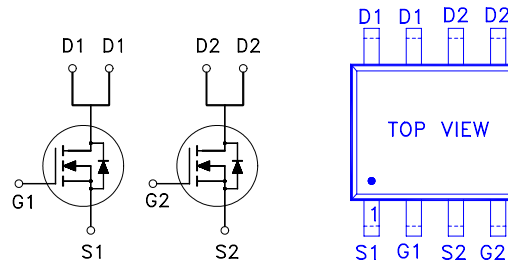


PRODUCT SUMMARY

| | | |
|---------------|--------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
| 60 | 55m | 4.5A |



G : GATE
D : DRAIN
S : SOURCE

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

| PARAMETERS/TEST CONDITIONS | | SYMBOL | LIMITS | UNITS |
|--------------------------------------|----------------------------------|----------------|------------|------------------|
| Drain-Source Voltage | | V_{DS} | 60 | V |
| Gate-Source Voltage | | V_{GS} | ± 20 | V |
| Continuous Drain Current | $T_C = 25\text{ }^\circ\text{C}$ | I_D | 4.5 | A |
| | $T_C = 70\text{ }^\circ\text{C}$ | | 4 | |
| Pulsed Drain Current ¹ | | I_{DM} | 20 | |
| Power Dissipation | $T_C = 25\text{ }^\circ\text{C}$ | P_D | 2 | W |
| | $T_C = 70\text{ }^\circ\text{C}$ | | 1.3 | |
| Junction & Storage Temperature Range | | T_j, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNITS |
|---------------------|-----------------|---------|---------|-----------------------------|
| Junction-to-Ambient | $R_{\theta JA}$ | | 62.5 | $^\circ\text{C} / \text{W}$ |

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 | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu\text{A}$ | 60 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$ | 1.0 | 1.5 | 2.5 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 48V, V_{GS} = 0V$ | | | 1 | μA |
| | | $V_{DS} = 40V, V_{GS} = 0V, T_j = 55\text{ }^\circ\text{C}$ | | | 10 | |

| | | | | | | |
|---|--------------------------|-----------------------------|----|----|----|---|
| On-State Drain Current ¹ | $I_{D(ON)}$ | $V_{DS} = 5V, V_{GS} = 10V$ | 20 | | | A |
| Drain-Source Resistance ¹ | On-State $R_{DS(ON)}$ | $V_{GS} = 4.5V, I_D = 4A$ | | 55 | 75 | m |
| | | $V_{GS} = 10V, I_D = 4.5A$ | | 42 | 55 | |
| Forward Transconductance ¹ | g_{fs} | $V_{DS} = 10V, I_D = 4.5A$ | | 14 | | S |

| DYNAMIC | | | | | | | |
|----------------------------------|--------------|---|--|--|------|----|----|
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$ | | | 650 | pF | |
| Output Capacitance | C_{oss} | | | | 80 | | |
| Reverse Transfer Capacitance | C_{rss} | | | | 35 | | |
| Total Gate Charge ² | Q_g | $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 4.5A$ | | | 12.5 | 18 | nC |
| Gate-Source Charge ² | Q_{gs} | | | | 2.4 | | |
| Gate-Drain Charge ² | Q_{gd} | | | | 2.6 | | |
| Turn-On Delay Time ² | $t_{d(on)}$ | $V_{DD} = 30V$ $I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6$ | | | 11 | 20 | nS |
| Rise Time ² | t_r | | | | 8 | 18 | |
| Turn-Off Delay Time ² | $t_{d(off)}$ | | | | 19 | 35 | |
| Fall Time ² | t_f | | | | 6 | 15 | |

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_c = 25 °C)

| | | | | | | |
|------------------------------|----------|----------------------------|--|--|-----|---|
| Continuous Current | I_S | | | | 1.3 | A |
| Pulsed Current ³ | I_{SM} | | | | 2.6 | |
| Forward Voltage ¹ | V_{SD} | $I_F = I_S A, V_{GS} = 0V$ | | | 1 | V |

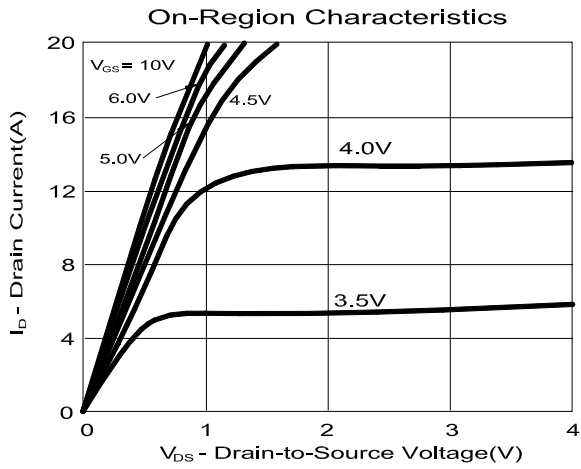
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

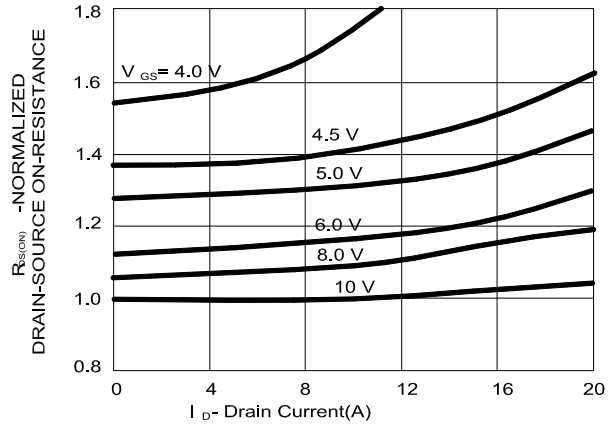
³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH “P5506HVG”, DATE CODE or LOT #

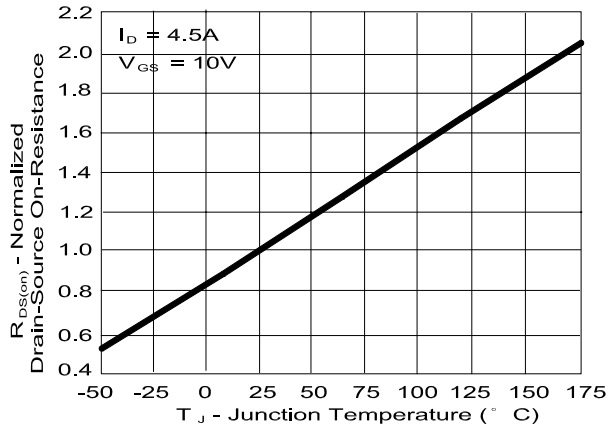
Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.



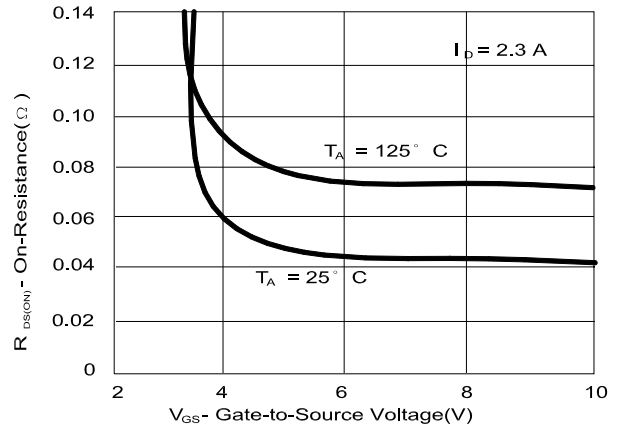
On-Resistance Variation with Drain Current and Gate Voltage



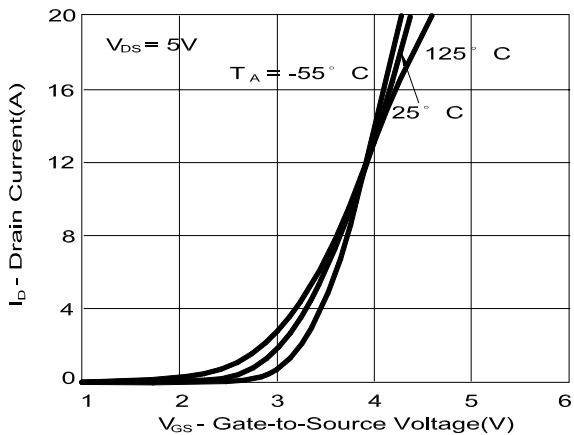
On-Resistance Variation with Temperature



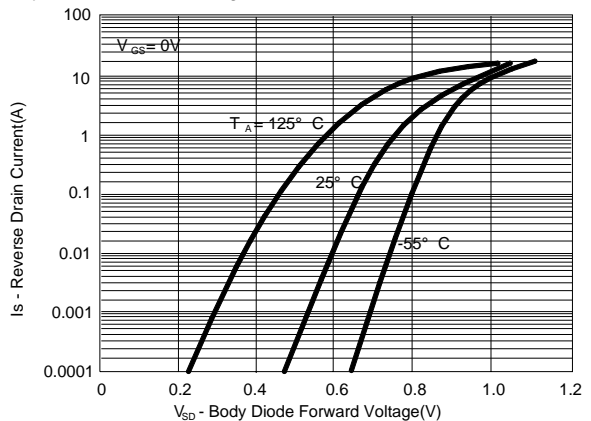
On-Resistance Variation with Gate-to-Source Voltage

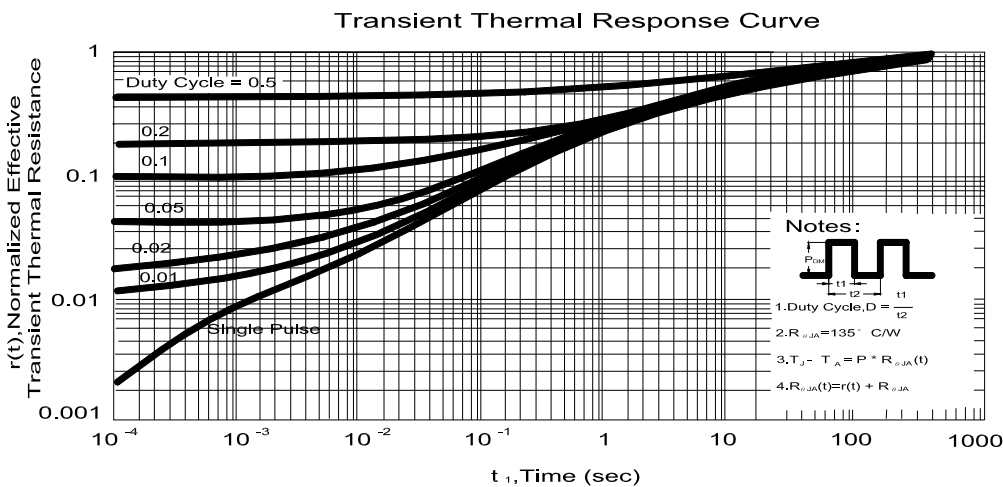
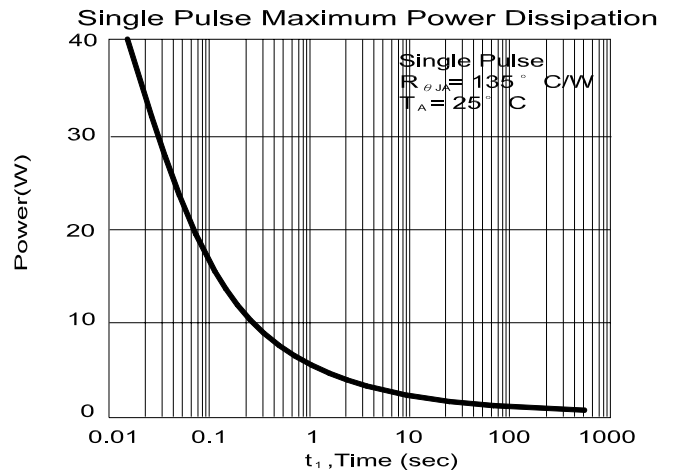
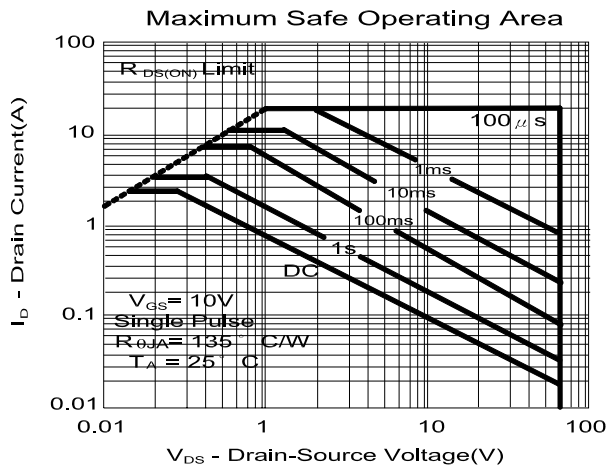
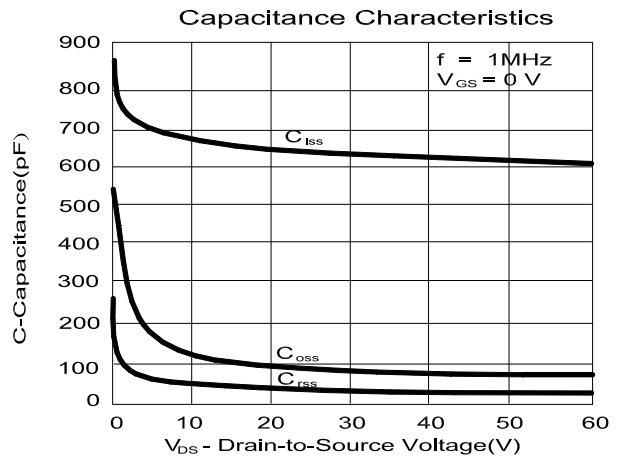
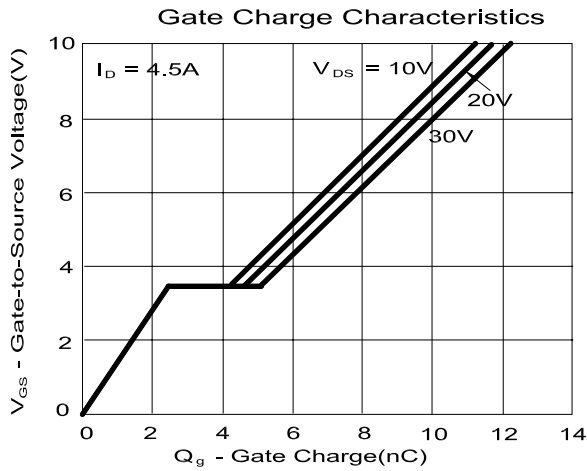


Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature





SOIC-8(D) MECHANICAL DATA

| Dimension | mm | | | Dimension | mm | | |
|-----------|------|-------|------|-----------|------|-------|------|
| | Min. | Typ. | Max. | | Min. | Typ. | Max. |
| A | 4.8 | 4.9 | 5.0 | H | 0.5 | 0.715 | 0.83 |
| B | 3.8 | 3.9 | 4.0 | I | 0.18 | 0.254 | 0.25 |
| C | 5.8 | 6.0 | 6.2 | J | | 0.22 | |
| D | 0.38 | 0.445 | 0.51 | K | 0° | 4° | 8° |
| E | | 1.27 | | L | | | |
| F | 1.35 | 1.55 | 1.75 | M | | | |
| G | 0.1 | 0.175 | 0.25 | N | | | |

