_{oss}$ | Output Capacitance (f = 1Mhz) | $V_{DS} = 25V$ | $V_{GS} = 0 V$ | | 13 | | pF |
| $C_{rss}$ | Reverse Transfer Capacitance (f = 1Mhz) | $V_{DS} = 25V$ | $V_{GS} = 0 V$ | | 4 | | pF |
| **Switching Characteristics** | | | | | | | |
| $t_{d(on)}$ | Turn-On Time | VDD = 25V RL = 50Ω ID = 0.5A | VGEN = 10V RGEN = 25Ω | | 7 | | nS |
| $t_{d(off)}$ | Turn-Off Time | | | | 7 | | nS |

1    Pulsed : pulse duration = 300μs, duty cycle ≤ 2%
2    Pulse width limited by maximum junction temperature

## ELECTRICAL CHARACTERISTICS

**P-Channel (per device)** ($T_{case}$ = 25°C unless otherwise stated)

| Parameter | | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| **Static Electrical Ratings** | | | | | | | |
| $V_{(BR)DSS}$ | Drain – Source Breakdown Voltage | $V_{GS}$ = 0V | $I_D$ = -10µA | -60 | -75 | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$ = $V_{GS}$ | $I_D$ = -1.0mA | -1.0 | -1.7 | -2.4 | V |
| $I_{GSS}$ | Gate Body Leakage | $V_{DS}$ = 0V | $V_{GS}$ = ±20V | | ±1.0 | ±100 | nA |
| | | | $T_J$ = 125°C | | ±5.0 | ±500 | |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$ = -48V $V_{GS}$ = 0V | | | -0.02 | -1.0 | µA |
| | | | $T_J$ = 125°C | | -0.2 | -100 | |
| $I_{D(ON)}$ | On-State Drain Current[1] | $V_{DS}$ = -10V | $V_{GS}$ = -4.5V | -50 | -80 | | mA |
| $R_{DS(ON)}$ | Drain – SourceOn – Resistance[1] | $V_{GS}$ = -4.5V | $I_D$ = -25mA | | 11 | 25 | Ω |
| | | $V_{GS}$ = -4.5V | $I_D$ = -0.1A | | 8 | 25 | |
| | | $V_{GS}$ = -10V | $I_D$ = -0.2A | | 6 | 10 | |
| | | | $T_J$ = 125°C | | 12 | | |
| $g_{fs}$ | Forward Transconductance[1] | $V_{DS}$ = -10V | $I_D$ = -0.1A | | 90 | | mS |
| $g_{os}$ | Common Source Output Conductance[1] | $V_{DS}$ = -10V | $I_D$ = -0.1A | | 400 | | µS |
| **Dynamic Characteristics** | | | | | | | |
| $C_{iss}$ | Input Capacitance (f = 1Mhz) | $V_{DS}$ = -25V | $V_{GS}$ = 0 V | | 45 | | pF |
| $C_{oss}$ | Output Capacitance (f = 1Mhz) | $V_{DS}$ = -25V | $V_{GS}$ = 0 V | | 22 | | pF |
| $C_{rss}$ | Reverse Transfer Capacitance (f = 1Mhz) | $V_{DS}$ = -25V | $V_{GS}$ = 0 V | | 3 | | pF |
| **Switching Characteristics** | | | | | | | |
| $t_{d(ON)}$ | Turn-On Delay Time | VDD = -25V, RL = 50Ω, | | | 4 | | nS |
| $t_r$ | | ID = -0.5A, VGEN = -10V | | | 5 | | |
| $t_{d(OFF)}$ | Turn-Off Delay Time | | | | 5 | | |
| $t_r$ | | RGEN = 25Ω | | | 4 | | |

1   Pulsed : pulse duration = 300µs, duty cycle ≤ 2%
2   Pulse width limited by maximum junction temperature