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# 2SK1056, 2SK1057, 2SK1058

Silicon N-Channel MOS FET

# HITACHI

ADE-208-1244 (Z)  
1st. Edition  
Mar. 2001

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## Application

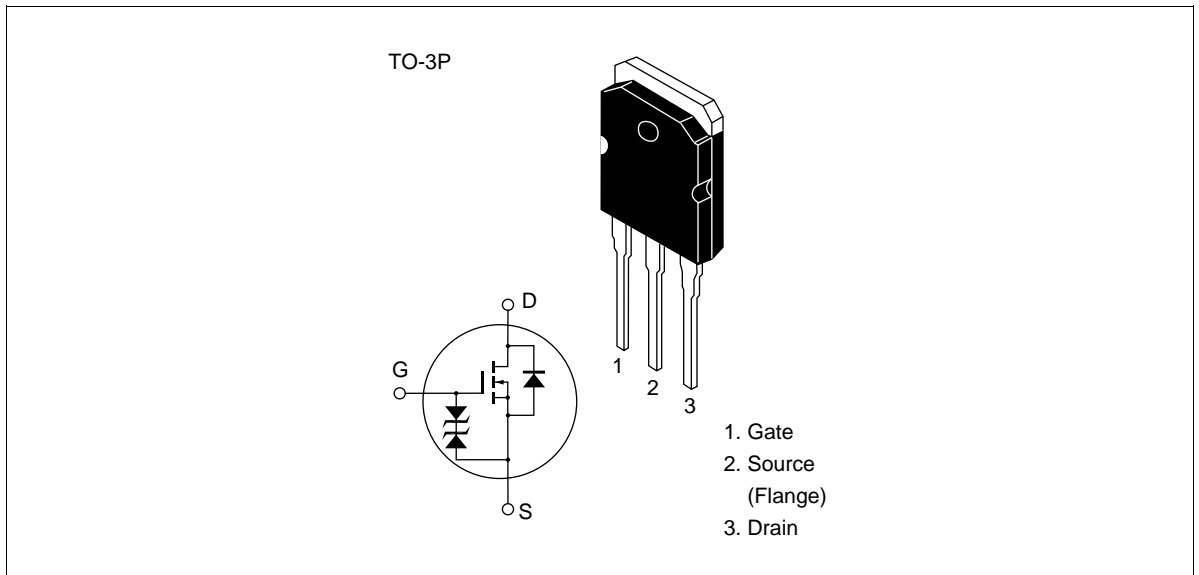
Low frequency power amplifier

Complementary pair with 2SJ160, 2SJ161 and 2SJ162

## Features

- Good frequency characteristic
- High speed switching
- Wide area of safe operation
- Enhancement-mode
- Good complementary characteristics
- Equipped with gate protection diodes
- Suitable for audio power amplifier

## Outline



## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

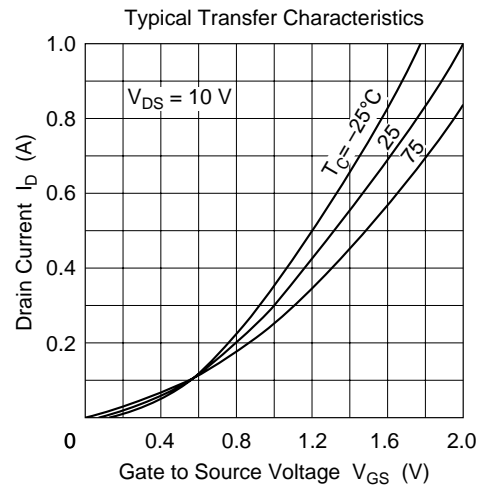
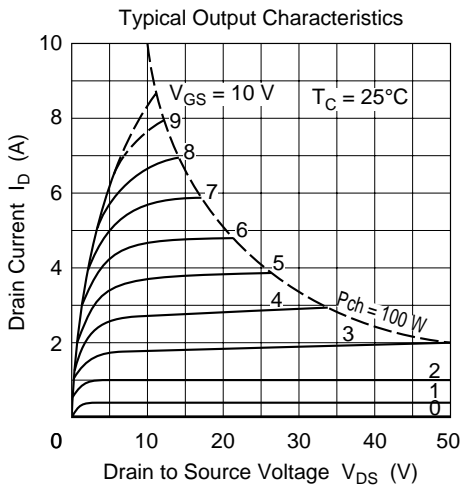
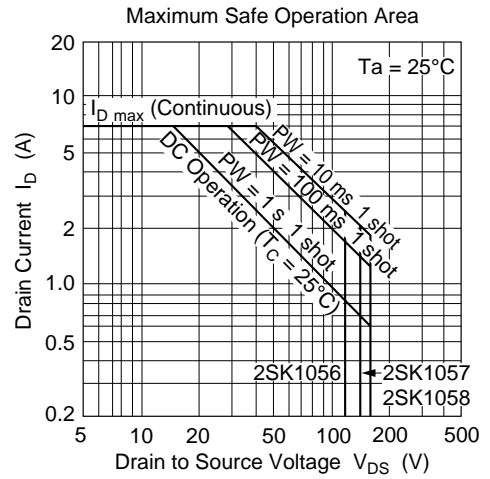
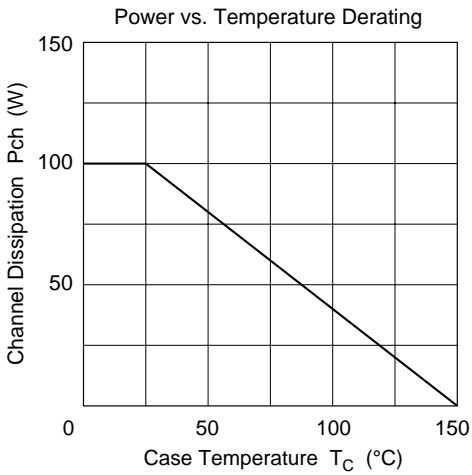
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1056	$V_{DSX}$	120	V
	2SK1057		140	
	2SK1058		160	
Gate to source voltage		$V_{GSS}$	$\pm 15$	V
Drain current		$I_D$	7	A
Body to drain diode reverse drain current		$I_{DR}$	7	A
Channel dissipation		$P_{ch}^{*1}$	100	W
Channel temperature		$T_{ch}$	150	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note: 1. Value at  $T_C = 25^\circ\text{C}$

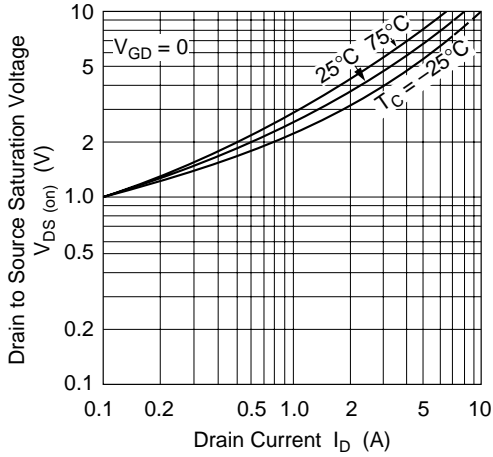
**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1056 $V_{(BR)DSX}$ 2SK1057 2SK1058	120 140 160	—	—	V	$I_D = 10\text{ mA}$ , $V_{GS} = -10\text{ V}$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 15$	—	—	V	$I_G = \pm 100\ \mu\text{A}$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.15	—	1.45	V	$I_D = 100\text{ mA}$ , $V_{DS} = 10\text{ V}$
Drain to source saturation voltage	$V_{DS(sat)}$	—	—	12	V	$I_D = 7\text{ A}$ , $V_{GD} = 0$ *1
Forward transfer admittance	$ y_{fs} $	0.7	1.0	1.4	S	$I_D = 3\text{ A}$ , $V_{DS} = 10\text{ V}$ *1
Input capacitance	$C_{iss}$	—	600	—	pF	$V_{GS} = -5\text{ V}$ , $V_{DS} = 10\text{ V}$ ,
Output capacitance	$C_{oss}$	—	350	—	pF	$f = 1\text{ MHz}$
Reverse transfer capacitance	$C_{rss}$	—	10	—	pF	
Turn-on time	$t_{on}$	—	180	—	ns	$V_{DD} = 20\text{ V}$ , $I_D = 4\text{ A}$ ,
Turn-off time	$t_{off}$	—	60	—	ns	

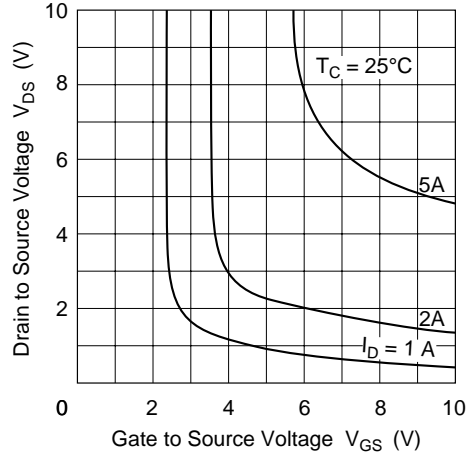
Note: 1. Pulse test



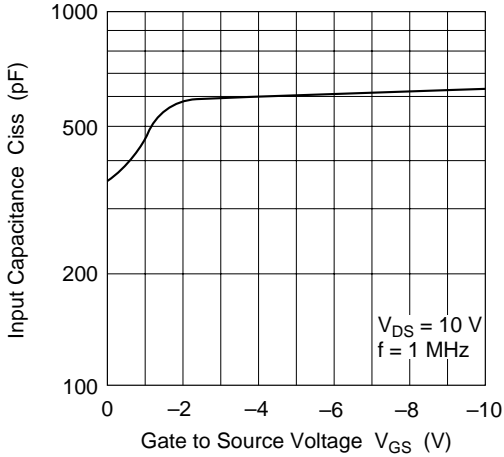
Drain to Source Saturation Voltage vs. Drain Current



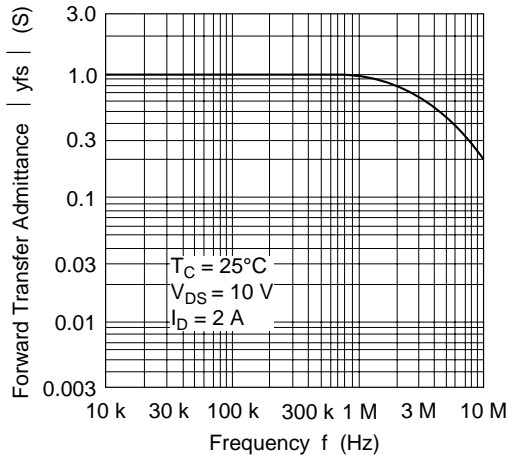
Drain to Source Voltage vs. Gate to Source Voltage

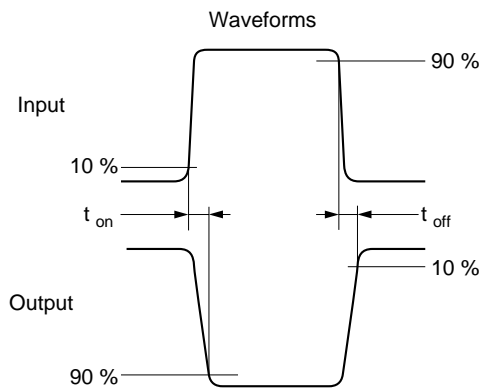
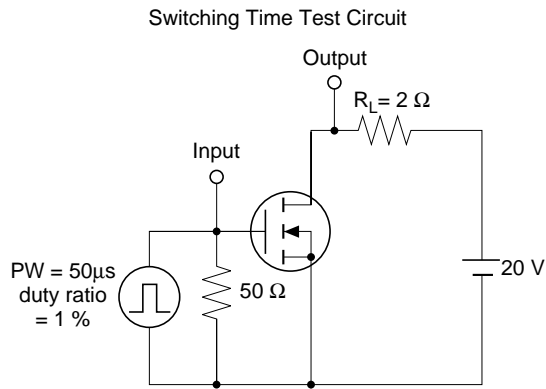
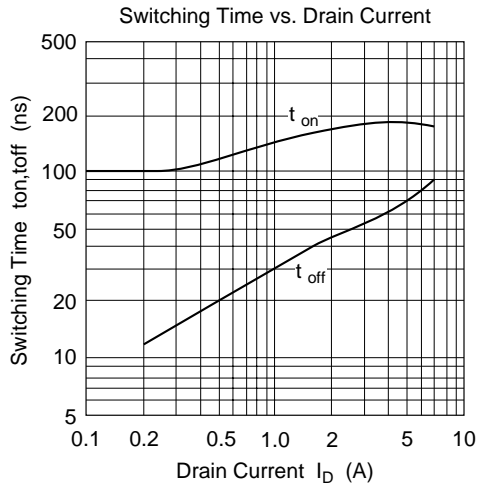


Input Capacitance vs. Gate Source Voltage



Forward Transfer Admittance vs. Frequency

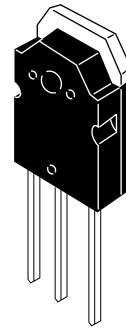
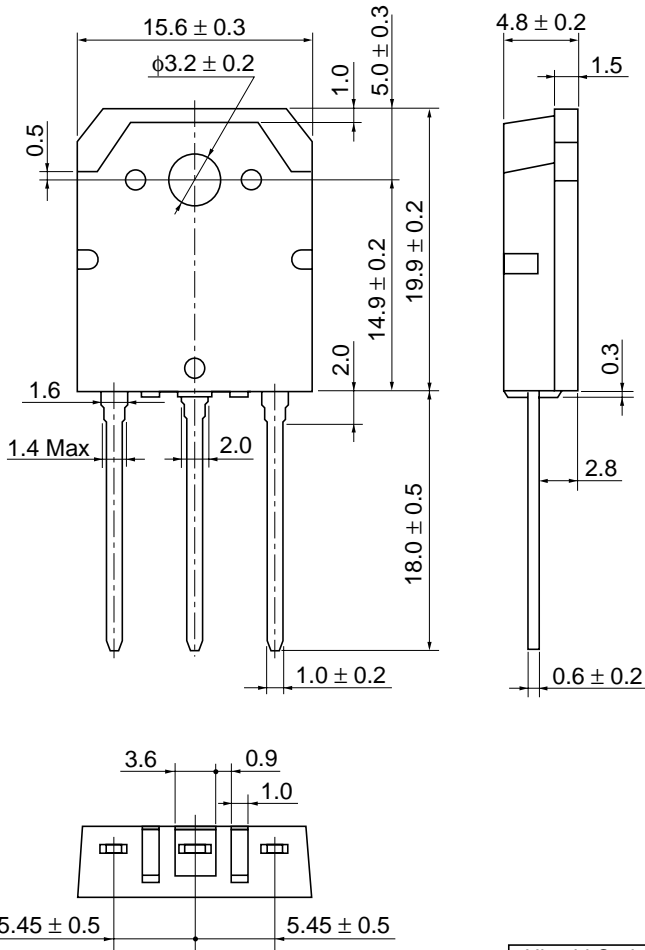




Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Mass (reference value)	5.0 g

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