

## Features

- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

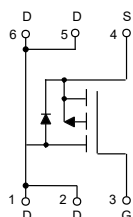
## Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 78°C/W Junction to Ambient

| Parameter                                   | Symbol   | Rating   | Unit |
|---------------------------------------------|----------|----------|------|
| Drain-Source Voltage                        | $V_{DS}$ | -30      | V    |
| Gate-Source Voltage                         | $V_{GS}$ | $\pm 20$ | V    |
| Continuous Drain Current                    | $I_D$    | -4.1     | A    |
| Total Power Dissipation <sup>(Note 1)</sup> | $P_D$    | 1.6      | W    |

Note 1. Device Mounted on FR-4 Substrate PC Board, 2oz Copper, with 1inch<sup>2</sup> Copper Plate.

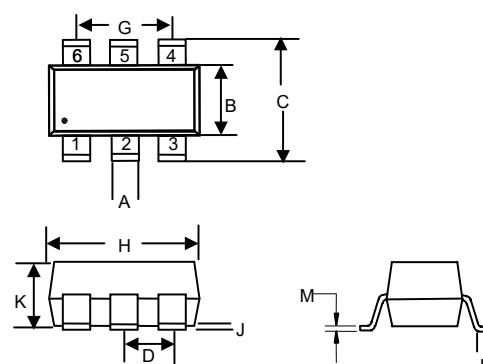
## Internal Structure



Marking: R7 / 3407

# P-CHANNEL MOSFET

## SOT23-6L



| DIMENSIONS |        |       |      |      |      |
|------------|--------|-------|------|------|------|
| DIM        | INCHES |       | MM   |      | NOTE |
|            | MIN    | MAX   | MIN  | MAX  |      |
| A          | 0.012  | 0.020 | 0.30 | 0.50 |      |
| B          | 0.051  | 0.070 | 1.30 | 1.80 |      |
| C          | 0.087  | 0.126 | 2.20 | 3.20 |      |
| D          | 0.037  |       | 0.95 |      | TYP. |
| G          | 0.074  |       | 1.90 |      | TYP. |
| H          | 0.106  | 0.122 | 2.70 | 3.10 |      |
| J          | 0.002  | 0.006 | 0.05 | 0.15 |      |
| K          | 0.030  | 0.051 | 0.75 | 1.30 |      |
| L          | 0.012  | 0.024 | 0.30 | 0.60 |      |
| M          | 0.003  | 0.008 | 0.08 | 0.22 |      |

# Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter                                         | Symbol        | Test Conditions                                                 | Min | Typ  | Max       | Unit       |
|---------------------------------------------------|---------------|-----------------------------------------------------------------|-----|------|-----------|------------|
| <b>Static Characteristics</b>                     |               |                                                                 |     |      |           |            |
| Drain-Source Breakdown Voltage                    | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$                                      | -30 |      |           | V          |
| Gate-Source Leakage Current                       | $I_{GSS}$     | $V_{DS}=0V, V_{GS}=\pm 20V$                                     |     |      | $\pm 100$ | nA         |
| Zero Gate Voltage Drain Current                   | $I_{DSS}$     | $V_{DS}=-24V, V_{GS}=0V$                                        |     |      | -1        | $\mu A$    |
| Gate-Threshold Voltage                            | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D=250\mu A$                                   | -1  | -1.4 | -3        | V          |
| Drain-Source On-Resistance <sup>(Note 2)</sup>    | $R_{DS(on)}$  | $V_{GS}=-10V, I_D=-4.1A$                                        |     |      | 50        | m $\Omega$ |
|                                                   |               | $V_{GS}=-4.5V, I_D=-3A$                                         |     |      | 70        |            |
| Diode Forward Voltage <sup>(Note 2)</sup>         | $V_{SD}$      | $V_{GS}=0V, I_S=-1A$                                            |     |      | -1.2      | V          |
| Forward tranconductance <sup>(Note 2)</sup>       | $g_{FS}$      | $V_{DS}=-5V, I_D=-4A$                                           | 5.5 |      |           | S          |
| <b>Dynamic Characteristics<sup>(Note 3)</sup></b> |               |                                                                 |     |      |           |            |
| Input Capacitance                                 | $C_{iss}$     | $V_{DS}=-15V, V_{GS}=0V, f=1MHz$                                |     | 700  |           | pF         |
| Output Capacitance                                | $C_{oss}$     |                                                                 |     | 120  |           |            |
| Reverse Transfer Capacitance                      | $C_{rss}$     |                                                                 |     | 75   |           |            |
| Turn-On Delay Time                                | $t_{d(on)}$   | $V_{GS}=-10V, V_{DS}=-15V,$<br>$R_L=3.6\Omega, R_{GEN}=3\Omega$ |     | 8.6  |           | ns         |
| Turn-On Rise Time                                 | $t_r$         |                                                                 |     | 5    |           |            |
| Turn-Off Delay Time                               | $t_{d(off)}$  |                                                                 |     | 28.2 |           |            |
| Turn-Off Fall Time                                | $t_f$         |                                                                 |     | 13.5 |           |            |

Note 2. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

3. Guaranteed by Design, Not Subject to Production Testing.

## Curve Characteristics

Fig. 1 - Output Characteristics

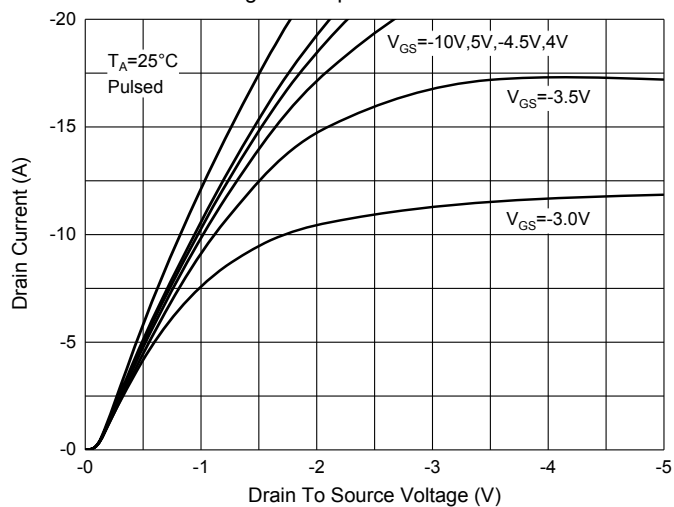


Fig. 2 - Transfer Characteristics

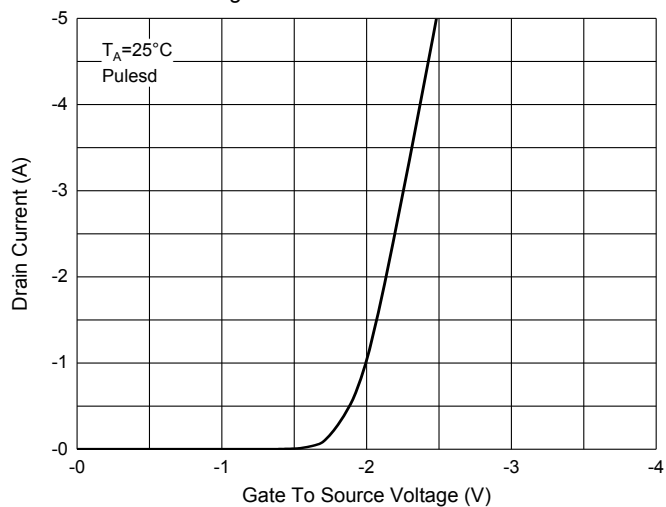


Fig. 3 -  $R_{DS(ON)} - I_D$

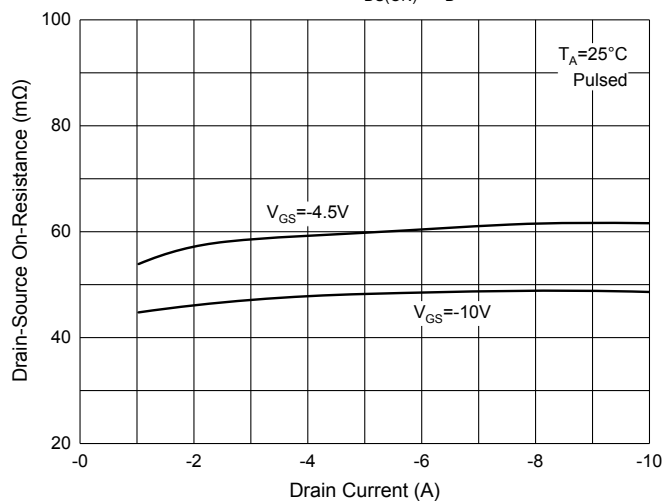


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

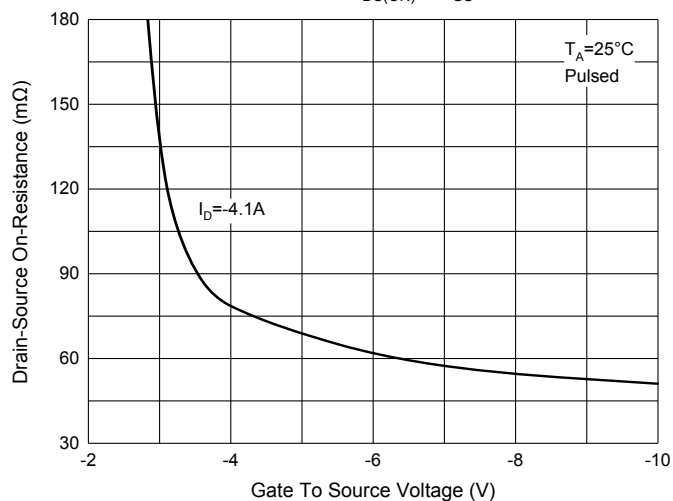
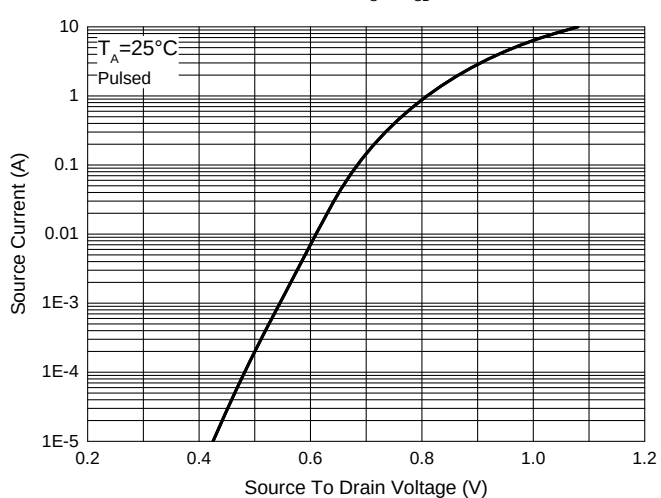


Fig. 5 -  $I_S - V_{SD}$



## Ordering Information

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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