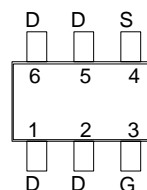
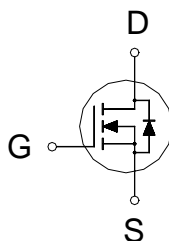


PRODUCT SUMMARY

| | | |
|---------------|--------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
| 30 | 27m | 7A |



1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNITS |
|--|-----------------------------------|----------------|------------|------------------|
| Gate-Source Voltage | | V_{GS} | ± 20 | V |
| Continuous Drain Current | $T_C = 25\text{ }^\circ\text{C}$ | I_D | 7 | A |
| | $T_C = 100\text{ }^\circ\text{C}$ | | 5 | |
| Pulsed Drain Current ¹ | | I_{DM} | 20 | |
| Power Dissipation | $T_C = 25\text{ }^\circ\text{C}$ | P_D | 1.6 | W |
| | $T_C = 100\text{ }^\circ\text{C}$ | | 1.2 | |
| Operating Junction & Storage Temperature Range | | T_j, T_{stg} | -55 to 150 | $^\circ\text{C}$ |
| Lead Temperature (¹ / ₁₆ " from case for 10 sec.) | | T_L | 275 | |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNITS |
|---------------------|-----------------|---------|---------|-----------------------------|
| Junction-to-Case | $R_{\theta JC}$ | | 30 | $^\circ\text{C} / \text{W}$ |
| Junction-to-Ambient | $R_{\theta JA}$ | | 78 | |

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT |
|---|---------------|--|--------|------|-----------|---------------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu\text{A}$ | 30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$ | 1 | 1.5 | 3 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 24V, V_{GS} = 0V$ | | | 1 | μA |
| | | $V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$ | | | 10 | |
| On-State Drain Current ¹ | $I_{D(ON)}$ | $V_{DS} = 5V, V_{GS} = 10V$ | 20 | | | A |
| Drain-Source On-State Resistance ¹ | $R_{DS(ON)}$ | $V_{GS} = 4.5V, I_D = 5A$ | | 32 | 40 | m |
| | | $V_{GS} = 10V, I_D = 7A$ | | 23 | 27 | |
| Forward Transconductance ¹ | g_{fs} | $V_{DS} = 5V, I_D = 7A$ | | 14.4 | | S |

| DYNAMIC | | | | | | |
|---|--------------|--|------|----|-----|----|
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$ | 680 | | | pF |
| Output Capacitance | C_{oss} | | 140 | | | |
| Reverse Transfer Capacitance | C_{rss} | | 70 | | | |
| Total Gate Charge ² | Q_g | $V_{DS} = 15V, V_{GS} = 10V,$ $I_D = 7A$ | 10 | 15 | | nC |
| Gate-Source Charge ² | Q_{gs} | | 1.7 | | | |
| Gate-Drain Charge ² | Q_{gd} | | 2.1 | | | |
| Turn-On Delay Time ² | $t_{d(on)}$ | $V_{DS} = 10V,$ $I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6$ | 8.0 | | | nS |
| Rise Time ² | t_r | | 4.0 | | | |
| Turn-Off Delay Time ² | $t_{d(off)}$ | | 22.0 | | | |
| Fall Time ² | t_f | | 5.0 | | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_C = 25^\circ C$) | | | | | | |
| Continuous Current | I_S | | | | 3 | A |
| Forward Voltage ¹ | V_{SD} | $I_F = 1A, V_{GS} = 0V$ | | | 1.1 | V |

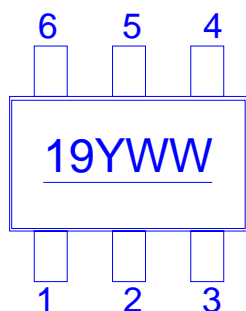
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH “19YWW”, DATE CODE or LOT #

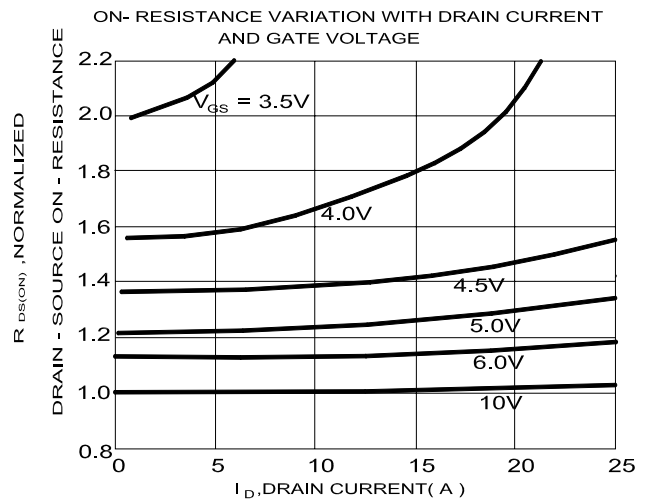
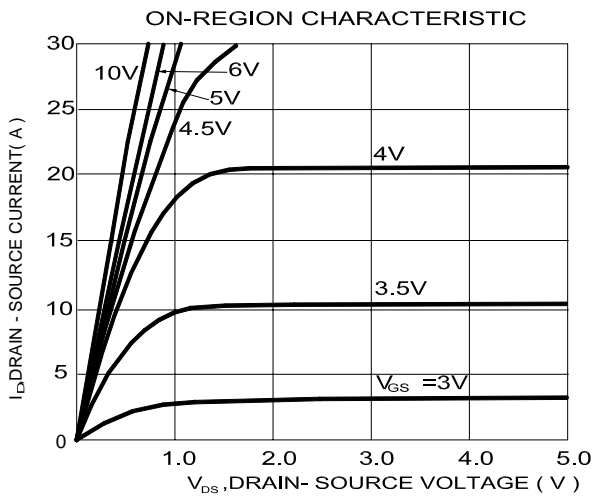
Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name



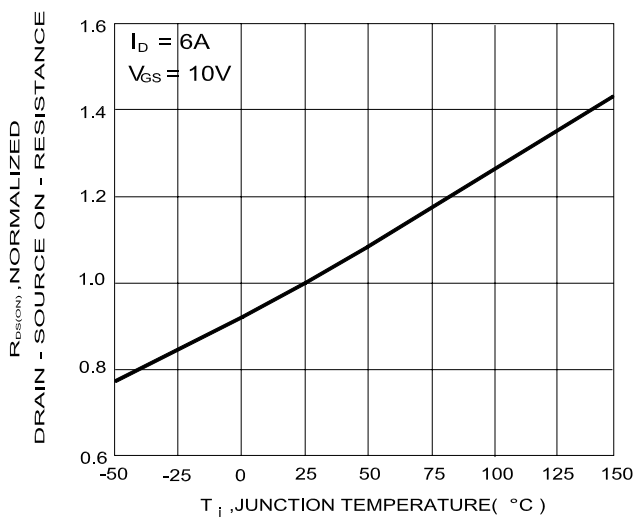
Marking Description:

- 1 - N MOSFET
- 9 - Serial Number
- Y - Year
- W - Week

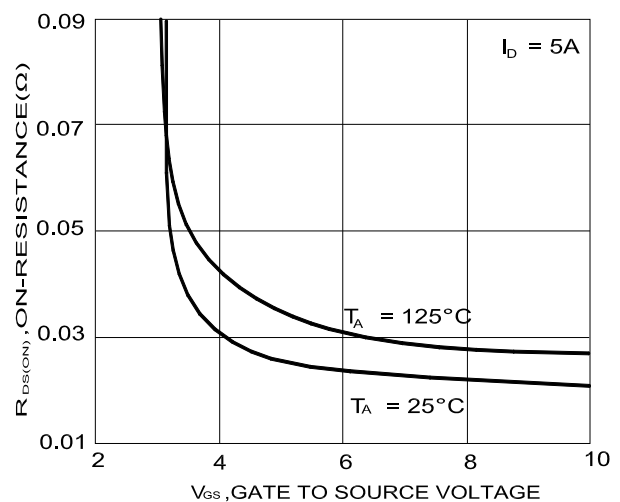
TYPICAL CHARACTERISTICS



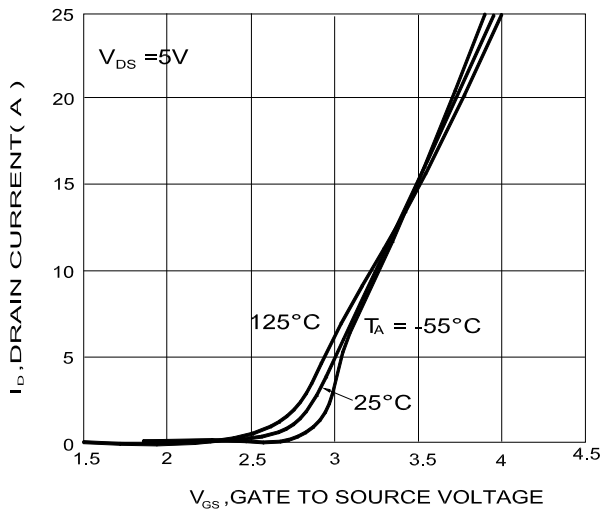
ON-RESISTANCE VARIATION WITH TEMPERATURE



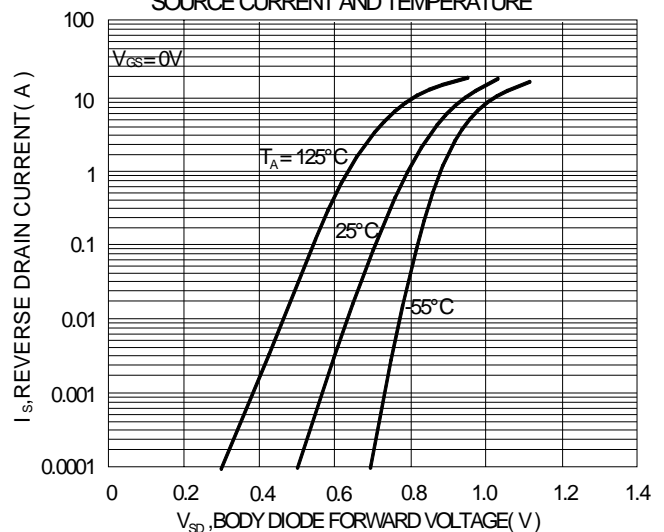
ON-RESISTANCE VARIATION WITH GATE-TO-SOURCE VOLTAGE



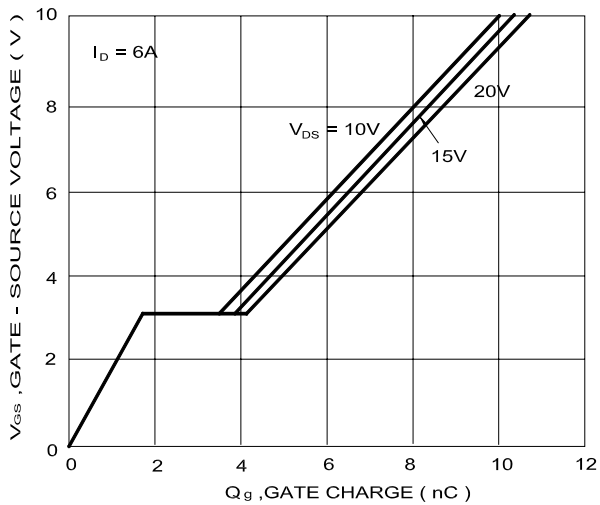
TRANSFER CHARACTERISTICS



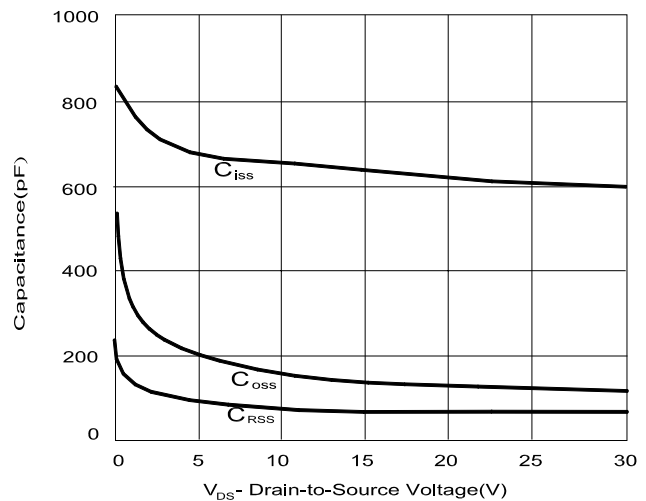
BODY DIODE FORWARD VOLTAGE VARIATION WITH SOURCE CURRENT AND TEMPERATURE



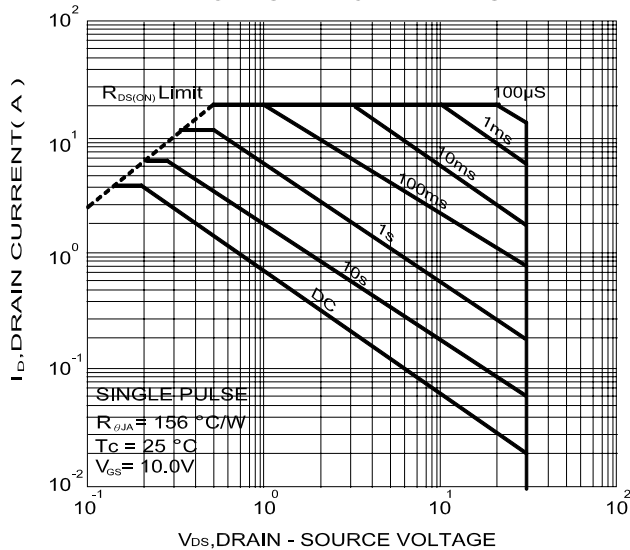
GATE CHARGE CHARACTERISTICS



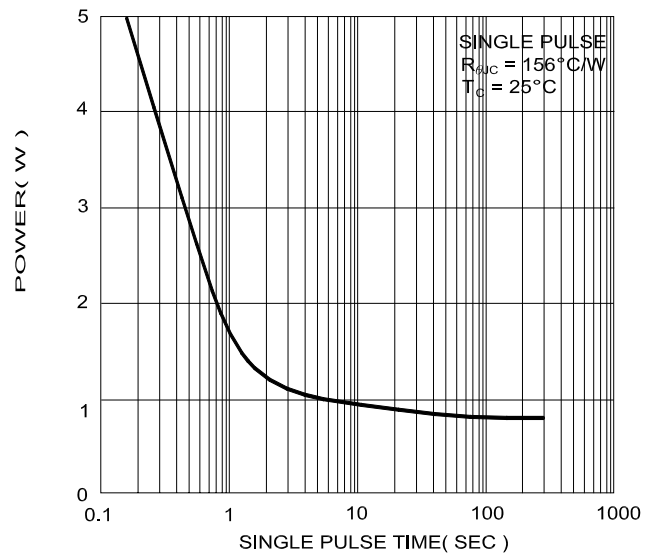
Capacitance Characteristics



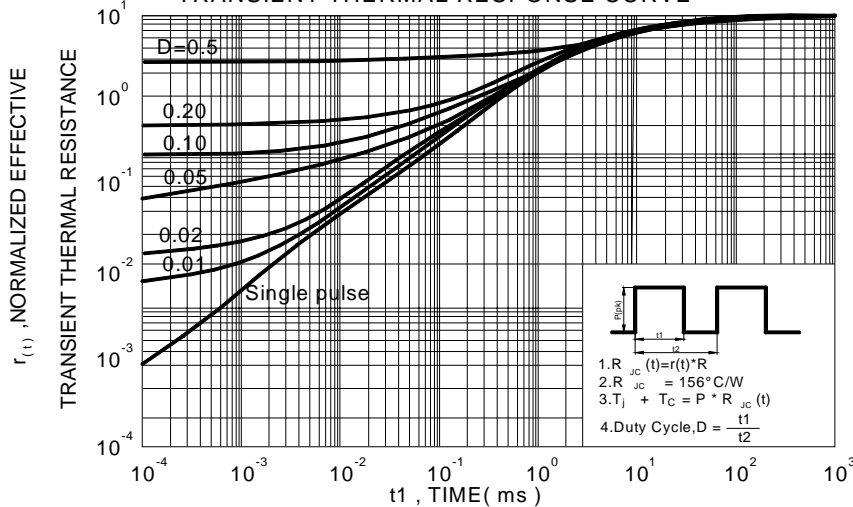
MAXIMUM SAFE OPERATING AREA



SINGLE PULSE MAXIMUM POWER DISSIPATION



TRANSIENT THERMAL RESPONSE CURVE



TSOP- 6 MECHANICAL DATA

| Dimension | mm | | | Dimension | mm | | |
|-----------|------|------|------|-----------|------|------|------|
| | Min. | Typ. | Max. | | Min. | Typ. | Max. |
| A | | 0.95 | | H | 0.08 | 0.13 | 0.2 |
| B | 2.5 | 2.8 | 3.1 | I | 0.3 | | 0.6 |
| C | 1.5 | 1.6 | 1.7 | J | | | |
| D | 2.7 | 2.9 | 3.1 | K | | | |
| E | 0.7 | | 1.2 | L | | | |
| F | 0 | | 0.15 | M | | | |
| G | 0.3 | 0.4 | 0.5 | N | | | |

