

# GR3404

## N-CHANNEL MOSFET

|         |         |         |            |
|---------|---------|---------|------------|
| VOLTAGE | 30 Volt | CURRENT | 5.8 Ampere |
|---------|---------|---------|------------|

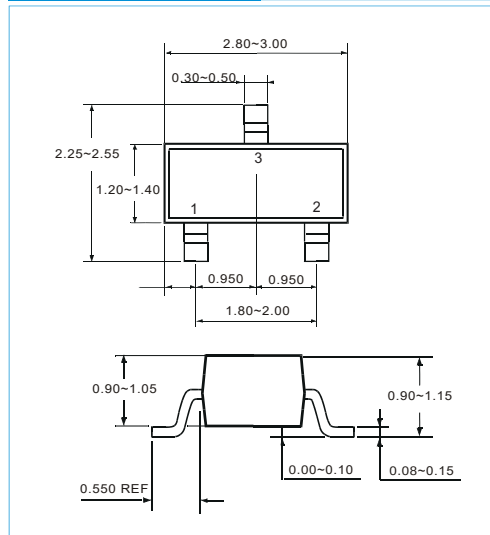
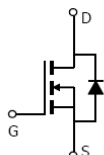
**SOT-23** Unit:mm

### FEATURES

- High dense cell design for extremely low  $R_{ds(on)}$
- Exceptional on-resistance and maximum DC current capability
- Lead free in compliance with EU RoHS

### MECHANICAL DATA

- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter                                   | Symbol          | Value    | Unit               |
|---------------------------------------------|-----------------|----------|--------------------|
| Drain-Source Voltage                        | $V_{DS}$        | 30       | V                  |
| Gate-Source Voltage                         | $V_{GS}$        | $\pm 20$ | V                  |
| Continuous Drain Current                    | $I_D$           | 5.8      | A                  |
| Pulsed drain current *                      | $I_{DM}$        | 30       | A                  |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357      | $^\circ\text{C/W}$ |
| Junction Temperature                        | $T_J$           | 150      | $^\circ\text{C}$   |
| Storage Temperature                         | $T_{stg}$       | -55~+150 | $^\circ\text{C}$   |

\* Repetitive rating : Pulse width limited by maximum junction temperature.

## GR3404

### ELECTRICAL CHARACTERISTICS( $T_A = 25^\circ\text{C}$ unless otherwise noted)

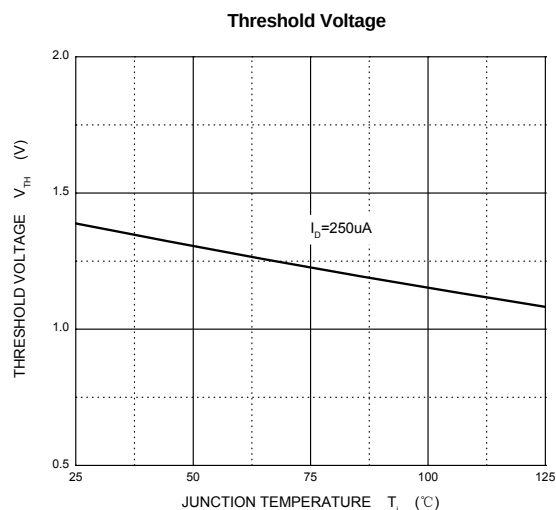
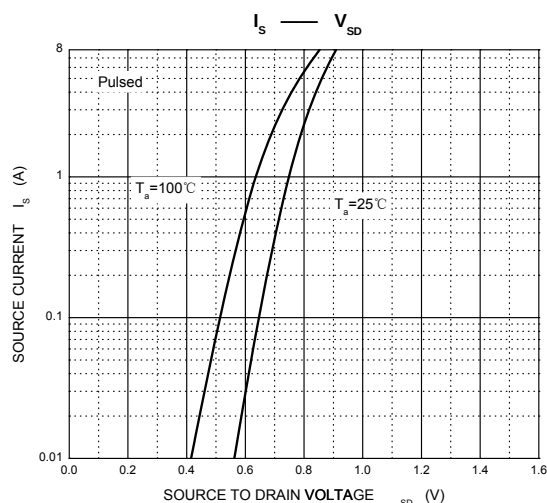
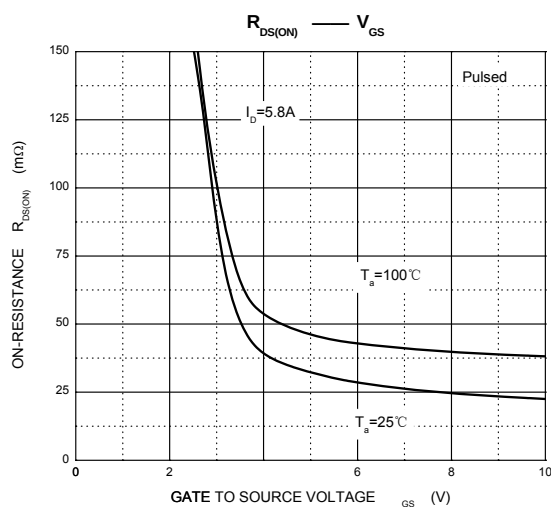
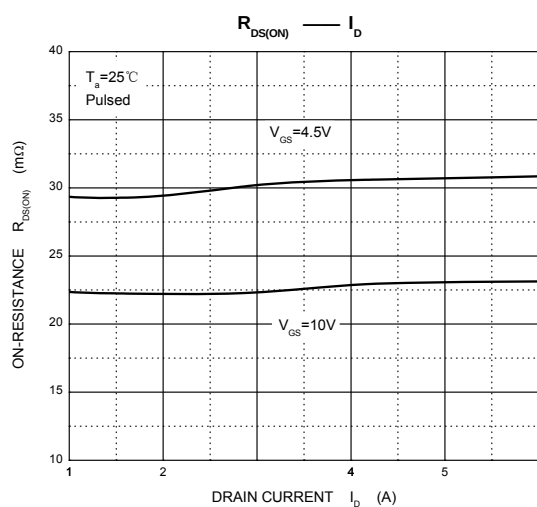
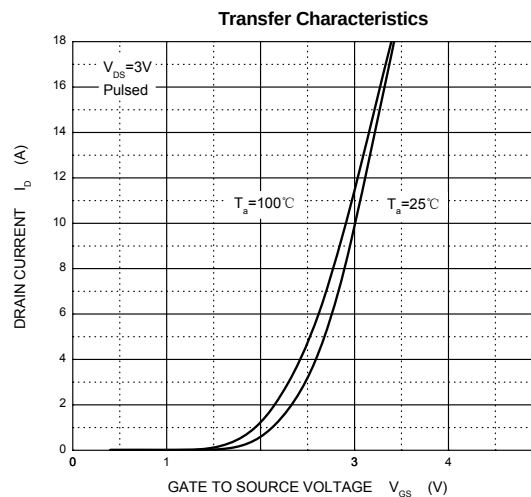
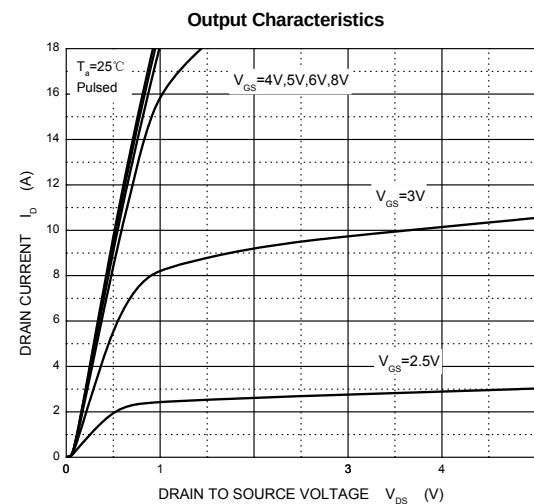
| Parameter                            | Symbol        | Test Condition                                                        | Min | Typ  | Max       | Units      |
|--------------------------------------|---------------|-----------------------------------------------------------------------|-----|------|-----------|------------|
| <b>STATIC PARAMETERS</b>             |               |                                                                       |     |      |           |            |
| Drain-source breakdown voltage       | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                                         | 30  |      |           | V          |
| Zero gate voltage drain current      | $I_{DSS}$     | $V_{DS} = 30V, V_{GS} = 0V$                                           |     |      | 1         | $\mu A$    |
| Gate-body leakage current            | $I_{GSS}$     | $V_{GS} = \pm 20V, V_{DS} = 0V$                                       |     |      | $\pm 100$ | nA         |
| Gate threshold voltage               | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                                     | 1   | 1.4  | 3         | V          |
| Drain-source on-resistance (note 1)  | $R_{DS(on)}$  | $V_{GS} = 10V, I_D = 5.8A$                                            |     | 23   | 30        | m $\Omega$ |
|                                      |               | $V_{GS} = 4.5V, I_D = 4.8A$                                           |     | 31   | 42        | m $\Omega$ |
| Forward tranconductance (note 1)     | $g_{FS}$      | $V_{DS} = 5V, I_D = 5.8A$                                             | 5   |      |           | S          |
| Diode forward voltage                | $V_{SD}$      | $I_S = 1A$                                                            |     |      | 1         | V          |
| <b>DYNAMIC PARAMETERS (note 2)</b>   |               |                                                                       |     |      |           |            |
| Input capacitance                    | $C_{iss}$     | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$                                 |     |      | 820       | pF         |
| Output capacitance                   | $C_{oss}$     |                                                                       |     | 118  |           | pF         |
| Reverse transfer capacitance         | $C_{rss}$     |                                                                       |     | 85   |           | pF         |
| Gate resistance                      | $R_g$         | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$                                  |     |      | 1.5       | $\Omega$   |
| <b>SWITCHING PARAMETERS (note 2)</b> |               |                                                                       |     |      |           |            |
| Turn-on delay time                   | $t_{d(on)}$   | $V_{GS} = 10V, V_{DS} = 15V,$<br>$R_L = 2.6\Omega, R_{GEN} = 3\Omega$ |     |      | 6.5       | ns         |
| Turn-on rise time                    | $t_r$         |                                                                       |     | 3.1  |           | ns         |
| Turn-off delay time                  | $t_{d(off)}$  |                                                                       |     | 15.1 |           | ns         |
| Turn-off fall time                   | $t_f$         |                                                                       |     | 2.7  |           | ns         |

#### Notes:

1. Pulse test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
2. These parameters have no way to verify.

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## Typical Characteristics

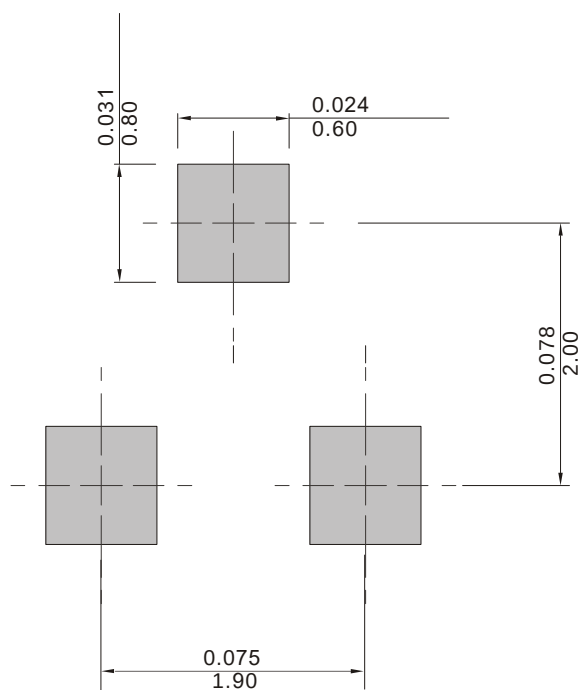


# GR3404

## MOUNTING PAD LAYOUT

SOT-23

Unit:Inch(mm)



## ORDER INFORMATION

- Packing information

| Part Number | Case   | Reel Size | QUANTITY |
|-------------|--------|-----------|----------|
| GR3404      | SOT-23 | 7 Inch    | 3000     |