2SK133, 2SK134, 2SK135

HITACHI/(OPTOELECTRONICS)

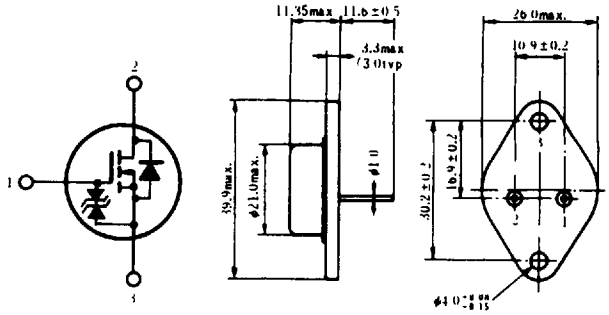
SILICON N-CHANNEL MOS FET

LOW FREQUENCY POWER AMPLIFIER

Complementary pair with 2SJ48, 2SJ49, 2SJ50

■ 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)

(Dimensions in mm)

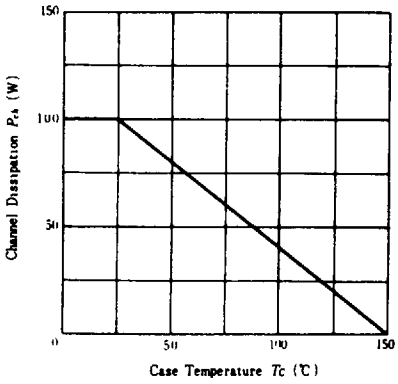
(JEDEC TO-3)

■ ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Item	Symbol	Rating			Unit
		2SK133	2SK134	2SK135	
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

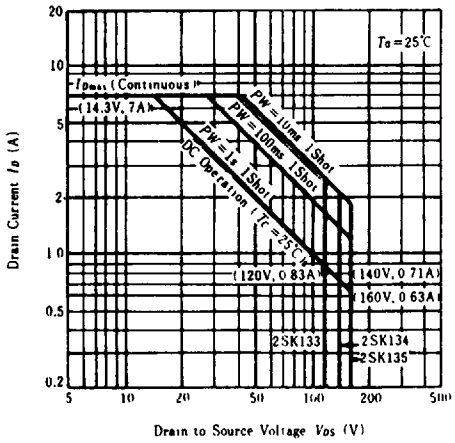


■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

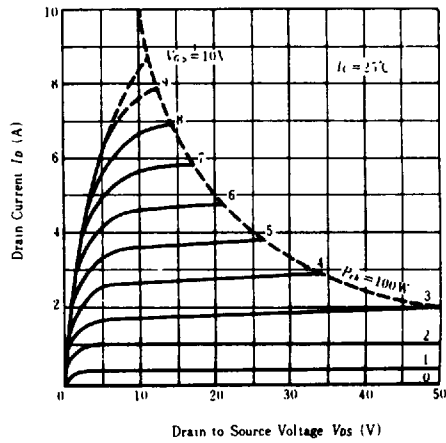
Item		Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	2SK133	$V_{(BR)DSX}$	I_D=10mA, V_{GS}=−10V	120	—	—	V
	2SK134			140	—	—	V
	2SK135			160	—	—	V
Gate-Source Breakdown Voltage		$V_{(BR)GSS}$	I_G=±100μA, V_{DS}=0	±14	—	—	V
Gate-Source Cutoff Voltage		$V_{GS(off)}$	I_D=100mA, 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	—	600	—	pF
Output Capacitance		C_{oss}		—	350	—	pF
Reverse Transfer Capacitance		C_{rss}		—	10	—	pF
Turn-on Time		t_{on}	V_{DD}=20V, I_D=4A	—	180	—	ns
Turn-off Time		t_{off}		—	60	—	ns

*Pulse Test

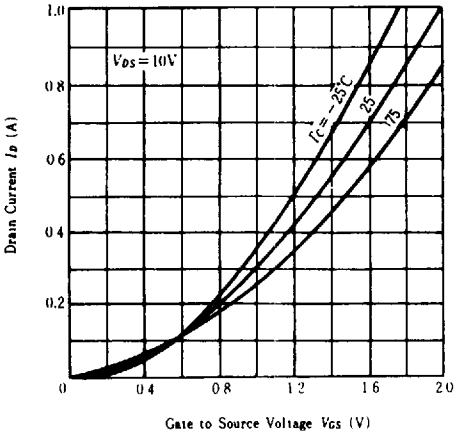
MAXIMUM SAFE OPERATION AREA



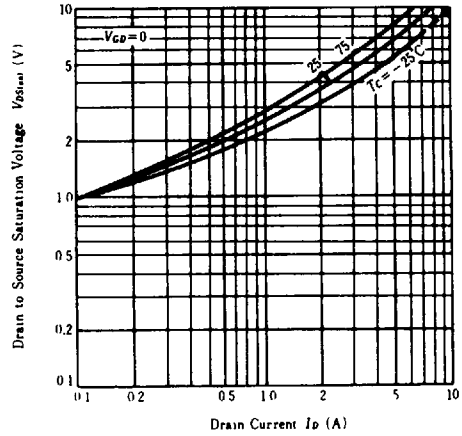
TYPICAL OUTPUT CHARACTERISTICS



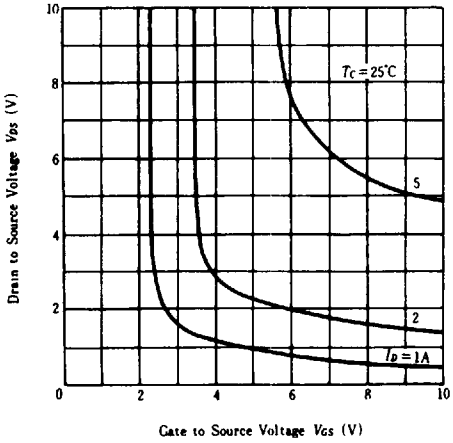
TYPICAL TRANSFER CHARACTERISTICS



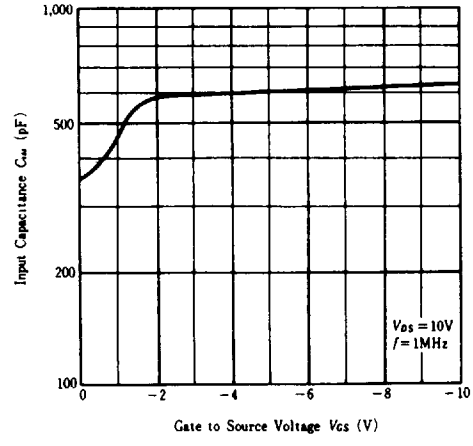
DRAIN - SOURCE SATURATION VOLTAGE VS. DRAIN CURRENT



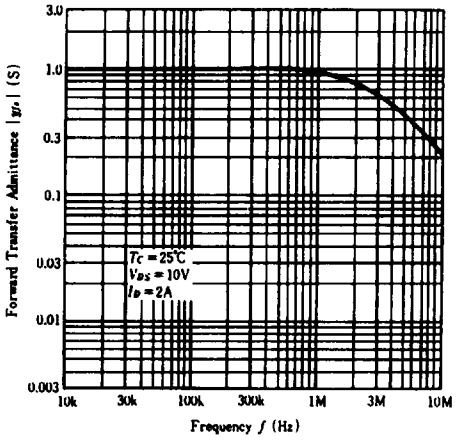
DRAIN - SOURCE VOLTAGE VS. GATE - SOURCE VOLTAGE



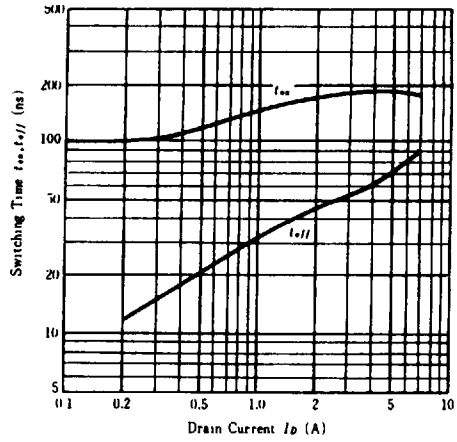
INPUT CAPACITANCE VS. GATE SOURCE VOLTAGE



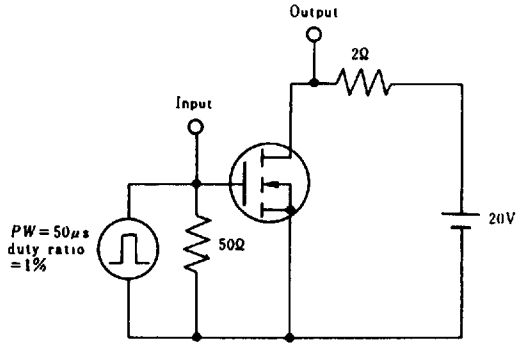
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



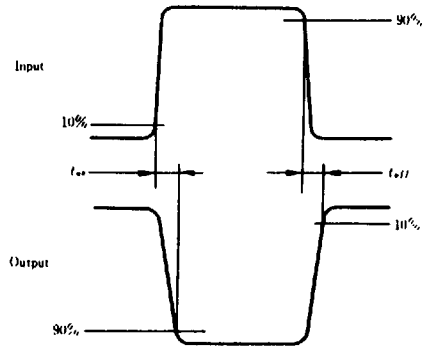
SWITCHING TIME VS. DRAIN CURRENT



SWITCHING TIME TEST CIRCUIT



WAVEFORMS



HITACHI/(OPTOELECTRONICS) 61E D