

SOT-23-6L Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=40V$
- $I_D=8A$
- $R_{DS(on)}@V_{GS}=10V < 25m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 30m\Omega$
- Advanced Trench Process Technology
- Low Threshold Voltage
- Fast Switching Speed

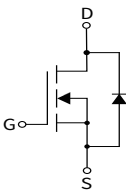
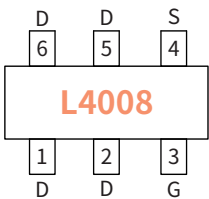
Applications

- Load Switch for Protable Device
- Voltage contronlld small signal switch

Mechanical Data

- Case: SOT-23-6L  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Ordering Information

| PACKAGE   | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|-----------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23-6L | R1           | 0.0422         | 3000      | 30000    | 120000      | 7"            |

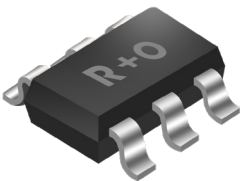
Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                                             | SYMBOL          | UNIT            | VALUE     |
|-------------------------------------------------------|-----------------|-----------------|-----------|
| Drain-source Voltage                                  | $V_{DS}$        | V               | 40        |
| Gate-source Voltage                                   | $V_{GS}$        | V               | $\pm 20$  |
| Drain Current                                         | $I_D$           | A               | 8         |
| Pulsed Drain Current                                  | $I_{DM}$        | A               | 32        |
| Total Power Dissipation @ $T_A=25^{\circ}C$           | $P_D$           | W               | 1.38      |
| Thermal Resistance Junction-to-Ambient @ Steady State | $R_{\theta JA}$ | $^{\circ}C / W$ | 90        |
| Junction and Storage Temperature Range                | $T_J, T_{STG}$  | $^{\circ}C$     | -55 ~+150 |

Drain-source Voltage  
40 V

Drain Current  
8 Ampere

SOT-23-6L



● Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

| PARAMETER                         | SYMBOL       | Condition                     | UNIT       | Min | Typ  | Max       |
|-----------------------------------|--------------|-------------------------------|------------|-----|------|-----------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $V_{GS}=0V, I_D=250\mu A$     | V          | 40  | —    | —         |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=40V, V_{GS}=0V$       | $\mu A$    | —   | —    | 1.0       |
| Gate-Body Leakage Current         | $I_{GSS}$    | $V_{GS}=\pm 20V, V_{DS}=0V$   | nA         | —   | —    | $\pm 100$ |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | V          | 1.0 | 1.65 | 2.5       |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=5A$          | m $\Omega$ | —   | 18   | 25        |
|                                   |              | $V_{GS}=4.5V, I_D=3A$         |            | —   | 26   | 30        |

● Dynamic Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER                    | SYMBOL    | Condition                                 | UNIT | Min | Typ  | Max |
|------------------------------|-----------|-------------------------------------------|------|-----|------|-----|
| Input Capacitance            | $C_{iss}$ | $V_{DS}=15V$<br>$V_{GS}=0V$<br>$f=1.0MHz$ | pF   | —   | 1013 | —   |
| Output Capacitance           | $C_{oss}$ |                                           |      | —   | 107  | —   |
| Reverse Transfer Capacitance | $C_{rss}$ |                                           |      | —   | 76   | —   |

● Switching Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER           | SYMBOL       | Condition                                               | UNIT | Min | Typ  | Max |
|---------------------|--------------|---------------------------------------------------------|------|-----|------|-----|
| Total Gate Charge   | $Q_g$        | $V_{GS}=4.5V$<br>$V_{DS}=32V$<br>$I_D=7A$               | nC   | —   | 9.8  | —   |
| Gate-Source Charge  | $Q_{gs}$     |                                                         |      | —   | 2.8  | —   |
| Gate-Drain Charge   | $Q_{gd}$     |                                                         |      | —   | 3.9  | —   |
| Turn-on Delay Time  | $t_{D(on)}$  | $V_{GS}=10V, V_{DD}=20V$<br>$I_D=7A, R_{GEN}=3.3\Omega$ | ns   | —   | 2.8  | —   |
| Turn-on Rise Time   | $t_r$        |                                                         |      | —   | 40.4 | —   |
| Turn-off Delay Time | $t_{D(off)}$ |                                                         |      | —   | 22.8 | —   |
| Turn-off fall Time  | $t_f$        |                                                         |      | —   | 6.4  | —   |

● Drian-Source Diode Characteristics

| PARAMETER                             | SYMBOL   | Condition           | UNIT | Min | Typ | Max |
|---------------------------------------|----------|---------------------|------|-----|-----|-----|
| Diode Forward Voltage                 | $V_{SD}$ | $I_S=1A, V_{GS}=0V$ | V    | —   | —   | 1.0 |
| Maximum Body-Diode Continuous Current | $I_S$    | —                   | A    | —   | —   | 8   |

Package Outline Dimensions (SOT-23-6L)

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| A      | 2.80        | 3.02 | 0.110  | 0.119 |
| B      | 2.65        | 3.00 | 0.104  | 0.118 |
| C      | 0.93        | 0.97 | 0.037  | 0.038 |
| D      | 0.30        | 0.50 | 0.012  | 0.020 |
| E      | 1.50        | 1.70 | 0.059  | 0.067 |
| F      | 0.10        | 0.20 | 0.004  | 0.008 |
| G      | -           | 0.10 | -      | 0.004 |
| H      | 0.30        | 0.60 | 0.012  | 0.024 |
| J      | 1.05        | 1.25 | 0.041  | 0.049 |

Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| J      | 0.65        | 0.75 | 0.026  | 0.03  |
| K      | 0.95        | 1.05 | 0.038  | 0.043 |
| M      | -           | 1.40 | -      | 0.055 |
| N      | -           | 0.35 | -      | 0.014 |
| X      | -           | 0.95 | -      | 0.037 |
| Y      | -           | 2.30 | -      | 0.090 |
| L      | -           | 2.50 | -      | 0.098 |