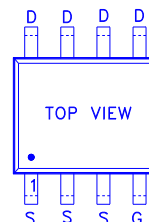
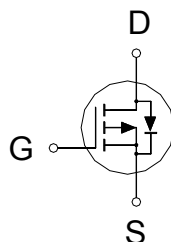


PRODUCT SUMMARY

| | | |
|---------------|--------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
| -40V | 55mΩ | -6A |



4 :GATE
5,6,7,8 :DRAIN
1,2,3 :SOURCE

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | SYMBOL | LIMITS | UNITS |
|--|-----------------------------------|------------------------|-------|
| Drain-Source Voltage | V_{DS} | -40 | V |
| Gate-Source Voltage | V_{GS} | ±25 | V |
| Continuous Drain Current | I_D | T _A = 25 °C | -6 |
| | | T _A = 70 °C | -4.8 |
| Pulsed Drain Current ¹ | I_{DM} | -20 | A |
| Power Dissipation | P_D | T _A = 25 °C | 3.1 |
| | | T _A = 70 °C | 2 |
| Operating Junction & Storage Temperature Range | T _j , T _{stg} | -55 to 150 | °C |
| Lead Temperature (¹ / ₁₆ " from case for 10 sec.) | T _L | 275 | |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNITS |
|---------------------|-----------|---------|---------|--------|
| Junction-to-Lead | $R_{θJL}$ | | 25 | °C / W |
| Junction-to-Ambient | $R_{θJA}$ | | 40 | °C / W |

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT |
|---|---------------|---|--------|------|------|------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -40 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1 | -1.5 | -2.5 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | | | ±250 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -32V, V_{GS} = 0V$ | | | 1 | μA |
| | | $V_{DS} = -30V, V_{GS} = 0V, T_J = 125\text{ °C}$ | | | 10 | |
| On-State Drain Current ¹ | $I_{D(ON)}$ | $V_{DS} = -5V, V_{GS} = -10V$ | -20 | | | A |
| Drain-Source On-State Resistance ¹ | $R_{DS(ON)}$ | $V_{GS} = -4.5V, I_D = -4.5A$ | | 65 | 94 | mΩ |
| | | $V_{GS} = -10V, I_D = -5.5A$ | | 38 | 55 | |
| Forward Transconductance ¹ | g_{fs} | $V_{DS} = -10V, I_D = -5.5A$ | | 11 | | S |

| DYNAMIC | | | | | | |
|---|--------------|--|--|------|------|----|
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$ | | 690 | | pF |
| Output Capacitance | C_{oss} | | | 310 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 75 | | |
| Total Gate Charge ² | Q_g | $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -5.5A$ | | 14 | | nC |
| Gate-Source Charge ² | Q_{gs} | | | 2.2 | | |
| Gate-Drain Charge ² | Q_{gd} | | | 1.9 | | |
| Turn-On Delay Time ² | $t_{d(on)}$ | $V_{DS} = -20V,$ $I_D \cong -1A, V_{GS} = -10V, R_{GS} = 6\Omega$ | | 6.7 | 13.4 | nS |
| Rise Time ² | t_r | | | 9.7 | 19.4 | |
| Turn-Off Delay Time ² | $t_{d(off)}$ | | | 19.8 | 35.6 | |
| Fall Time ² | t_f | | | 12.3 | 22.2 | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$) | | | | | | |
| Continuous Current | I_S | | | | -1.3 | A |
| Forward Voltage ¹ | V_{SD} | $I_F = -5.5A, V_{GS} = 0V$ | | | -1 | V |
| Reverse Recovery Time | t_{rr} | $I_F = -5.5A, dI_F/dt = 100A / \mu S$ | | 15.5 | | nS |
| Reverse Recovery Charge | Q_{rr} | | | 7.9 | | nC |

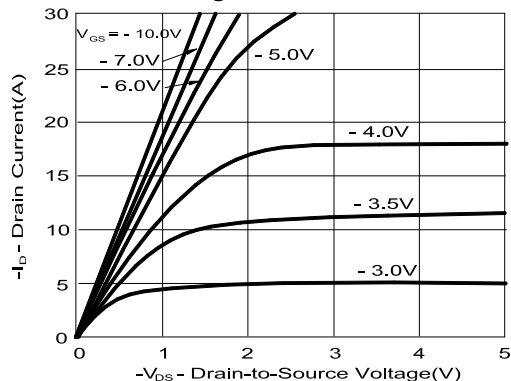
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

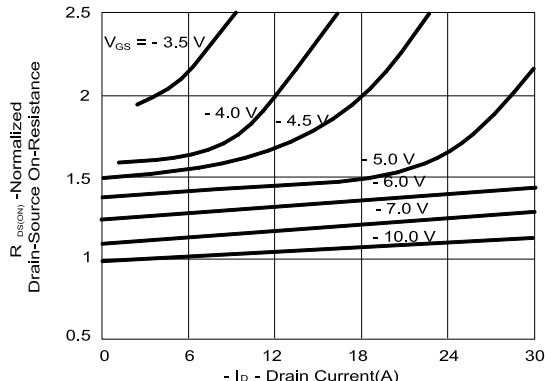
REMARK: THE PRODUCT MARKED WITH "P5504EVG", DATE CODE or LOT #

TYPICAL PERFORMANCE CHARACTERISTICS

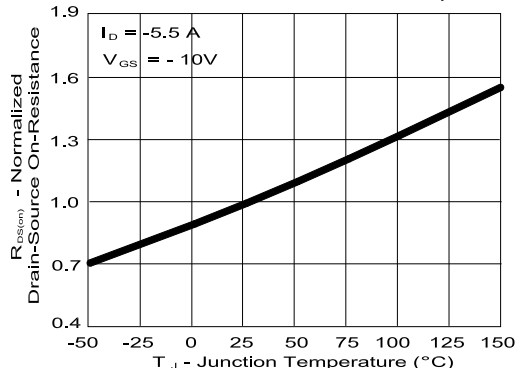
On-Region Characteristics



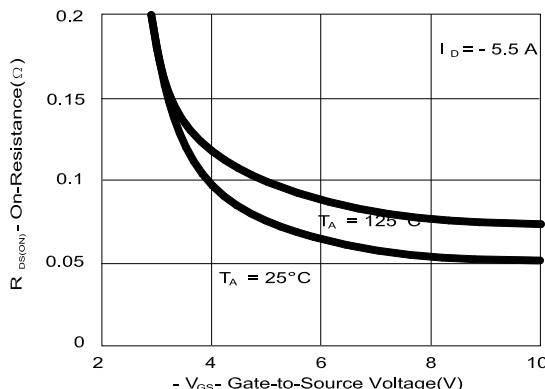
On-Resistance Variation with Drain Current and Gate Voltage



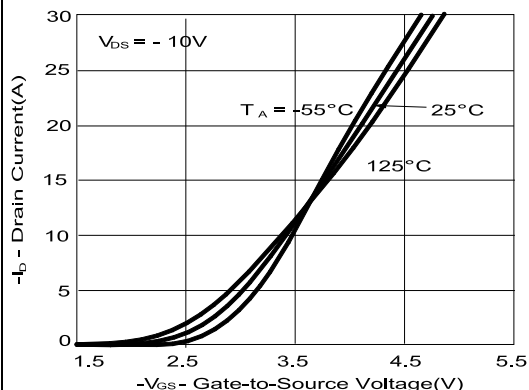
On-Resistance Variation with Temperature



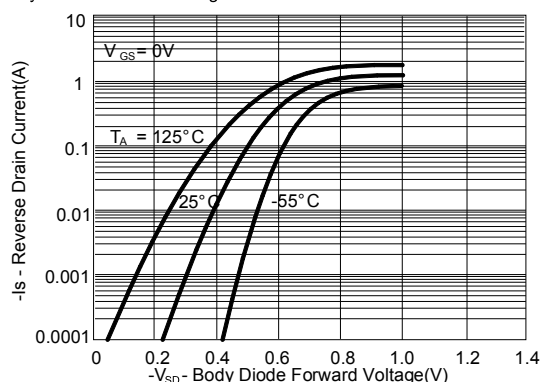
On-Resistance Variation with Gate-to-Source Voltage

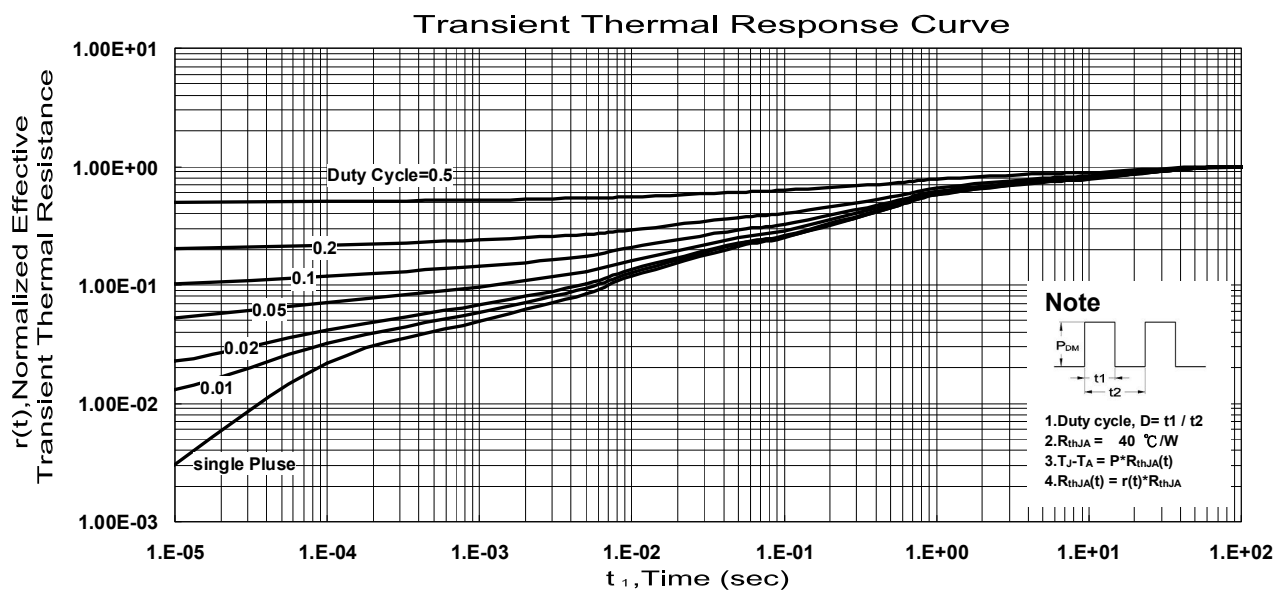
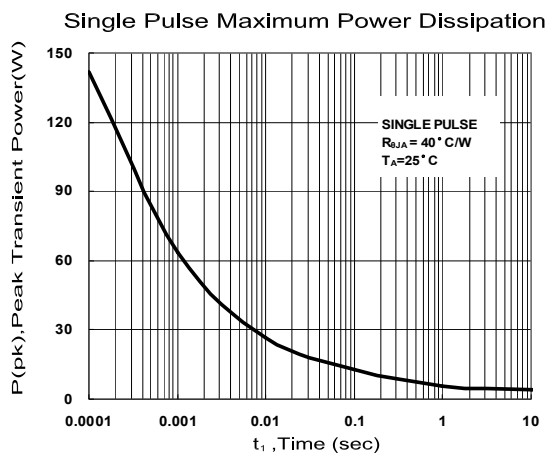
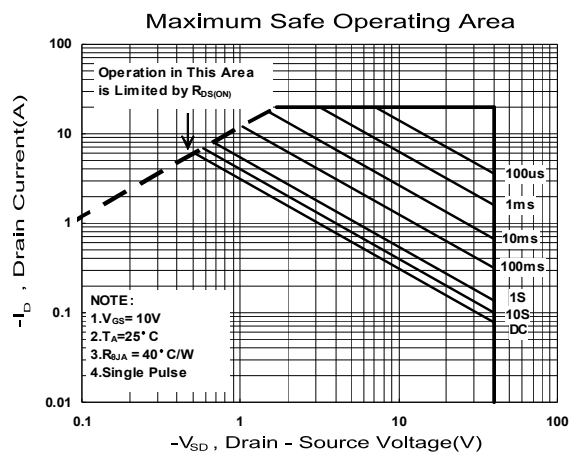
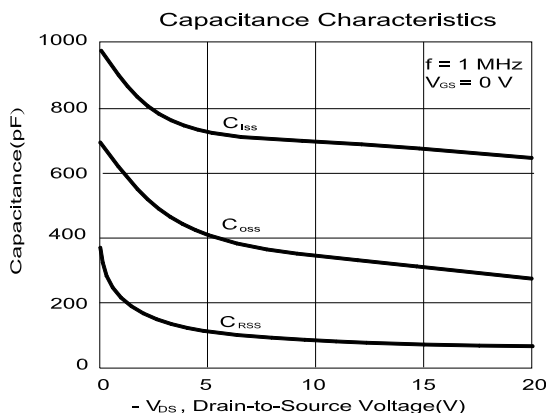
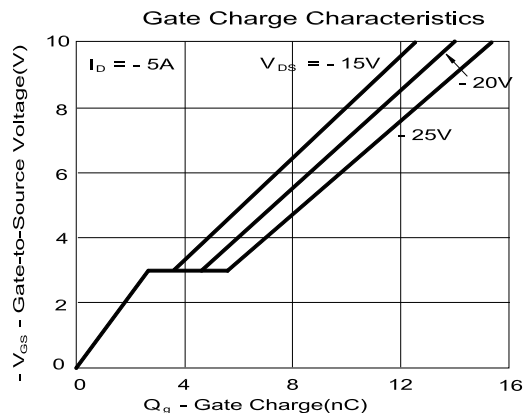


Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature





SOP-8 MECHANICAL DATA

| Dimension | mm | | | Dimension | mm | | |
|-----------|------|-------|------|-----------|------|-------|------|
| | Min. | Typ. | Max. | | Min. | Typ. | Max. |
| A | 4.70 | 4.90 | 5.10 | H | 0.40 | 0.715 | 0.83 |
| B | 3.70 | 3.90 | 4.10 | I | 0.19 | 0.22 | 0.26 |
| C | 5.80 | 6.00 | 6.20 | J | 0.25 | 0.375 | 0.5 |
| D | 0.33 | 0.445 | 0.51 | K | 0° | 4° | 8° |
| E | | 1.27 | | L | | | |
| F | 1.20 | 1.375 | 1.62 | M | | | |
| G | 0.08 | 0.175 | 0.28 | N | | | |

