

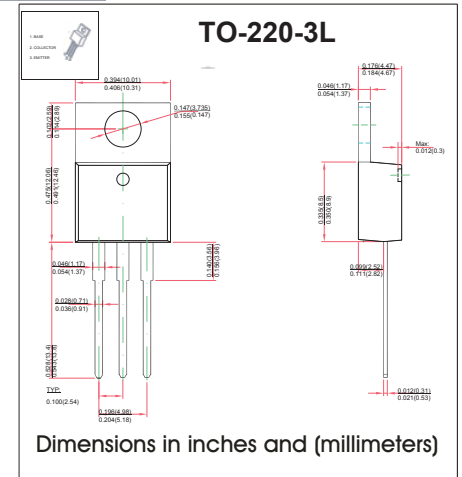
## TO-220-3L Plastic-Encapsulate MOSFETS

### FEATURE

- N-Channel Power MOSFET
- High Current Rating
- Lower RDS(on)
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified

### MECHANICAL DATA

- Case style:TO-220-3L molded plastic
- Mounting position:any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter   | Symbol          | Value      | Unit |
|---|-----------------|------------|------|
| Drain-Source Voltage  | $V_{DS}$        | 600        | V    |
| Gate-Source Voltage   | $V_{GS}$        | $\pm 30$   |      |
| Continuous Drain Current  | $I_D$           | 8          | A    |
| Pulsed Drain Current  | $I_{DM}$        | 32         |      |
| Single Pulsed Avalanche Energy (note1)                                  | $E_{AS}$        | 250        | mJ   |
| Power Dissipation   | $P_D$           | 2          | W    |
| Thermal Resistance from Junction to Ambient                             | $R_{\theta JA}$ | 62.5       | °C/W |
| Operating and Storage Temperature Range                                 | $T_J, T_{STG}$  | -55 ~ +150 | °C   |
| Maximum lead temperature for soldering purposes ,<br>Duration 5 seconds | $T_L$           | 260        |      |

## MOSFET ELECTRICAL CHARACTERISTICS $T_A=25^\circ\text{C}$ unless otherwise specified

| Parameter                                 | Symbol        | Test Condition   | Min | Typ | Max       | Unit     |
|---|---------------|--|-----|-----|-----------|----------|
| <b>Off characteristics</b>                |               |  |     |     |           |          |
| Drain-source breakdown voltage            | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                                | 600 |     |           | V        |
| Drain-source diode forward voltage(note2) | $V_{SD}$      | $V_{GS} = 0V, I_S = 7A$                                      |     |     | 1.4       |          |
| Zero gate voltage drain current           | $I_{DSS}$     | $V_{DS} = 600V, V_{GS} = 0V$                                 |     |     | 1         | $\mu A$  |
| Gate-body leakage curren (note2)          | $I_{GSS}$     | $V_{DS} = 0V, V_{GS} = \pm 30V$                              |     |     | $\pm 100$ | nA       |
| <b>On characteristics (note2)</b>         |               |  |     |     |           |          |
| Gate-threshold voltage                    | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                            | 2.0 |     | 4.0       | V        |
| Static drain-source on-resistance         | $R_{DS(on)}$  | $V_{GS} = 10V, I_D = 4A$                                     |     |     | 1.3       | $\Omega$ |
| <b>Dynamic characteristics (note 3)</b>   |               |  |     |     |           |          |
| Input capacitance                         | $C_{iss}$     | $V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$                        |     |     | 1280      | pF       |
| Output capacitance                        | $C_{oss}$     |  |     |     | 120       |          |
| Reverse transfer capacitance              | $C_{rss}$     |  |     |     | 11        |          |
| <b>Switching characteristics (note 3)</b> |               |  |     |     |           |          |
| Turn-on delay time (note3)                | $t_{d(on)}$   | $V_{DD} = 300V, V_{GS} = 10V,$<br>$R_G = 25\Omega, I_D = 7A$ |     |     | 80        | ns       |
| Turn-on rise time (note3)                 | $t_r$         |  |     |     | 165       |          |
| Turn-off delay time (note3)               | $t_{d(off)}$  |  |     |     | 160       |          |
| Turn-off fall time (note3)                | $t_f$         |  |     |     | 120       |          |

### Notes :

1.  $I_L = 8A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}.$
2. Pulse Test : Pulse width  $\leq 300\mu s, \text{ duty cycle } \leq 2\%.$
3. These parameters have no way to verify.