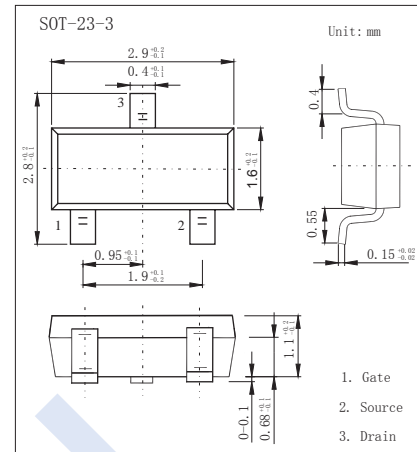
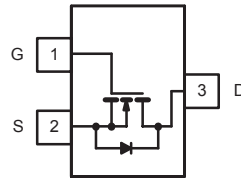


## N-Channel Enhancement MOSFET

### 2KK5003

#### ■ Features

- $V_{DS}=20V$
- $R_{DS(on)}=85m\Omega@V_{GS}=4.5V, I_D=3.6A$
- $R_{DS(on)}=115m\Omega@V_{GS}=2.5V, I_D=3.1A$



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter                                     | Symbol     | Rating           | Unit       |              |
|---|------------|------------------|------------|--------------|
| Drain-Source Voltage                          | $V_{DS}$   | 20               | V          |              |
| Gate-Source Voltage                           | $V_{GS}$   | $\pm 8$          |            |              |
| Continuous Drain Current $T_J=150^\circ C$ *1 | $I_D$      | $T_a=25^\circ C$ | 2.8        | A            |
|   |            | $T_a=70^\circ C$ | 2.2        |              |
| Pulsed Drain Current                          | $I_{DM}$   | 10               |            |              |
| Power Dissipation                             | $P_D$      | $T_a=25^\circ C$ | 1.25       | W            |
|   |            | $T_a=70^\circ C$ | 0.8        |              |
| Thermal Resistance.Junction- to-Ambient       | $R_{thJA}$ | *1               | 100        | $^\circ C/W$ |
|   |            | *2               | 166        |              |
| Junction Temperature                          | $T_J$      | 150              | $^\circ C$ |              |
| Storage Temperature Range                     | $T_{stg}$  | -55 to 150       |            |              |

Notes:

\*1.Surface Mounted on FR4 Board,  $t \leq 5$  sec.

\*2.Surface Mounted on FR4 Board.

## N-Channel Enhancement MOSFET

### 2KK5003

#### ■ Electrical Characteristics Ta = 25°C

| Parameter                                    | Symbol              | Test Conditions   | Min | Typ  | Max   | Unit |
|--|---------------------|---|-----|------|-------|------|
| Drain-Source Breakdown Voltage               | V <sub>DSS</sub>    | I <sub>D</sub> =250 μ A, V <sub>GS</sub> =0V  | 20  |      |       | V    |
| Zero Gate Voltage Drain Current              | I <sub>DSS</sub>    | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V   |     |      | 1     | μ A  |
|  |                     | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, T <sub>J</sub> =55 °C  |     |      | 10    |      |
| Gate-Body Leakage Current                    | I <sub>GSS</sub>    | V <sub>DS</sub> =0V, V <sub>GS</sub> =± 8V  |     |      | ± 100 | nA   |
| Gate Threshold Voltage                       | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μ A  | 0.6 |      | 1.0   | V    |
| Static Drain-Source On-Resistance            | R <sub>Ds(on)</sub> | V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A   |     | 45   | 85    | mΩ   |
|  |                     | V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.1A   |     | 70   | 115   |      |
| Forward Transconductance *                   | g <sub>fs</sub>     | V <sub>DS</sub> =5V, I <sub>D</sub> =3.6A   |     | 8    |       | S    |
| Input Capacitance                            | C <sub>iss</sub>    | V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz   |     | 300  |       | pF   |
| Output Capacitance                           | C <sub>oss</sub>    |   |     | 120  |       |      |
| Reverse Transfer Capacitance                 | C <sub>rss</sub>    |   |     | 80   |       |      |
| Total Gate Charge                            | Q <sub>g</sub>      | V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A   |     | 4    | 10    | nC   |
| Gate-Source Charge                           | Q <sub>gs</sub>     |   |     | 0.65 |       |      |
| Gate-Drain Charge                            | Q <sub>gd</sub>     |   |     | 1.5  |       |      |
| Turn-On DelayTime                            | t <sub>d(on)</sub>  | V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, R <sub>L</sub> =5.5 Ω, R <sub>GEN</sub> =6 Ω<br>I <sub>D</sub> =3.6A |     | 7    | 15    | ns   |
| Turn-On Rise Time                            | t <sub>r</sub>      |   |     | 55   | 80    |      |
| Turn-Off DelayTime                           | t <sub>d(off)</sub> |   |     | 16   | 60    |      |
| Turn-Off Fall Time                           | t <sub>f</sub>      |   |     | 10   | 25    |      |
| Continuous Source Current (Diode Conduction) | I <sub>S</sub>      |   |     | 1.6  |       | A    |
| Diode Forward Voltage                        | V <sub>SD</sub>     | I <sub>S</sub> =1.6 A, V <sub>GS</sub> =0V  |     | 0.76 | 1.2   | V    |

\* Pulse test: PW ≤ 300us duty cycle ≤ 2%

#### ■ Marking

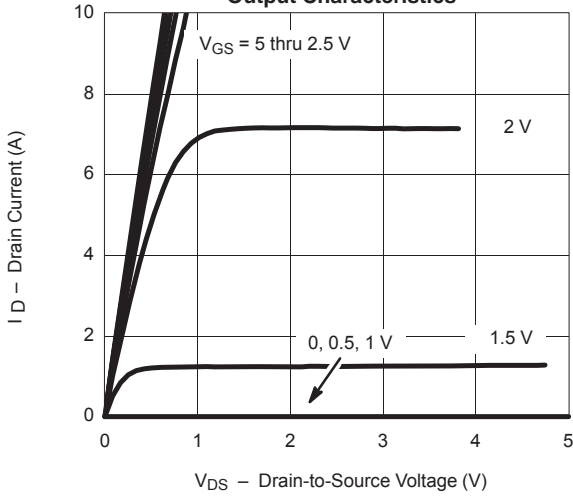
|         |     |
|---------|-----|
| Marking | KA3 |
|---------|-----|

# N-Channel Enhancement MOSFET

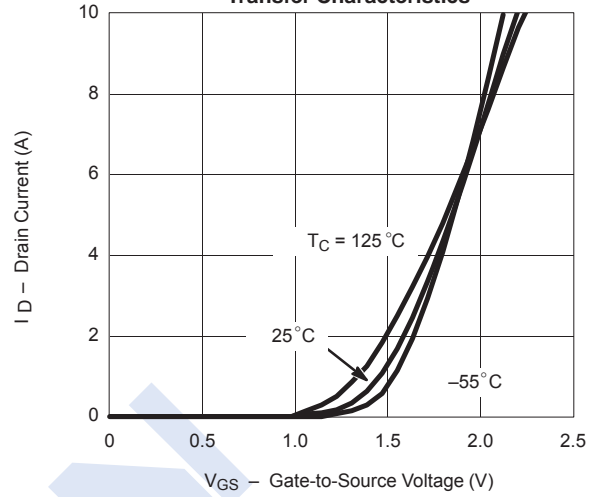
## 2KK5003

■ Typical Characteristics

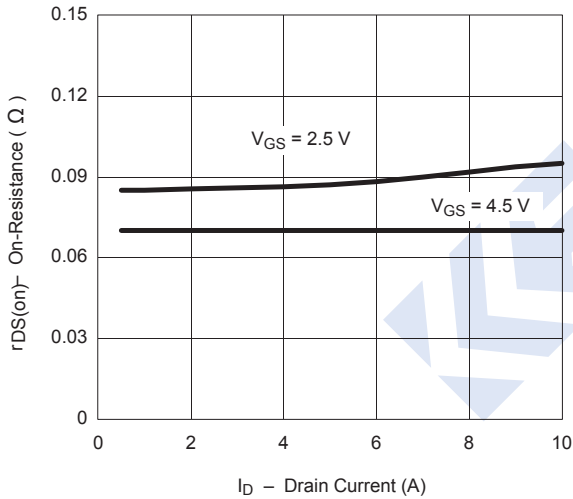
Output Characteristics



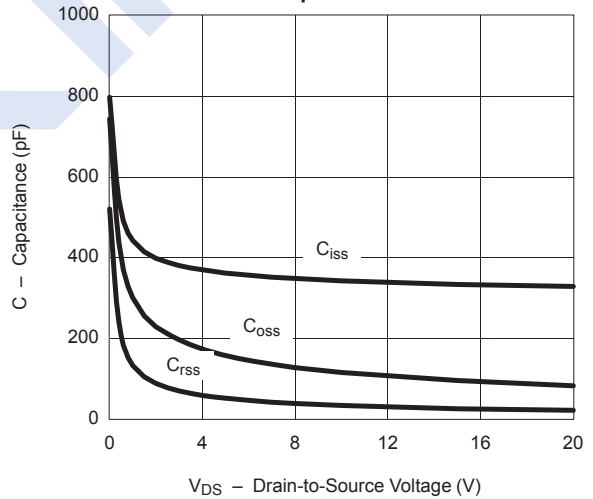
Transfer Characteristics



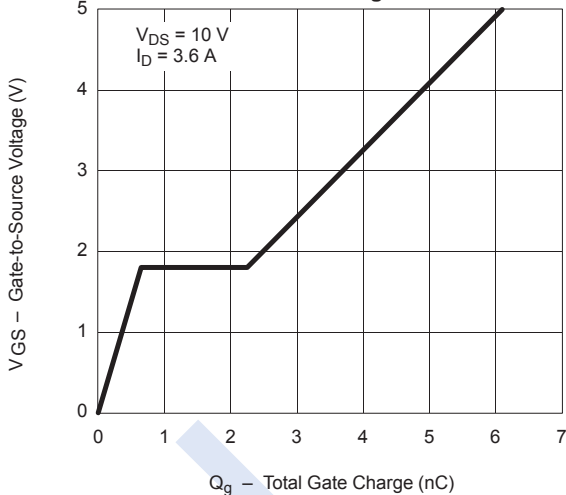
On-Resistance vs. Drain Current



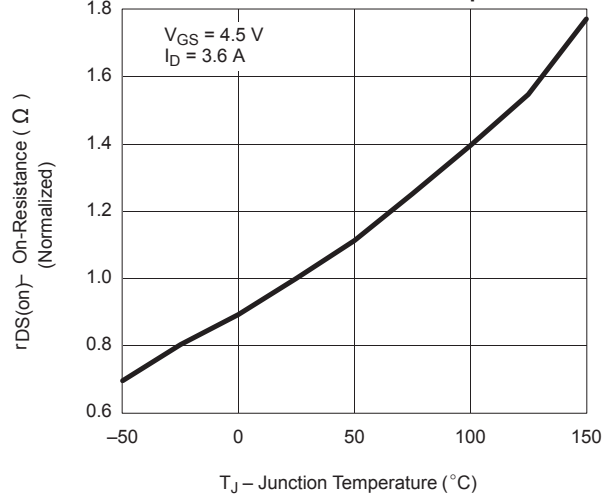
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature



# N-Channel Enhancement MOSFET

## 2KK5003

### Typical Characteristics

