

## N-Channel Enhancement Mode MOSFET

### Features

- $V_{DS}=30V, I_D=4A$
- $R_{DS(ON)}=55m\Omega$  (TYP.)  $V_{GS}=10V$
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- 

### SOT23-3L



### Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversiong

### Ordering Information

| Device   | package  | Device Marking | Package Qty. |
|----------|----------|----------------|--------------|
| AT3402GD | SOT-23   | X0/R0          | 3000/PCS     |
| AT3402GD | SOT23-3L | A0/R0          | 3000/PCS     |

### Absolute Maximum Ratings ( $T_C=25^{\circ}C$ , unless otherwise noted)

| Parameter                              | Symbol          | Value    | Unit          |
|----------------------------------------|-----------------|----------|---------------|
| Drain-Source Voltage                   | $V_{DS}$        | 30       | V             |
| Gate-Source Voltage                    | $V_{GS}$        | $\pm 12$ | V             |
| Continuous Drain Current               | $I_D$           | 4        | A             |
| Pulesd Drain Current                   | $I_{DM}$        | 15       | A             |
| Maximum Power Dissipation              | $P_D$           | 0.35     | W             |
| Operating,Storage Temperature Range    | $T_J, T_{STG}$  | -55~150  | $^{\circ}C$   |
| Thermal Resistance,Junction-to-Ambient | $R_{\theta JA}$ | 357      | $^{\circ}C/W$ |

## Electrical Characteristics

| Parameter                        | Symbol       | Test Conditions               | Min. | Typ. | Max.      | Unit       |
|----------------------------------|--------------|-------------------------------|------|------|-----------|------------|
| Drain-Source Breakdown Voltage   | $BV_{DSS}$   | $V_{GS}=0V, I_D=250\mu A$     | 30   | -    | -         | V          |
| Zero Gate Voltage Drain Current  | $I_{DSS}$    | $V_{DS}=24V, V_{GS}=0V$       | -    | -    | 1         | $\mu A$    |
| Gate -Source Leakage Current     | $I_{GSS}$    | $V_{GS}=\pm 12V, V_{DS}=0V$   | -    | -    | $\pm 100$ | nA         |
| Gate Threshold Voltage           | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 0.6  | 0.85 | 1.4       | V          |
| Drain-Source On-stage Resistance | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=5.8A$        | -    | 35   | 55        | m $\Omega$ |
|                                  |              | $V_{GS}=4.5V, I_D=5A$         | -    | 39   | 70        |            |
| Body Diode Forward Voltage       | $V_{SD}$     | $V_{GS}=0V, I_{SD}=1A$        | -    | -    | 1         | V          |

## Dynamic Characteristics

| Parameter                    | Symbol       | Test Conditions | Min. | Typ. | Max. | Unit     |
|------------------------------|--------------|-----------------|------|------|------|----------|
| Input capacitance            | $C_{iss}$    | $V_{DS}=15V$    | -    | 390  | -    | pF       |
| Output capacitance           | $C_{oss}$    | $V_{GS}=0V$     | -    | 54.5 | -    |          |
| Reverse transfer capacitance | $C_{rss}$    | $f=1MHz$        | -    | 41   | -    |          |
| Gate Resistance              | $R_g$        | $f=1MHz$        | -    | 3    | -    | $\Omega$ |
| Total Gate Charge            | $Q_g$        | $V_{DS}=15V$    | -    | 4.34 | -    | nC       |
| Gate Source Charge           | $Q_{gs}$     | $V_{GS}=4.5V$   | -    | 0.6  | -    |          |
| Gate Drain Charge            | $Q_{gd}$     | $I_D=5.8A$      | -    | 1.38 | -    |          |
| Turn-on delay Time           | $t_{d(on)}$  | $V_{GS}=10V$    | -    | 3.3  | -    | ns       |
| Rise time                    | $t_r$        | $V_{DS}=15V$    | -    | 1    | -    |          |
| Turn-off delay Time          | $t_{d(off)}$ | $R_L=2.7\Omega$ | -    | 21.7 | -    |          |
| Fall time                    | $t_f$        | $R_G=3\Omega$   | -    | 2.1  | -    |          |

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