

2SJ48, 2SJ49, 2SJ50

T-39-23

SILICON P-CHANNEL MOS FET

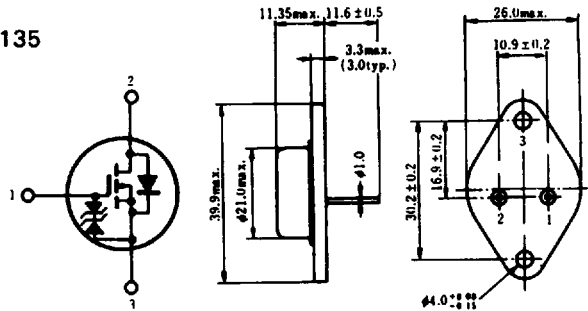
HITACHI/(OPTOELECTRONICS)

LOW FREQUENCY POWER AMPLIFIER

Complementary Pair with 2SK133, 2SK134, 2SK135

■ FEATURES

- High Power Gain.
- Excellent Frequency Response.
- High Speed Switching.
- Wide Area of Safe Operation.
- Enhancement-Mode.
- Good Complementary Characteristics.
- Equipped with Gate Protection Diodes.



1. Gate
2. Drain
3. Source
(Case)

(JEDEC TO-3)

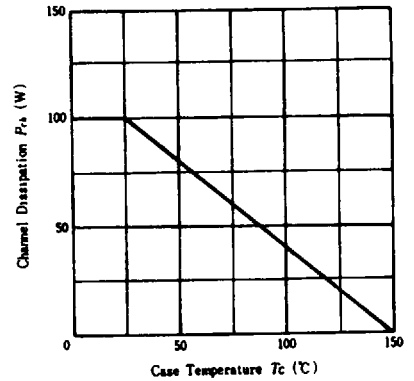
(Dimensions in mm)

■ ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ\text{C}$)

| Item | Symbol | Rating | | | Unit |
|--|------------|------------|-------|-------|------------------|
| | | 2SJ48 | 2SJ49 | 2SJ50 | |
| Drain-Source Voltage | V_{DS} | -120 | -140 | -160 | V |
| Gate-Source Voltage | V_{GS} | ±14 | | | V |
| Drain Current | I_D | -7 | | | A |
| Body-Drain Diode Reverse Drain Current | I_{DR} | -7 | | | A |
| Channel Dissipation | P_{ch}^* | 100 | | | W |
| Channel Temperature | T_{ch} | 150 | | | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 ~ +150 | | | $^\circ\text{C}$ |

*Value at $T_c=25^\circ\text{C}$

POWER VS. TEMPERATURE DERATING

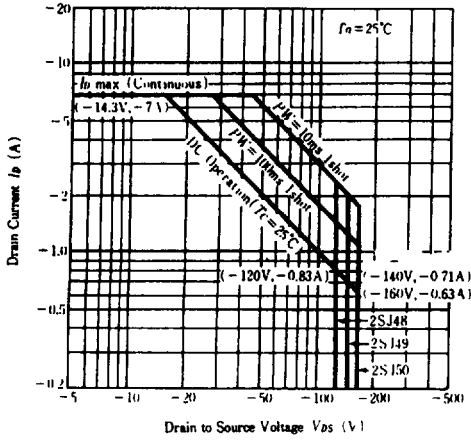


■ ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$)

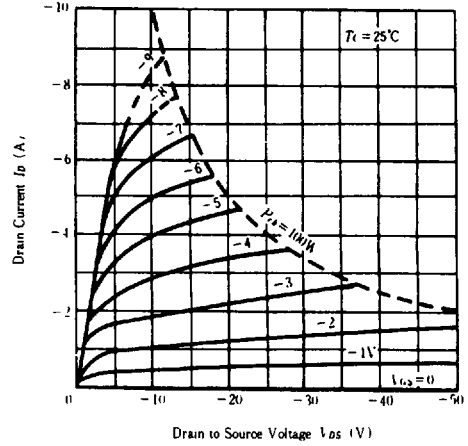
| Item | Symbol | Test Condition | min. | typ. | max. | Unit |
|---------------------------------|---------------|---|-------|------|-------|------|
| | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DS}$ | $I_D=-10\text{mA}, V_{GS}=10\text{V}$ | -120 | — | — | V |
| | | | -140 | — | — | V |
| | | | -160 | — | — | V |
| Gate-Source Breakdown Voltage | $V_{(BR)GS}$ | $I_G=\pm 100\mu\text{A}, V_{DS}=0$ | ±14 | — | — | V |
| Gate-Source Cutoff Voltage | $V_{GS(off)}$ | $I_D=-100\text{mA}, V_{DS}=-10\text{V}$ | -0.15 | — | -1.45 | V |
| Drain-Source Saturation Voltage | $V_{DS(sat)}$ | $I_D=-7\text{A}, V_{GS}=0^*$ | — | — | -12 | V |
| Forward Transfer Admittance | $ y_f $ | $I_D=-3\text{A}, V_{DS}=-10\text{V}^*$ | 0.7 | 1.0 | 1.4 | S |
| Input Capacitance | C_{iss} | $V_{GS}=5\text{V}, V_{DS}=-10\text{V}, f=1\text{MHz}$ | — | 900 | — | pF |
| Output Capacitance | C_{oss} | | — | 400 | — | pF |
| Reverse Transfer Capacitance | C_{rss} | | — | 40 | — | pF |
| Turn-on Time | t_{on} | $V_{DS}=-20\text{V}, I_D=-4\text{A}$ | — | 230 | — | ns |
| Turn-off Time | t_{off} | | — | 110 | — | ns |

*Pulse Test

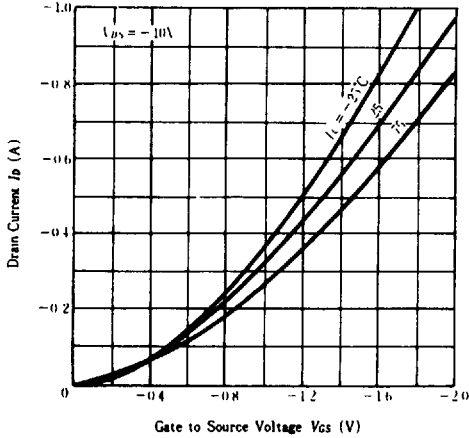
MAXIMUM SAFE OPERATION AREA



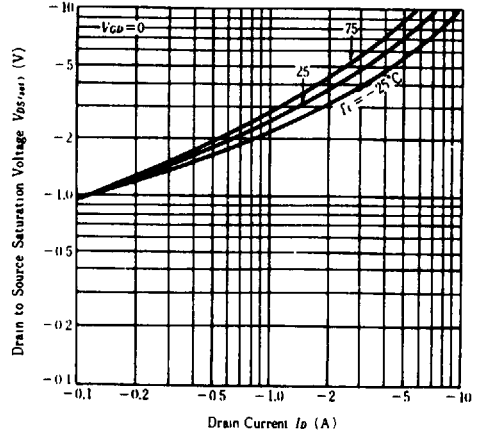
TYPICAL OUTPUT CHARACTERISTICS



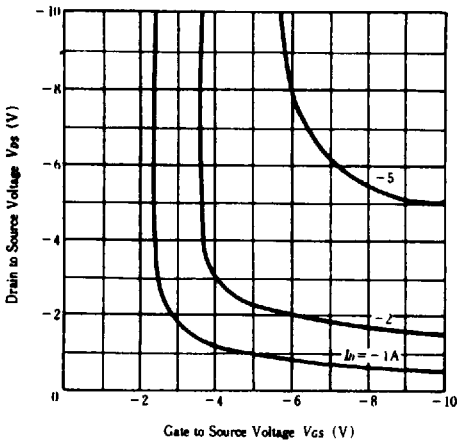
TYPICAL TRANSFER CHARACTERISTICS



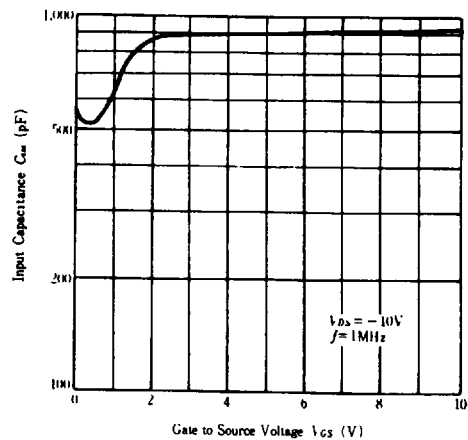
DRAIN TO SOURCE SATURATION VOLTAGE VS. DRAIN CURRENT



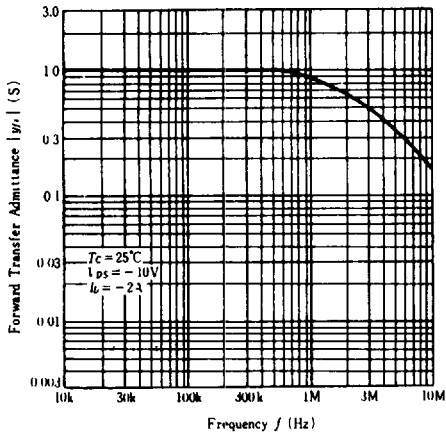
DRAIN TO SOURCE VOLTAGE VS. GATE TO SOURCE VOLTAGE



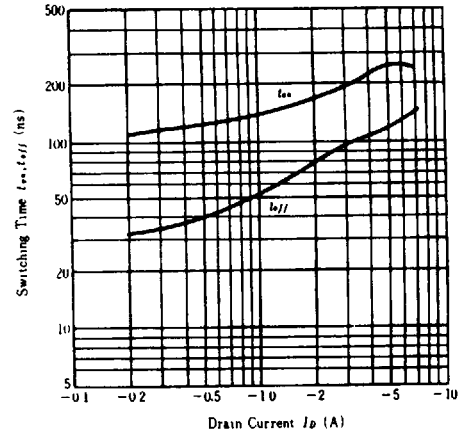
INPUT CAPACITANCE VS. GATE TO SOURCE VOLTAGE



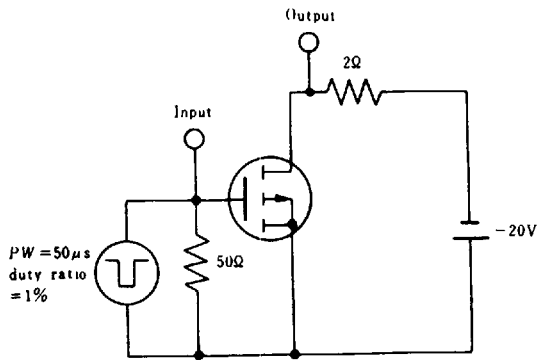
**FORWARD TRANSFER ADMITTANCE
VS. FREQUENCY**



**SWITCHING TIME
VS. DRAIN CURRENT**



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

