## -100V P-Channel Power MOSFET

DESCRIPTION：

| | |
|---|---|
| $V_{DSS}$ | -100V |
| $I_D$ | -65A |
| $R_{DS(ON)_Typ.}$ @$V_{GS}$=-10V | 21mΩ |

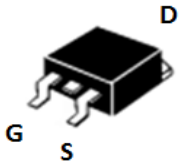
·High - speed switching

·Excellent gate charge x Rds(ON) procuct (FOM)

·Super high density cell design for extremely low RDS(ON)

·Exceptional on-resistance and maximum DC current capability

·RoHS and Halogen - free compliant




TO-263

MAXIMUM RATINGS (at $T_C$ = 25 °C, unless otherwise specified)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | -100 | V |
| Gate-Source Voltage | $V_{GSS}$ | ±20 | V |
| Continuous Drain Current (2)<br>$T_C$ = 25℃<br>$T_C$ = 70℃ | $I_D$ | <br>-65<br>-52 | A |
| Pulsed Drain Current (1) (2) | $I_{DM}$ | -260 | A |
| Single Pulsed Avalanche Energy(3) | $E_{AS}$ | 324 | mJ |
| Power dissipation<br>$T_C$ = 25℃<br>$T_C$ = 100℃ | $P_D$ | <br>156<br>100 | W |
| Junction & Storage temperature Range | $T_J$, $T_{STG}$ | -55~+150 | ℃ |
| Thermal Resistance, Junction to Ambient<br>Thermal Resistance, Junction to Case | $R_{\theta JA}$<br>$R_{\theta JC}$ | 62<br>0.8 | ℃/W |

Notes： 1. Pulse Test Width < 300us,Duty Cycle< 2%.
2.Drain current limited by maximum junction temperature.
3.Starting Tj=25°C ,L=0.5mH,VDD=-30V.(See Figure11).

ELECTRICAL CHARATERISTICS (at $T_J$ = 25 °C, unless otherwise specified)

| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage<br>VGS = 0V, ID = 250uA | $V_{(BR)DSS}$ | -100 | | | V |
| Zero Gate Voltage Drain Current<br>VDS = -80 V, VGS = 0 V, | $I_{DSS}$ | | | -1 | uA |
| Gate-Source Leakage Current<br>VGS = ±20V, VDS = 0V | $I_{GSS}$ | | | ±100 | nA |
| Gate-Source threshold voltage<br>VDS = VGS, ID = -250uA | $V_{GS(th)}$ | -1.0 | -1.8 | -2.5 | V |
| Drain-Source On-State Resistance<br>VGS = -10V, ID = -20A<br>VGS = -4.5V, ID = -20A | $R_{DS(on)}$ | | 21<br>24 | 26<br>30 | mΩ |
| Forward Transconductance<br>VDS = 10V, ID = -15A | $g_{fs}$ | | 12 | | S |
| Input capacitance<br>f=1MHz, VDS=-30 V, VGS=0 V | $C_{iss}$ | | 2980 | | pF |
| Output capacitance<br>f=1MHz, VDS=-30 V, VGS=0 V | $C_{oss}$ | | 260 | | pF |
| Reverse transfer capacitance<br>f=1MHz, VDS=-30 V, VGS=0 V | $C_{rss}$ | | 115 | | pF |
| Total Gate Charge<br>VDS =-30V, ID =-15A, VGS =-20V | Qg | | 53.4 | | nC |
| Gate-Source Charge<br>VDS =-30V, ID =-20A, VGS =-10V | $Qg_S$ | | 9 | | nC |
| Gate-Drain(“Miller”) Charge<br>VDS =-30V, ID =-20A, VGS =-10V | Qgd | | 13 | | nC |
| Turn-on delay time<br>VDD= -30V, VGS= -10V, ID=-20A, $R_{GEN}$=6Ω | td (ON) | | 13 | | ns |
| Rise time<br>VDD= -30V, VGS= -10V, ID=-20A, $R_{GEN}$=6Ω | tr | | 8 | | ns |
| Turn-off delay time<br>VDD= -30V, VGS= -10V, ID=-20A, $R_{GEN}$=6Ω | td (OFF) | | 128 | | ns |
| Fall time<br>VDD= -30V, VGS= -10V, ID=-20A, $R_{GEN}$=6Ω | tf | | 62 | | ns |
| Diodes Forward Voltage<br>IS = -2.0A, VGS = 0V | $V_{SD}$ | | -0.73 | -1.3 | V |

Typical Performance Characteristics

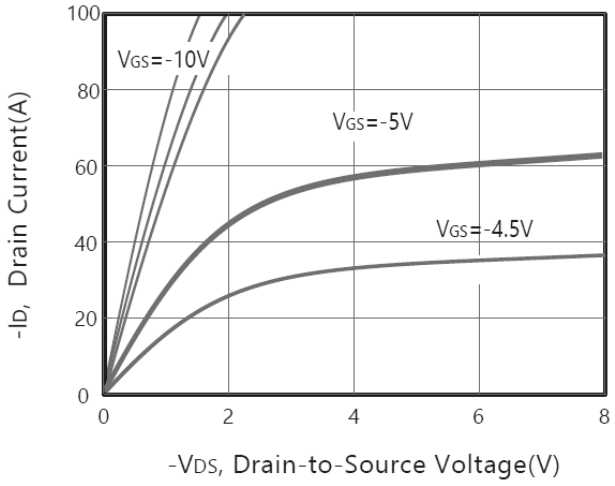



Figure 1. Output Characteristics

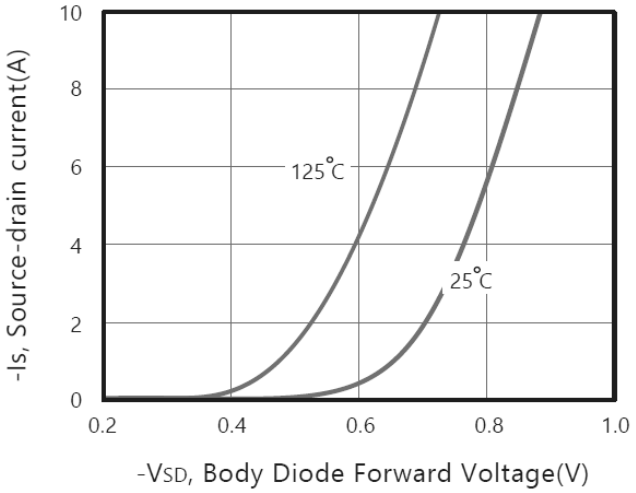



Figure 2. Body Diode Forward Voltage Variation with Source Current

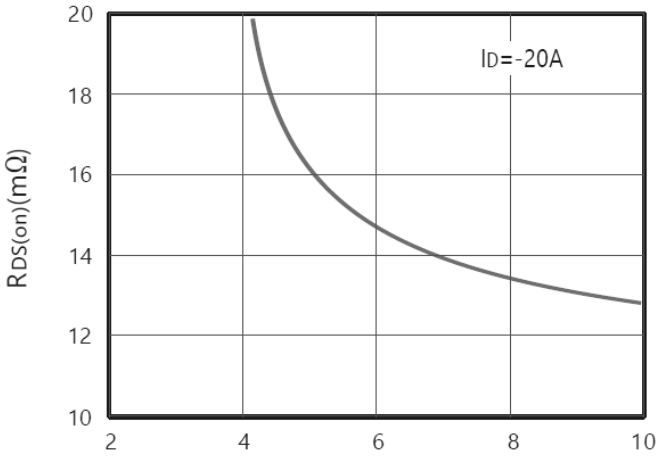



Figure 3. On-Resistance vs. Gate-Source Voltage

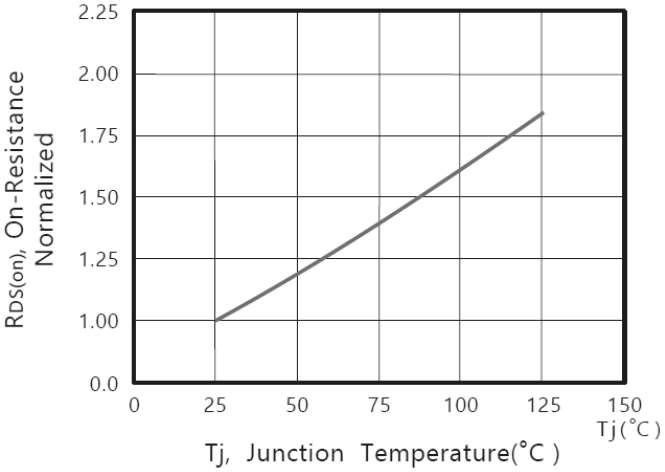



Figure 4. On-Resistance Variation with Drain Current and Temperature

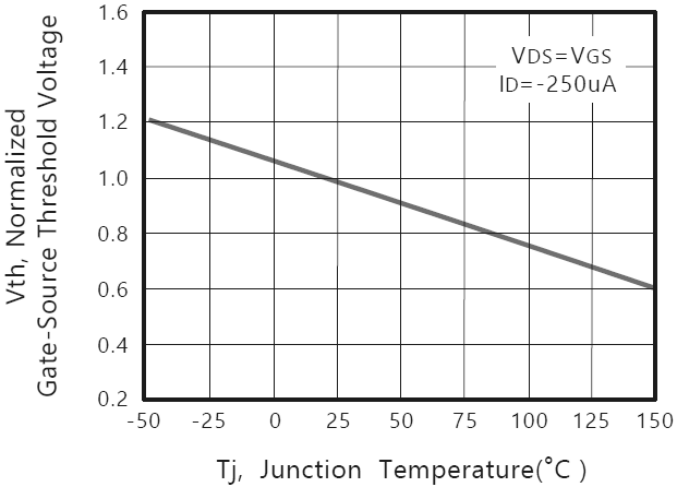



Figure 5. Gate Threshold Variation with Temperature

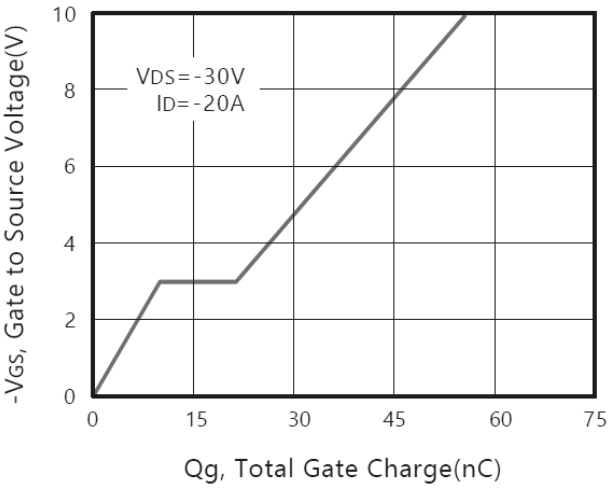



Figure 6. Gate Charge

Typical Performance Characteristics

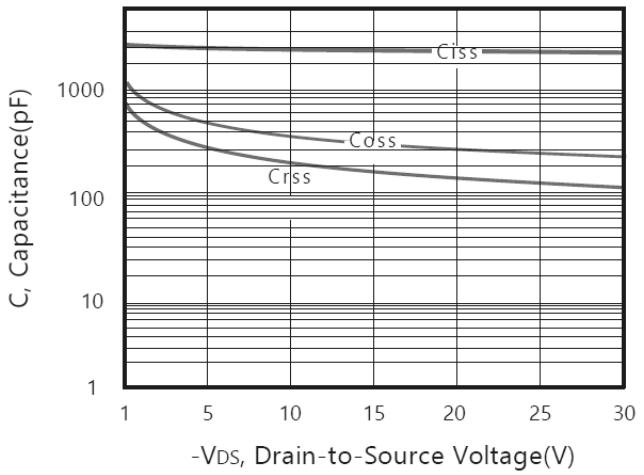



Figure 7. Capacitance

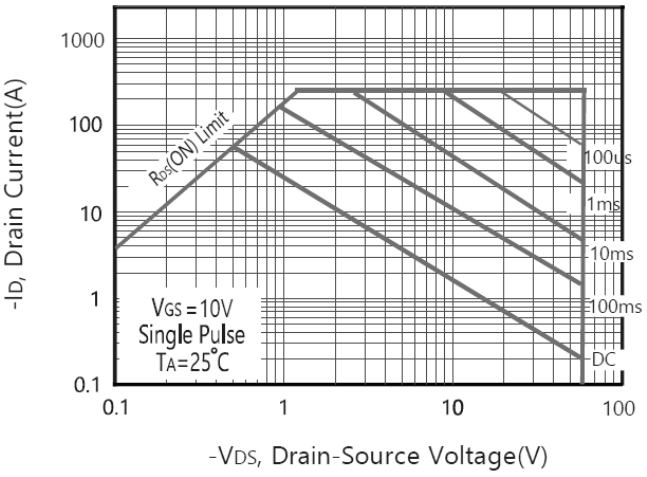



Figure 8. Maximum Safe Operating Area

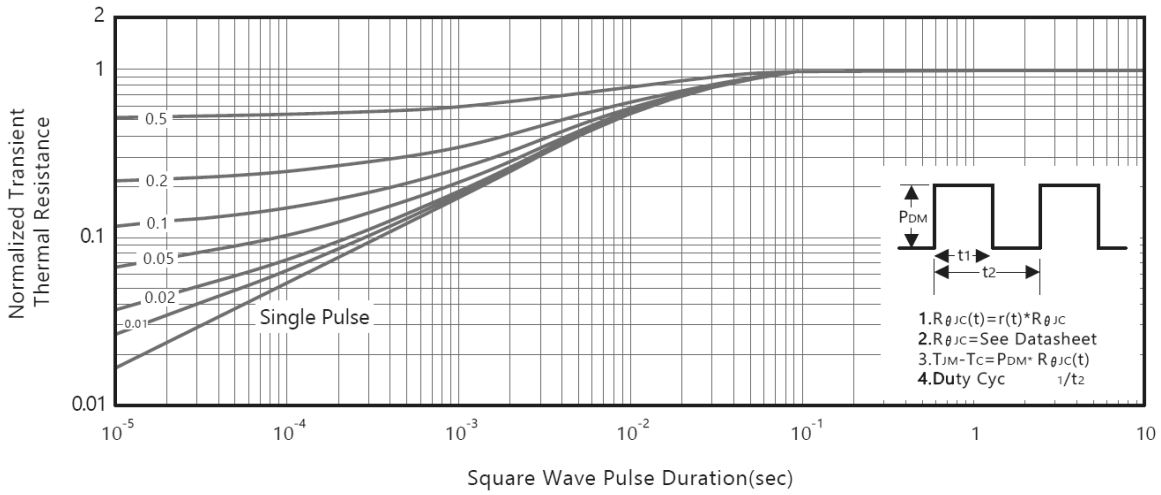
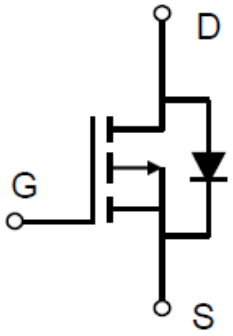
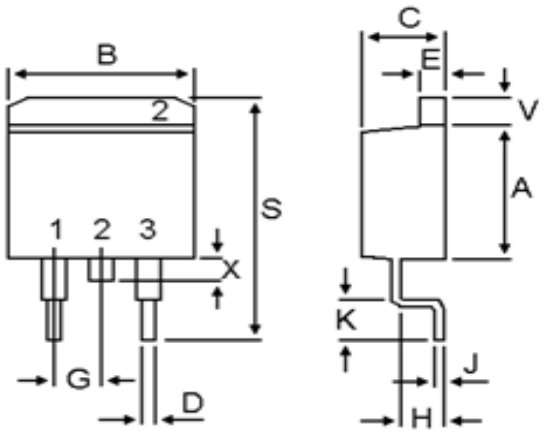



Figure 9. Normalized Thermal Transient Impedance Curve

·Circuit diagram




·Package outlines : Dimensions in (mm)




| DIM | MILLIMETERS | |
|---|---|---|
| | MIN | MAX |
| A | 8.30 | 9.20 |
| B | 9.80 | 10.40 |
| C | 4.30 | 4.80 |
| D | 0.65 | 0.95 |
| E | 1.17 | 1.43 |
| G | 2.39 | 2.69 |
| H | 2.68 | 3.32 |
| J | 0.35 | 0.65 |
| K | 2.29 | 2.90 |
| S | 14.60 | 15.88 |
| V | 1.10 | 1.50 |
| X | --- | 2.00 |

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