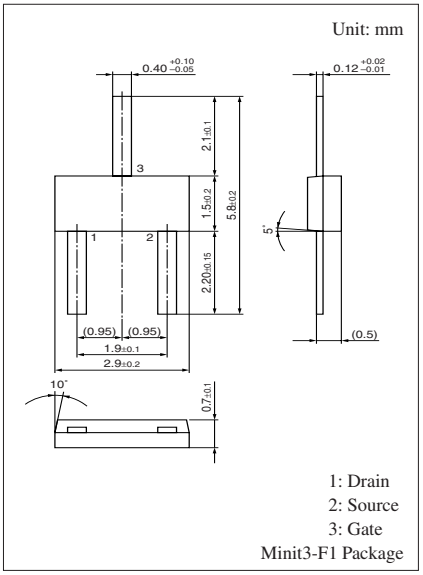
# 2SK1860



## Silicon N-Channel Junction FET

For impedance conversion in low frequency
For electret capacitor microphone




Marking Symbol: 1H

### ■ Features

- High mutual conductance $g_m$
- Low noise voltage of NV

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

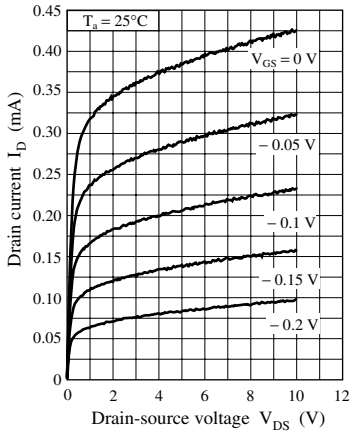
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-source voltage (Gate open) | $V_{DSO}$ | 20 | V |
| Drain-gate voltage (Souse open) | $V_{DGO}$ | 20 | V |
| Drain-source current (Gate open) | $I_{DSO}$ | 2 | mA |
| Drain-gate current (Souse open) | $I_{DGO}$ | 2 | mA |
| Gate-source cutoff current (Drain open) | $I_{GSO}$ | 2 | mA |
| Power dissipation | $P_D$ | 200 | mW |
| Operating ambient temperature | $T_{opr}$ | −20 to +80 | °C |
| Storage temperature | $T_{stg}$ | −55 to +150 | °C |

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

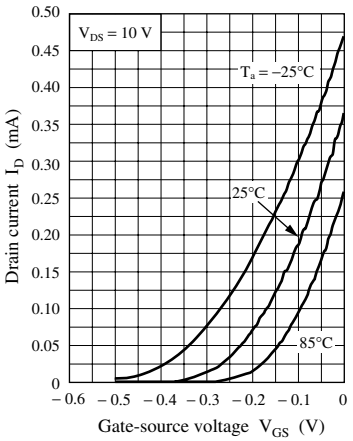
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain current | $I_D$ | $V_{DS}$ = 4.5 V, $C_O$ = 10 pF, $R_D$ = 2.2 kΩ ± 1% | 100 | | 600 | µA |
| Drain-sourse cutoff current (G-S short) | $I_{DSS}$ | $V_{DS}$ = 4.5 V, $V_{GS}$ = 0 | 95 | | 480 | µA |
| Mutual conductance | $g_m$ | $V_D$ = 4.5 V, $V_{GS}$ = 0, f = 1 kHz | 700 | 1 600 | | µS |
| Noise voltage | NV | $V_D$ = 4.5 V, $R_D$ = 2.2 kΩ ± 1%<br>$C_O$ = 10 pF, A-curve | | | 4 | µV |
| Voltage gain | $G_{v1}$ | $V_D$ = 4.5 V, $R_D$ = 2.2 kΩ ± 1%<br>$C_O$ = 10 pF, $e_G$ = 10 mV, f = 1 kHz | −3 | 2 | | dB |
| | $G_{v2}$ | $V_D$ = 12 V, $R_D$ = 2.2 kΩ ± 1%<br>$C_O$ = 10 pF, $e_G$ = 10 mV, f = 1 kHz | 0 | 3.3 | | dB |
| | $G_{v3}$ | $V_D$ = 1.5 V, $R_D$ = 2.2 kΩ ± 1%<br>$C_O$ = 10 pF, $e_G$ = 10 mV, f = 1 kHz | −4.5 | − 0.3 | | dB |
| | $\Delta\lvert G_v . f\rvert$* | $V_D$ = 4.5 V, $R_D$ = 2.2 kΩ ± 1%<br>$C_O$ = 10 pF, $e_G$ = 10 mV, f = 1 kHz to 70 Hz | | 0 | 1.5 | dB |
| Voltage gain difference | $\Delta\lvert G_{v2} - G_{v1}\rvert$ | | 0 | | 3.5 | dB |
| | $\Delta\lvert G_{v1} - G_{v3}\rvert$ | | 0 | | 3.5 | dB |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. * : $\Delta\lvert G_v . f\rvert$ is assured for AQL0.065%. (the measurment method is used by source-grounded circuit.)

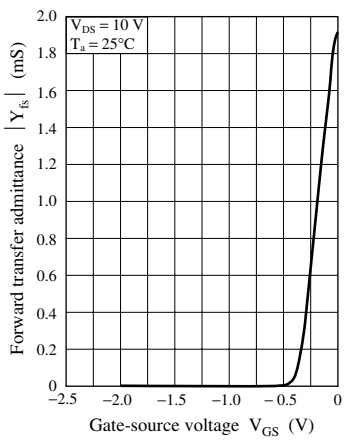
$I_D$ — $V_{DS}$



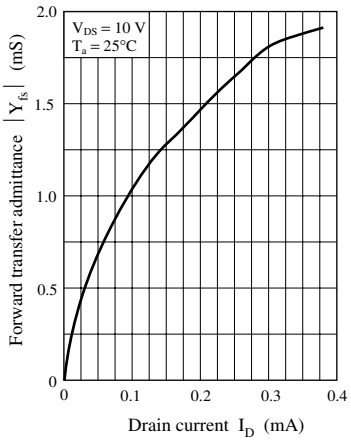

$I_D$ — $V_{GS}$




$|Y_{fs}|$ — $V_{GS}$




$|Y_{fs}|$ — $I_D$



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