

2SK175, 2SK176

SILICON N-CHANNEL MOS FET

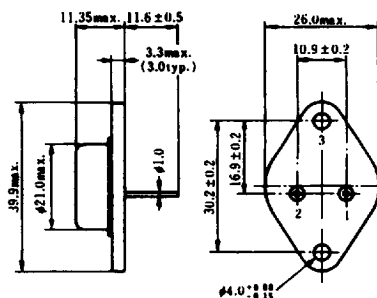
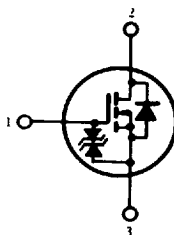
HITACHI/(OPTOELECTRONICS)

LOW FREQUENCY POWER AMPLIFIER

Complementary pair with 2SJ55, 2SJ56

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)

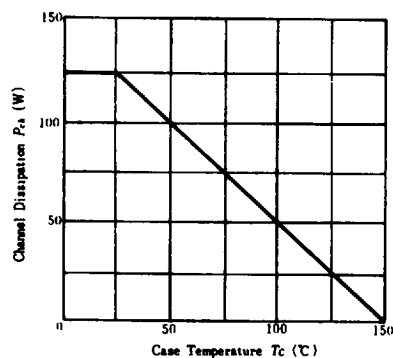
(Dimensions in mm)

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

Item	Symbol	Rating		Unit
		2SK175	2SK176	
Drain-Source Voltage	V_{DS}	180	200	V
Gate-Source Voltage	V_{GS}	±20		V
Drain Current	I_D	8		A
Body-Drain Diode Reverse Drain Current	I_{DR}	8		A
Channel Dissipation	P_{ch} *	125		W
Channel Temperature	T_{ch}	150		°C
Storage Temperature	T_{stg}	-55 ~ +150		°C

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

POWER VS. TEMPERATURE DERATING

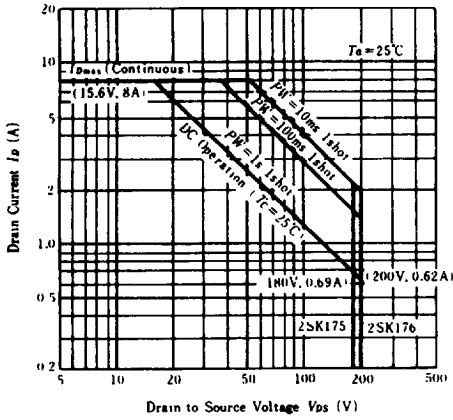


ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$)

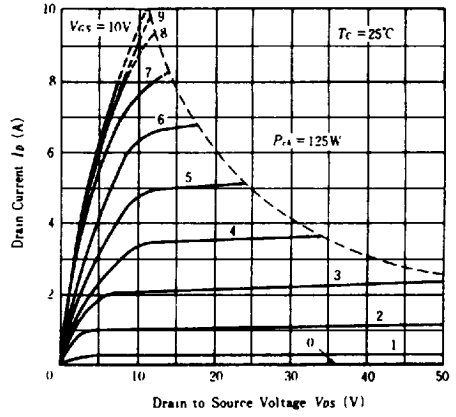
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=10\text{mA}, V_{GS}=-10\text{V}$	180	—	—	V
			200	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GS}$	$I_G=\pm 100\mu\text{A}, V_{DS}=0$	±20	—	—	V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=100\text{mA}, V_{DS}=10\text{V}$	0.15	—	1.45	V
Drain-Source Saturation Voltage	$V_{DS(sat)}$	$I_D=8\text{A}, V_{GS}=0^*$	—	—	12	V
Forward Transfer Admittance	$ y_f $	$I_G=3\text{A}, V_{DS}=10\text{V}^*$	0.7	1.0	1.4	S
Input Capacitance	C_{in}	$V_{GS}=-5\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$	—	700	—	pF
Output Capacitance	C_{out}		—	400	—	pF
Reverse Transfer Capacitance	C_{rr}		—	8	—	pF
Turn-on Time	t_{on}	$V_{DD}=30\text{V}, I_D=4\text{A}$	—	250	—	ns
Turn-off Time	t_{off}		—	90	—	ns

*Pulse Test

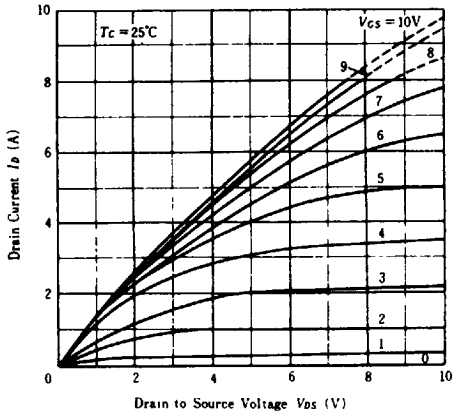
MAXIMUM SAFE OPERATION AREA



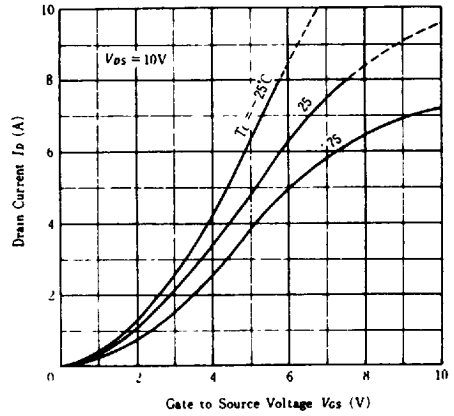
TYPICAL OUTPUT CHARACTERISTICS



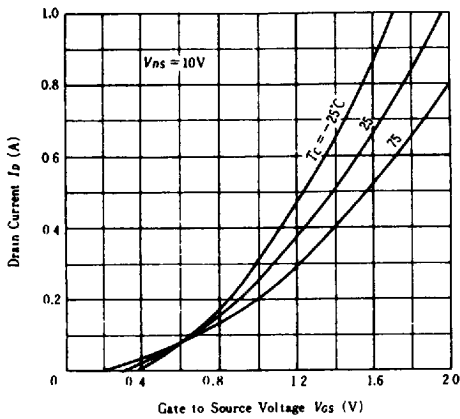
TYPICAL OUTPUT CHARACTERISTICS



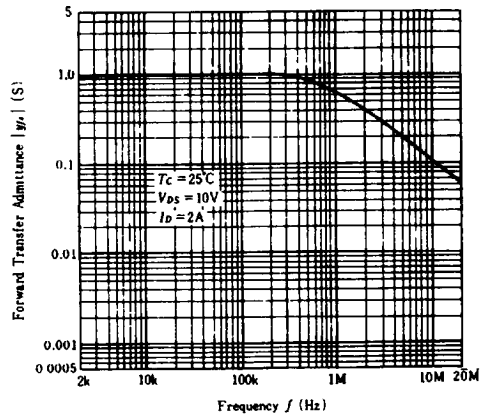
TYPICAL TRANSFER CHARACTERISTICS



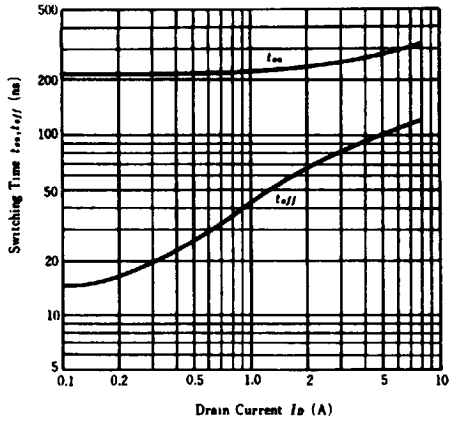
TYPICAL TRANSFER CHARACTERISTICS



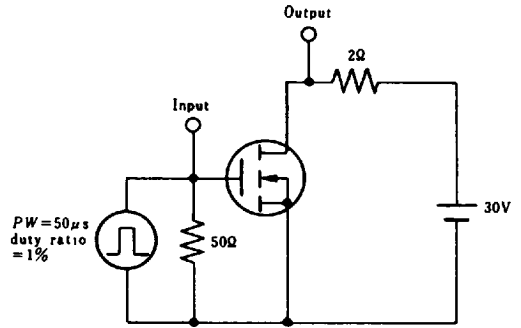
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



SWITCHING TIME VS. DRAIN CURRENT



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

