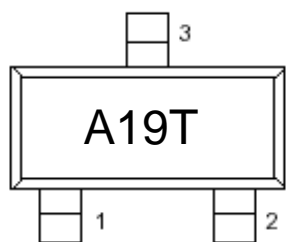


## MOSFET

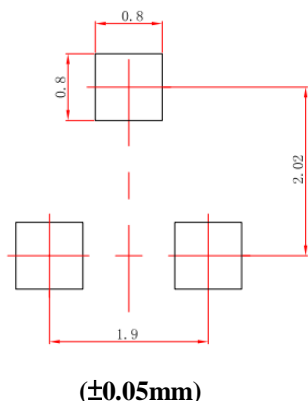
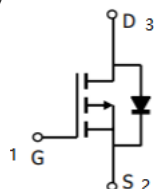
Marking: A19T

Suggested Layout

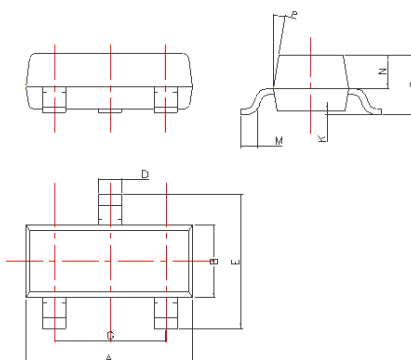
SOT-23



Top view



Dimension



| DIM | Millimeters |
|-----|-------------|
| A   | 2.85~3.04   |
| B   | 1.30±0.10   |
| C   | 1.00±0.10   |
| D   | 0.45±0.05   |
| E   | 2.25~2.55   |
| G   | 1.90±0.1    |
| K   | 0.00-0.10   |
| M   | 0.20 min    |
| N   | 0.60±0.10   |
| P   | 7±2°        |

### MAXIMUM RATINGS (Ta=25°C)

| Characteristic           | Symbol                       | Rating | Unit |
|--------------------------|------------------------------|--------|------|
| Drain-Source Voltage     | V <sub>DSS</sub>             | -30    | Vdc  |
| Gate-Source Voltage      | V <sub>GSS</sub>             | ±12    | Vdc  |
| Drain Current—Continuous | I <sub>D</sub>               | -4.2   | Adc  |
| Peak Drain Current       | I <sub>DM</sub> <sup>1</sup> | -16    | Adc  |

### THERMAL CHARACTERISTICS

| Characteristic                              | Symbol                               | Max                 | Unit |
|---|--------------------------------------|---------------------|------|
| Total Device Dissipation TA=25°C            | P <sub>D</sub>                       | 400                 | mW   |
| Thermal Resistance from Junction to Ambient | R <sub>θJA</sub>                     | 313                 | °C/W |
| Junction and Storage Temperature            | T <sub>J</sub> ,<br>T <sub>stg</sub> | 150,<br>-55 to +150 | °C   |

1. Repetitive Rating : Pulse width limited by maximum junction temperature

### ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

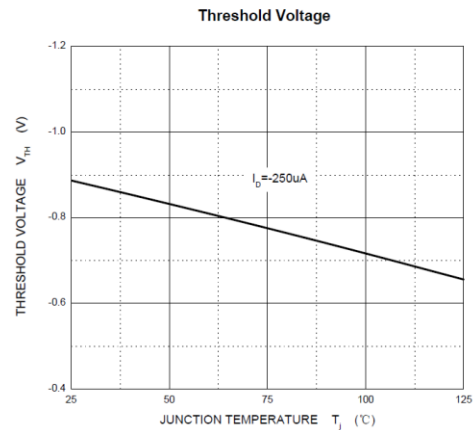
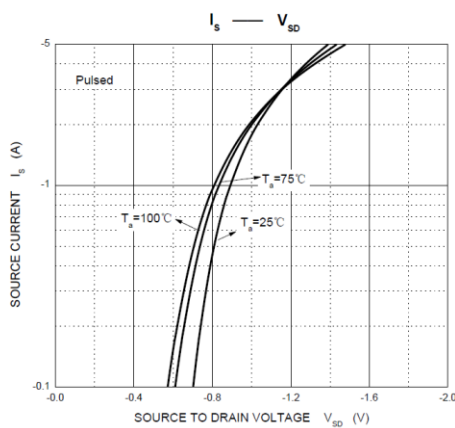
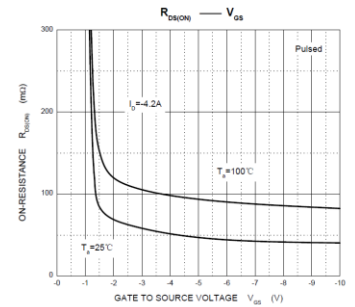
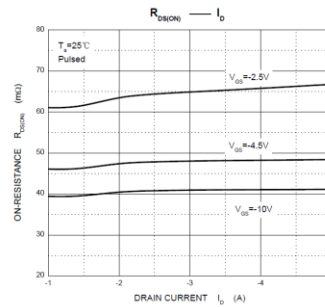
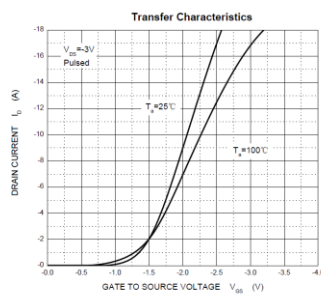
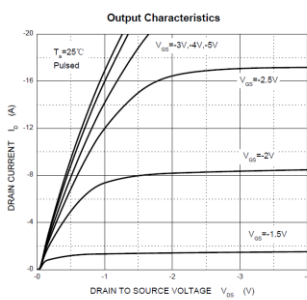
| Characteristic                          | Symbol               | Test Condition   | Min   | Type  | Max  | Unit |
|---|----------------------|--|-------|-------|------|------|
| Drain-Source Breakdown Voltage          | V <sub>(BR)DSS</sub> | V <sub>GS</sub> =0V, I <sub>D</sub> = -250 μA                | -30   | —     | —    | V    |
| Zero Gate Voltage Drain Current         | I <sub>DSS</sub>     | V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V                   | —     | —     | -1.0 | μA   |
| Gate-Body Leakage Current, Forward      | I <sub>GSS</sub>     | V <sub>GS</sub> =±12V  | —     | —     | ±100 | nA   |
| Gate Threshold Voltage                  | V <sub>GS(th)</sub>  | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA | -0.60 | -0.90 | -1.3 | V    |
| Static Drain-Source On-State Resistance | R <sub>DS(on)</sub>  | V <sub>GS</sub> =-10V, I <sub>D</sub> = -4.2A                | —     | 50    | 70   | mΩ   |
|   |                      | V <sub>GS</sub> =-4.5V, I <sub>D</sub> = -4.0A               | —     | 60    | 80   |      |
|   |                      | V <sub>GS</sub> =-2.5V, I <sub>D</sub> = -4.0A               | —     | 82    | 120  |      |
| Forward Transconductance                | g <sub>fs</sub>      | V <sub>DS</sub> = -5V, I <sub>D</sub> = -5.0A                | 7     | —     | —    | S    |

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|                              |              |  |   |      |     |    |
|------------------------------|--------------|--|---|------|-----|----|
| Diode Forward On-Voltage     | $V_{SD}$     | $V_{GS}=0V, I_S = -1.0A$   | —   | 0.75 | 1.3 | V  |
| Turn-On Delay Time           | $t_{d(on)}$  | $V_{DD} = -10V, V_{DS} = -15V,$<br>$RL = 3.6\Omega, R_{GEN} = 6\Omega$ | —   | 2.64 | —   | ns |
| Turn-On Time                 | $t_r$        |  | -   | 10   | -   |    |
| Turn-Off Delay Time          | $t_{d(off)}$ |  | -   | 52   | -   |    |
| Turn-On Fall Time            | $t_f$        |  | -   | 16.2 | -   |    |
| Input Capacitance            | $C_{iss}$    |  | $V_{DS} = -15V, V_{GS} = 0V, f =$<br>$1.0\text{ MHz}$ | -    | 740 |    |
| Output Capacitance           | $C_{oss}$    | -  |   | 51   | -   |    |
| Reverse Transfer Capacitance | $C_{rss}$    | -  |   | 44   | -   |    |
| Total Gate Charge            | $Q_G$        | $V_{DS} = -15V, I_D$<br>$= -4A, V_{GS} = -4.5V$                        | -   | 7.4  | -   | nC |
| Gate.to source charge        | $Q_{GS}$     |  | -   | 1.3  | -   |    |
| Gate.to drain charge         | $Q_{GD}$     |  | -   | 2.6  | -   |    |

## Typical Performance Characteristics



Note: Specifications are subject to change without notice.

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