2SJ48,2SJ49,2SJ50

T-39-23

SILICON P-CHANNEL MOS FET

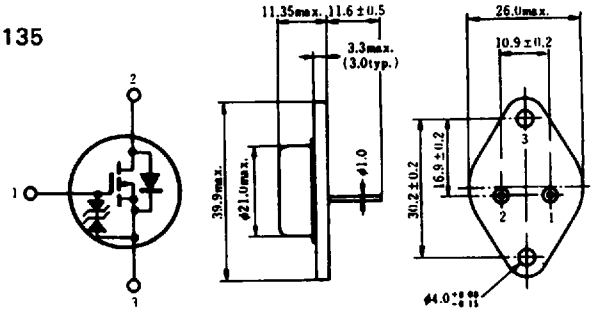
HITACHI/(OPTOELECTRONICS)

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)

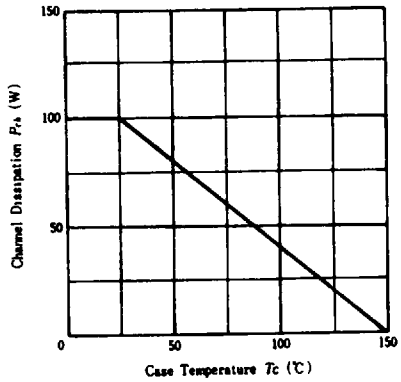
(Dimensions in mm)

■ ABSOLUTE MAXIMUM RATINGS (T_a=25 °C)

Item	Symbol	Rating			Unit
		2SJ48	2SJ49	2SJ50	
Drain-Source Voltage	V_{DSX}	−120	−140	−160	V
Gate-Source Voltage	V_{GSS}	±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			°C
Storage Temperature	T_{stg}	−55 ~ +150			°C

*Value at T_c=25 °C

POWER VS. TEMPERATURE DERATING

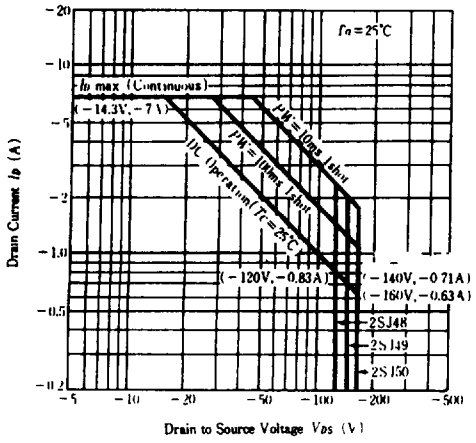


■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

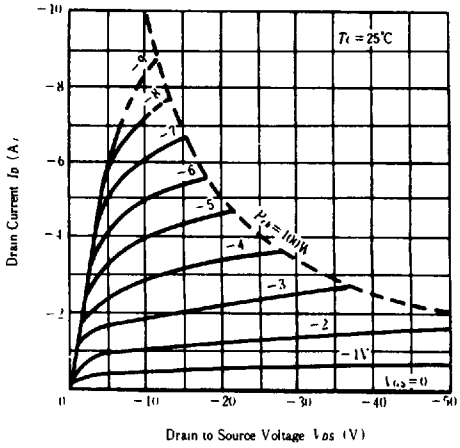
Item		Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	2SJ48	$V_{(BR)DSX}$	I_D=−10mA, V_{GS}=10V	−120	—	—	V
	2SJ49			−140	—	—	V
	2SJ50			−160	—	—	V
Gate-Source Breakdown Voltage		$V_{(BR)GSS}$	I_G=±100μA, V_{DS}=0	±14	—	—	V
Gate-Source Cutoff Voltage		$V_{GS(off)}$	I_D=−100mA, V_{DS}=−10V	−0.15	—	−1.45	V
Drain-Source Saturation Voltage		$V_{DS(sat)}$	I_D=−7A, V_{GD}=0*	—	—	−12	V
Forward Transfer Admittance		$\|y_{fs}\|$	I_D=−3A, V_{DS}=−10V*	0.7	1.0	1.4	S
Input Capacitance		C_{iss}	V_{GS}=5V, V_{DS}=−10V, f=1MHz	—	900	—	pF
Output Capacitance		C_{oss}		—	400	—	pF
Reverse Transfer Capacitance		C_{rss}		—	40	—	pF
Turn-on Time		t_{on}	V_{DD}=−20V, I_D=−4A	—	230	—	ns
Turn-off Time		t_{off}		—	110	—	ns

*Pulse Test

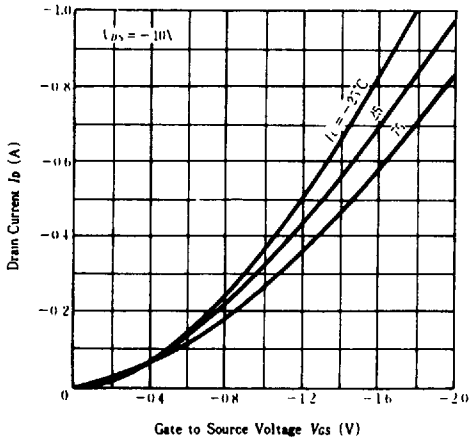
MAXIMUM SAFE OPERATION AREA



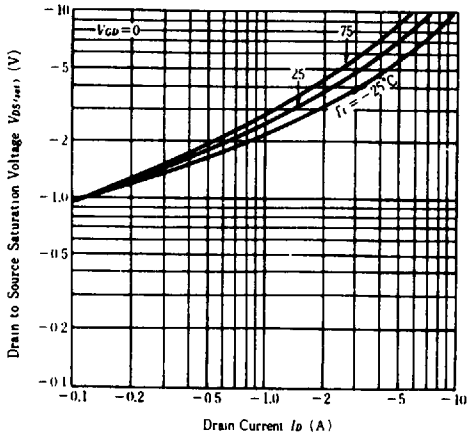
TYPICAL OUTPUT CHARACTERISTICS



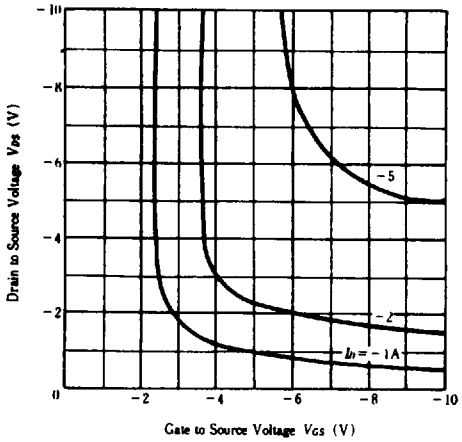
TYPICAL TRANSFER CHARACTERISTICS



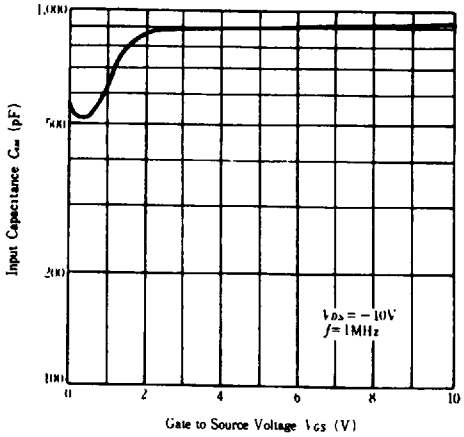
DRAIN TO SOURCE SATURATION VOLTAGE VS. DRAIN CURRENT



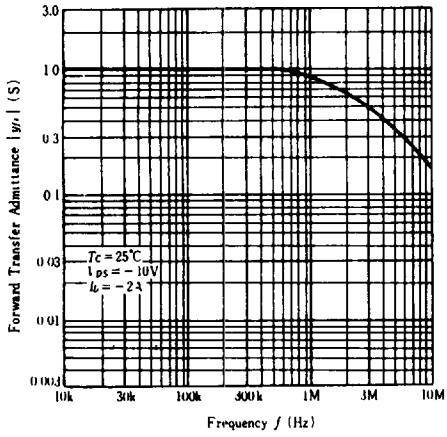
DRAIN TO SOURCE VOLTAGE VS. GATE TO SOURCE VOLTAGE



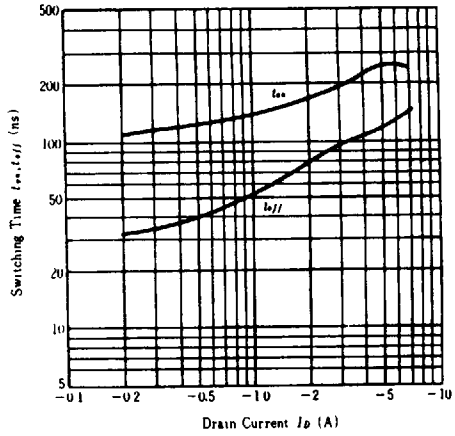
INPUT CAPACITANCE VS. GATE TO SOURCE VOLTAGE



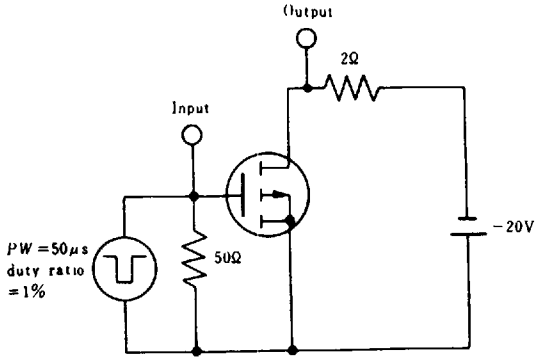
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



SWITCHING TIME VS. DRAIN CURRENT



SWITCHING TIME TEST CIRCUIT



WAVEFORMS