# 2SJ160, 2SJ161, 2SJ162

Silicon P-Channel MOS FET

HITACHI

## Application

Low frequency power amplifier

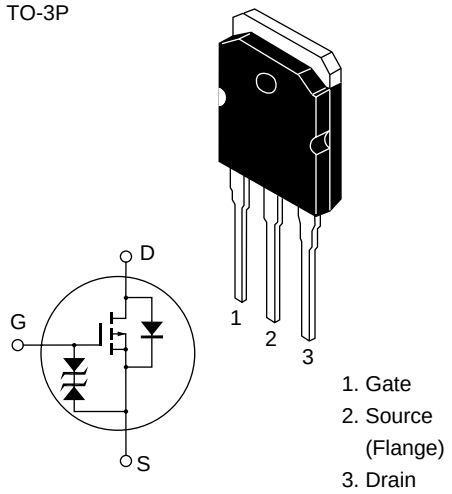
Complementary pair with 2SK1056, 2SK1057 and 2SK1058

## Features

- Good frequency characteristic
- High speed switching
- Wide area of safe operation
- Enhancement-mode
- Good complementary characteristics
- Equipped with gate protection diodes
- Suitable for audio power amplifier

Hitachi semiconductor

## Outline




## Absolute Maximum Ratings (Ta = 25°C)

| Item | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Drain to source voltage | 2SJ160 | $V_{DSX}$ | –120 | V |
| | 2SJ161 | | –140 | |
| | 2SJ162 | | –160 | |
| Gate to source voltage | | $V_{GSS}$ | ±15 | V |
| Drain current | | $I_D$ | –7 | A |
| Body to drain diode reverse drain current | | $I_{DR}$ | –7 | A |
| Channel dissipation | | Pch*[1] | 100 | W |
| Channel temperature | | Tch | 150 | °C |
| Storage temperature | | Tstg | –55 to +150 | °C |

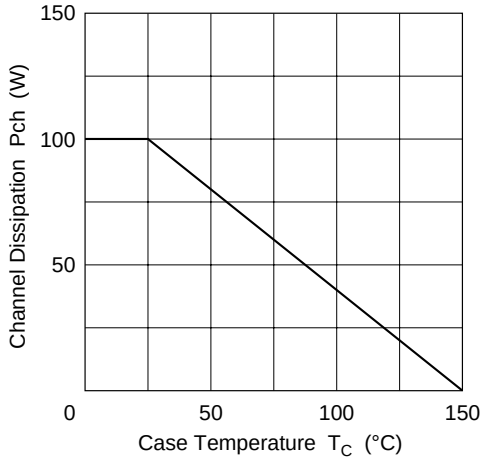
Note: 1. Value at $T_C$ = 25°C

## Electrical Characteristics (Ta = 25°C)

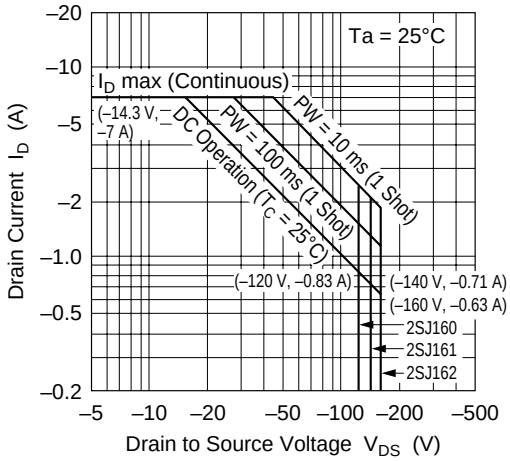
| Item | | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|---|
| Drain to source breakdown voltage | 2SJ160 | $V_{(BR)DSX}$ | –120 | — | — | V | $I_D$ = –10 mA , $V_{GS}$ = 10 V |
| | 2SJ161 | | –140 | — | — | V | |
| | 2SJ162 | | –160 | — | — | V | |
| Gate to source breakdown voltage | | $V_{(BR)GSS}$ | ±15 | — | — | V | $I_G$ = ±100 µA, $V_{DS}$ = 0 |
| Gate to source cutoff voltage | | $V_{GS(off)}$ | –0.15 | — | –1.45 | V | $I_D$ = –100 mA, $V_{DS}$ = –10 V |
| Drain to source saturation voltage | | $V_{DS(sat)}$ | — | — | –12 | V | $I_D$ = –7 A, $V_{GD}$ = 0*[1] |
| Forward transfer admittance | | $\|y_{fs}\|$ | 0.7 | 1.0 | 1.4 | S | $I_D$ = –3 A, $V_{DS}$ = –10 V*[1] |
| Input capacitance | | Ciss | — | 900 | — | pF | $V_{GS}$ = 5 V, $V_{DS}$ = –10V, |
| Output capacitance | | Coss | — | 400 | — | pF | f = 1 MHz |
| Reverse transfer capacitance | | Crss | — | 40 | — | pF | |
| Turn-on time | | $t_{on}$ | — | 230 | — | ns | $V_{DD}$ = –20 V, $I_D$ = –4 A |
| Turn-off time | | $t_{off}$ | — | 110 | — | ns | |

Note: 1. Pulse test

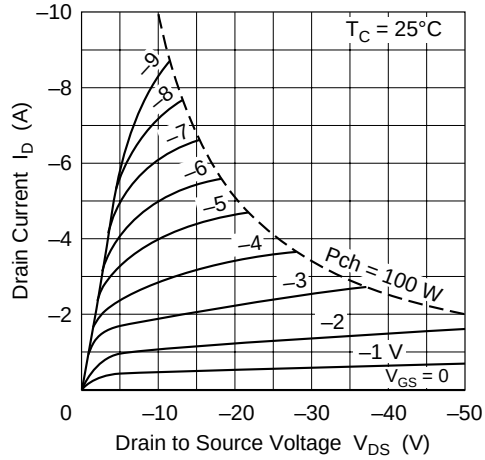
Power vs. Temperature Derating



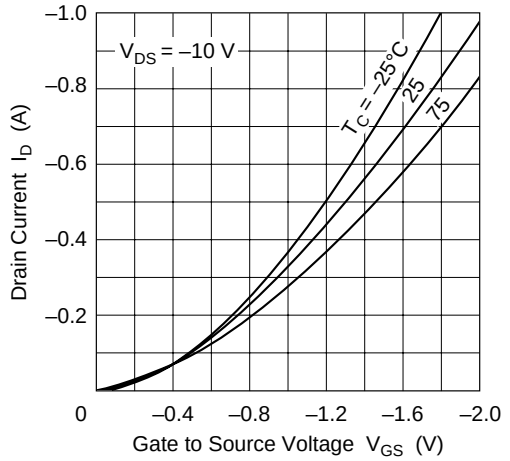

Maximum Safe Operation Area



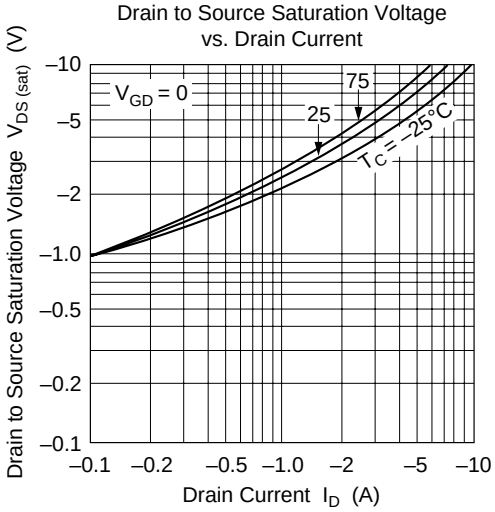

Typical Output Characteristics



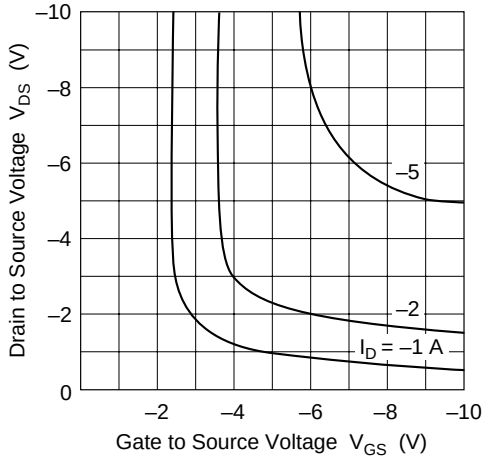

Typical Transfer Characteristics



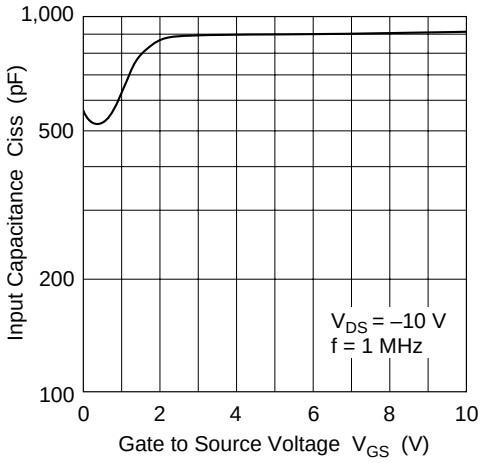
Drain to Source Saturation Voltage vs. Drain Current



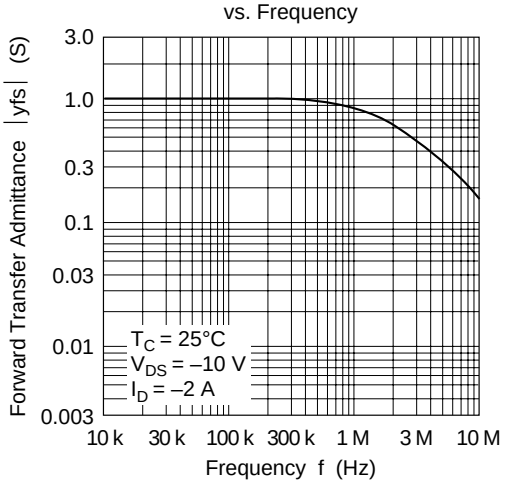

Drain to Source Voltage vs. Gate to Source Voltage



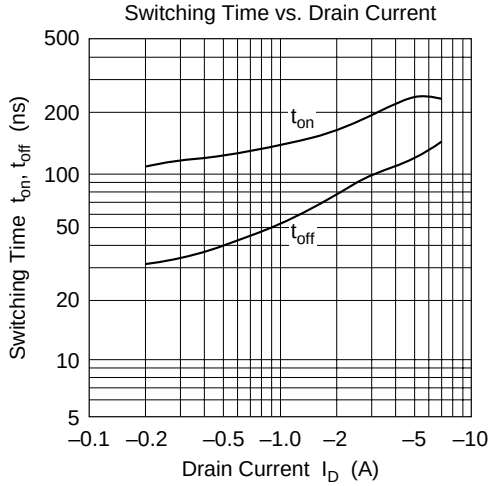

Input Capacitance vs. Gate to Source Voltage



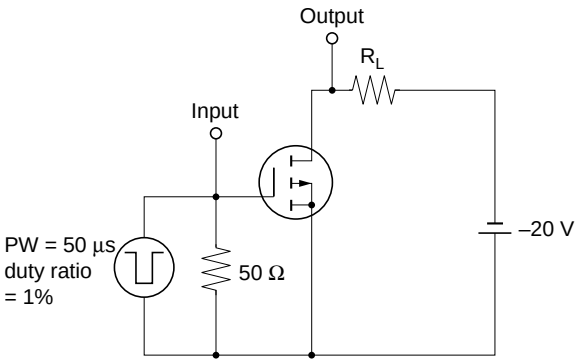

Forward Transfer Admittance vs. Frequency



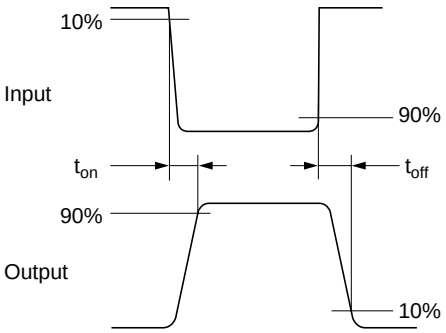
Switching Time vs. Drain Current



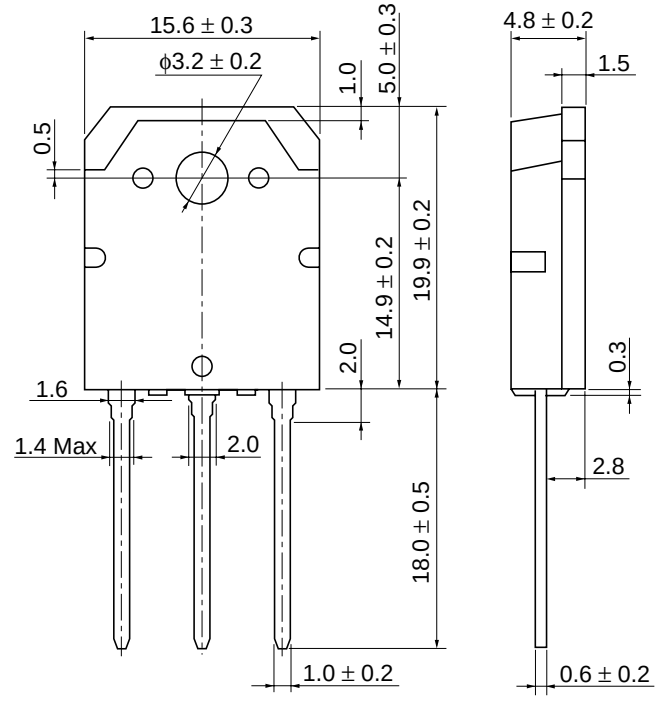

Switching Time Test Circuit

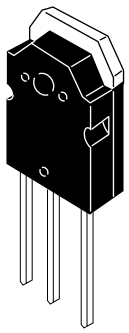


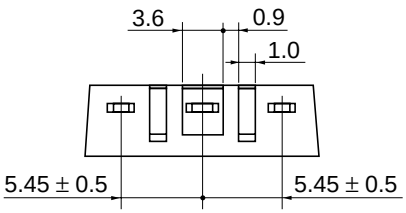

Waveforms



Unit: mm






| | |
|---|---|
| Hitachi Code | TO-3P |
| JEDEC | — |
| EIAJ | Conforms |
| Weight (reference value) | 5.0 g |

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