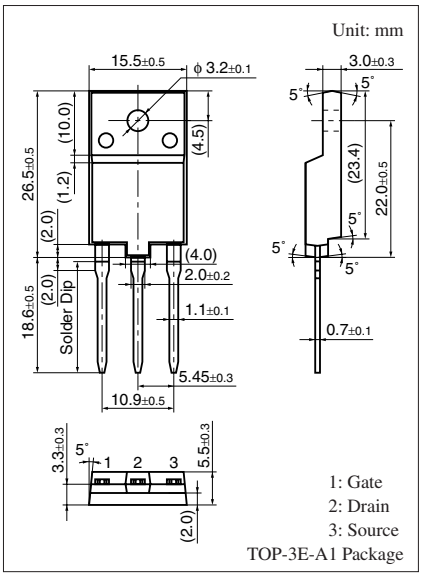
# 2SK3637

## Silicon N-channel power MOSFET

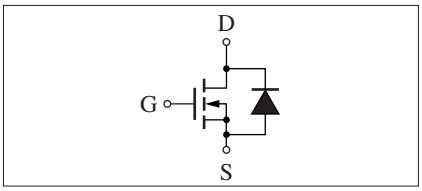
For PDP/For high-speed switching

### ■ Features

- Low on-resistance, low $Q_g$
- High avalanche resistance




Internal Connection




### ■ Absolute Maximum Ratings $T_C = 25°C$

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-source surrender voltage | | $V_{DSS}$ | 200 | V |
| Gate-source surrender voltage | | $V_{GSS}$ | ±30 | V |
| Drain current | | $I_D$ | 50 | A |
| Peak drain current | | $I_{DP}$ | 200 | A |
| Avalanche energy capability * | | EAS | 2000 | mJ |
| Power dissipation | | $P_D$ | 100 | W |
| | $T_a = 25°C$ | | 3 | |
| Channel temperature | | $T_{ch}$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | −55 to +150 | °C |

Note) *: L = 0.8 mH, $I_L$ = 50 A, $V_{DD}$ = 100 V, 1 pulse, $T_a$ = 25°C

### ■ Electrical Characteristics $T_C = 25°C \pm 3°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Gate-drain surrender voltage | $V_{DSS}$ | $I_D$ = 1 mA, $V_{GS}$ = 0 | 200 | | | V |
| Diode forward voltage | $V_{DSF}$ | $I_{DR}$ = 50 A, $V_{GS}$ = 0 | | | −1.5 | V |
| Gate threshold voltage | $V_{th}$ | $V_{DS}$ = 25 V, $I_D$ = 10 mA | 2 | | 4 | V |
| Drain-source cutoff current | $I_{DSS}$ | $V_{DS}$ = 160 V, $V_{GS}$ = 0 | | | 100 | µA |
| Gate-source cutoff currentt | $I_{GSS}$ | $V_{GS}$ = ±30 V, $V_{DS}$ = 0 | | | ±1 | µA |
| Drain-source on resistance | $R_{DS(on)}$ | $V_{GS}$ = 10 V, $I_D$ = 25 A | | 29 | 40 | mΩ |
| Forward transfer admittance | $\|Y_{fs}\|$ | $V_{DS}$ = 25 V, $I_D$ = 25 A | 15 | 30 | | S |
| Short-circuit forward transfer capacitance (Common-source) | $C_{iss}$ | $V_{DS}$ = 25 V, $V_{GS}$ = 0, f = 1 MHz | | 4550 | | pF |
| Short-circuit output capacitance (Common-source) | $C_{oss}$ | | | 750 | | pF |
| Reverse transfer capacitance (Common-source) | $C_{rss}$ | | | 75 | | pF |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD}$ = 100 V, $I_D$ = 25 A | | 50 | | ns |
| Rise time | $t_r$ | $R_L$ = 4 Ω, $V_{GS}$ = 10 V | | 125 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 390 | | ns |
| Fall time | $t_f$ | | | 140 | | ns |
| Reverse recovery time | $t_{rr}$ | L = 230 µH, $V_{DD}$ = 100 V | | 210 | | ns |
| Reverse recovery charge | $Q_{rr}$ | $I_{DR}$ = 25 A, di /dt = 100 A/ µs | | 820 | | nC |

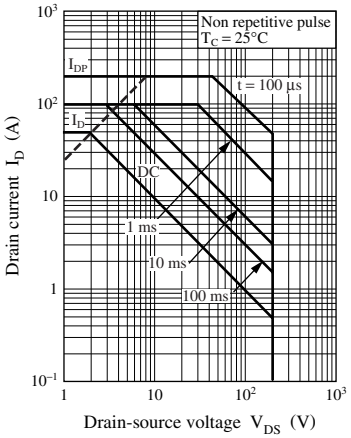
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

■ Electrical Characteristics (Continued) $T_C = 25°C \pm 3°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Total gate charge | $Q_g$ | $V_{DD}$ = 100 V, $I_D$ = 25 A | | 85 | | nC |
| Gate-source charge | $Q_{gs}$ | $V_{GS}$ = 10 V | | 30 | | nC |
| Gate-drain charge | $Q_{gd}$ | | | 12 | | nC |
| Channel-case heat resistance | $R_{th(ch-c)}$ | | | | 1.25 | °C/W |
| Channel-atmosphere heat resistance | $R_{th(ch-a)}$ | | | | 41.6 | °C/W |

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Safe operation area



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