

# 2SJ48, 2SJ49, 2SJ50

T-39-23

## SILICON P-CHANNEL MOS FET

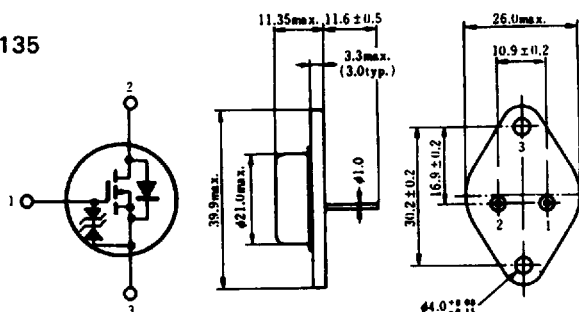
HITACHI/(OPTOELECTRONICS)

### 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)

$$T_{jc} = 1.25^{\circ}\text{C/W}$$

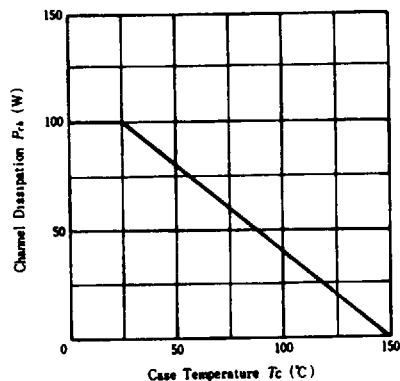
#### ■ ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^{\circ}\text{C}$ )

Item	Symbol	Rating			Unit
		2SJ48	2SJ49	2SJ50	
Drain-Source Voltage	$V_{DS}$	-120	-140	-160	V
Gate-Source Voltage	$V_{GS}$	$\pm 14$			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	$T_{stg}$	$-55 \sim +150$			$^{\circ}\text{C}$

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

#### POWER VS.

#### TEMPERATURE DERATING

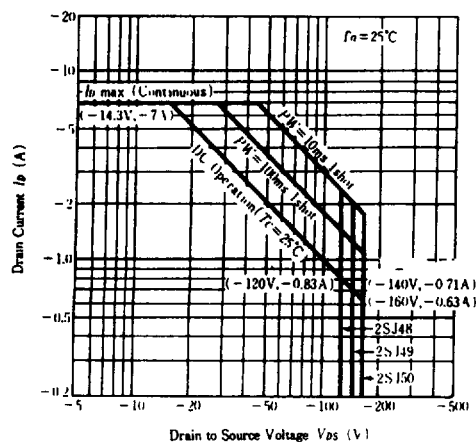


#### ■ ELECTRICAL CHARACTERISTICS ( $T_a = 25^{\circ}\text{C}$ )

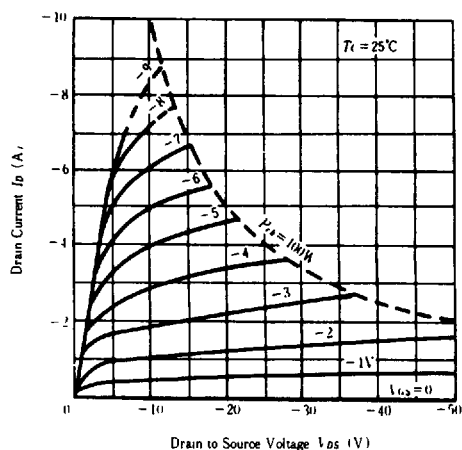
Item		Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	2SJ48	$V_{(BR)DS}$	$I_D = -10\text{mA}, V_{GS} = 10\text{V}$	-120	—	—	V
	2SJ49			-140	—	—	V
	2SJ50			-160	—	—	V
Gate-Source Breakdown Voltage		$V_{(BR)GS}$	$I_G = \pm 100\mu\text{A}, V_{DS} = 0$	$\pm 14$	—	—	V
Gate-Source 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_{fs} $	$I_D = -3\text{A}, V_{DS} = -10\text{V}^*$	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

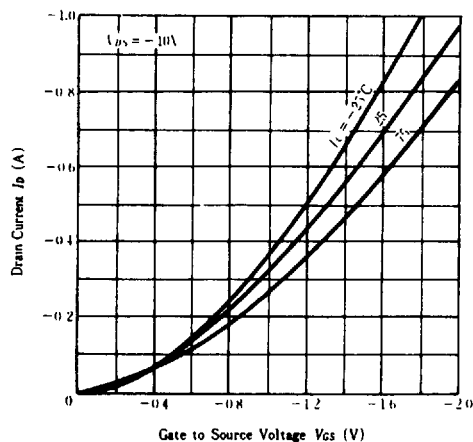
### MAXIMUM SAFE OPERATION AREA



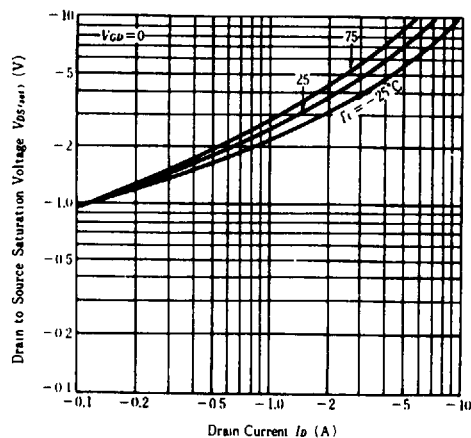
### TYPICAL OUTPUT CHARACTERISTICS



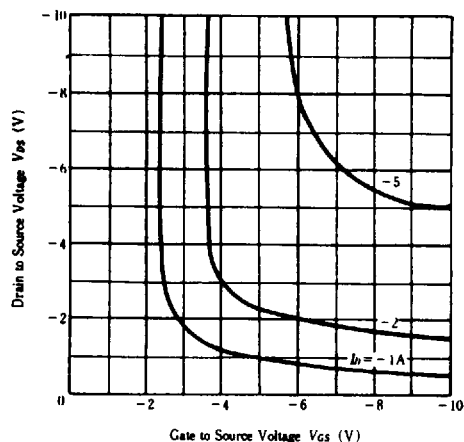
### TYPICAL TRANSFER CHARACTERISTICS



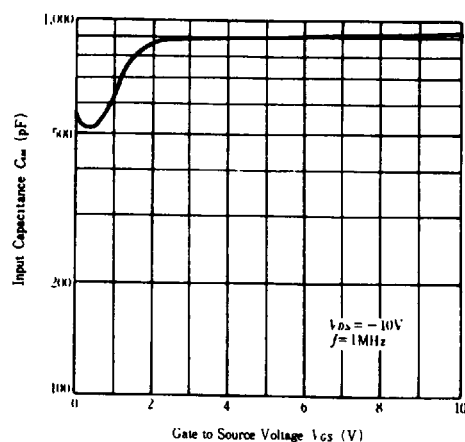
### DRAIN TO SOURCE SATURATION VOLTAGE VS. DRAIN CURRENT



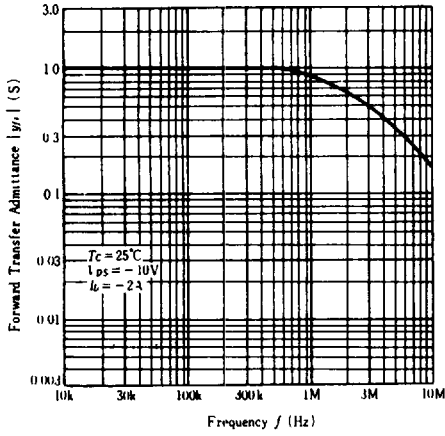
**DRAIN TO SOURCE VOLTAGE VS.  
GATE TO SOURCE VOLTAGE**



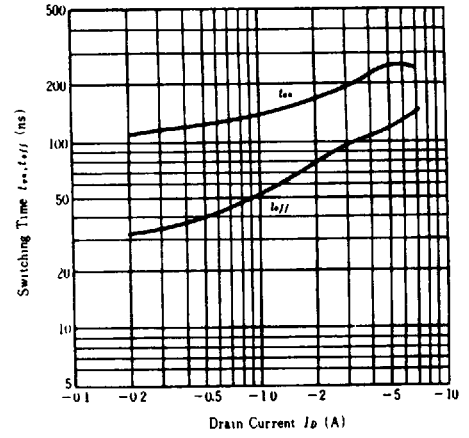
### INPUT CAPACITANCE VS. GATE TO SOURCE VOLTAGE



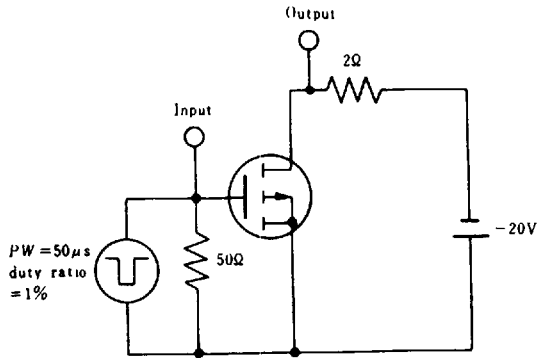
### FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



### SWITCHING TIME VS. DRAIN CURRENT



### SWITCHING TIME TEST CIRCUIT



### WAVEFORMS

