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# 2SJ160, 2SJ161, 2SJ162

Silicon P-Channel MOS FET

# HITACHI

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## Application

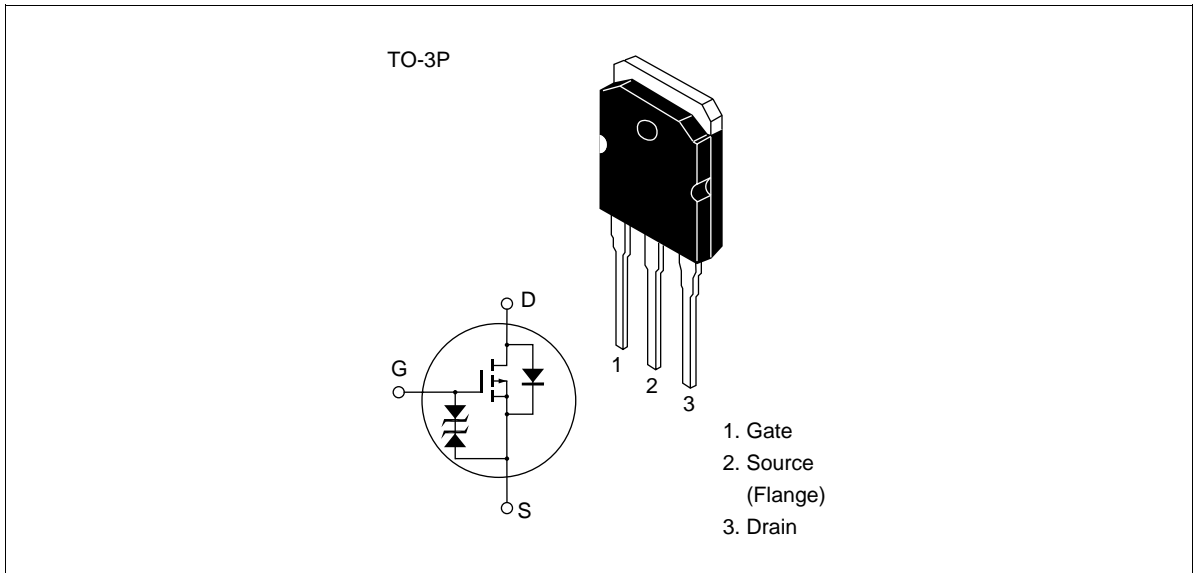
Low frequency power amplifier

Complementary pair with 2SK1056, 2SK1057 and 2SK1058

## 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 (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SJ160	$V_{DSX}$	-120	V
	2SJ161		-140	
	2SJ162		-160	
Gate to source voltage		$V_{GSS}$	±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		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

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

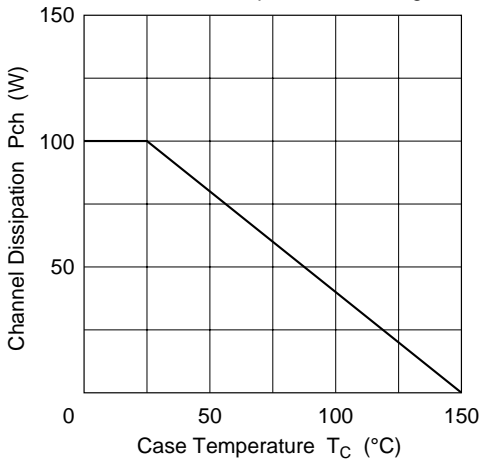
Electrical Characteristics (Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SJ160	$V_{(BR)DSX}$	-120	—	—	V	$I_D = -10 \text{ mA}, V_{GS} = 10 \text{ V}$
	2SJ161		-140	—	—	V	
	2SJ162		-160	—	—	V	
Gate to source breakdown voltage		$V_{(BR)GSS}$	±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		$C_{iss}$	—	900	—	pF	$V_{GS} = 5 \text{ V}, V_{DS} = -10 \text{ V},$
Output capacitance		$C_{oss}$	—	400	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance		$C_{rss}$	—	40	—	pF	
Turn-on time		$t_{on}$	—	230	—	ns	$V_{DD} = -20 \text{ V}, I_D = -4 \text{ A}$
Turn-off time		$t_{off}$	—	110	—	ns	

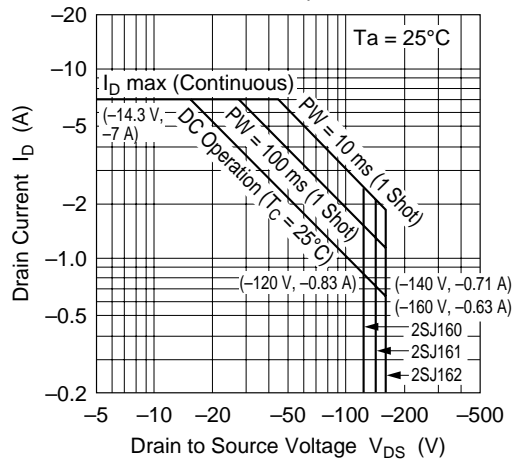
Note: 1. Pulse test

# 2SJ160, 2SJ161, 2SJ162

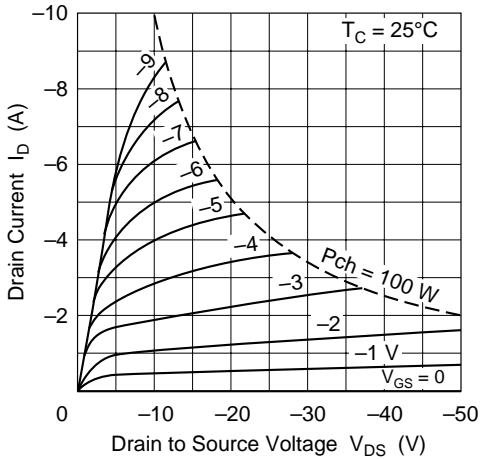
Power vs. Temperature Derating



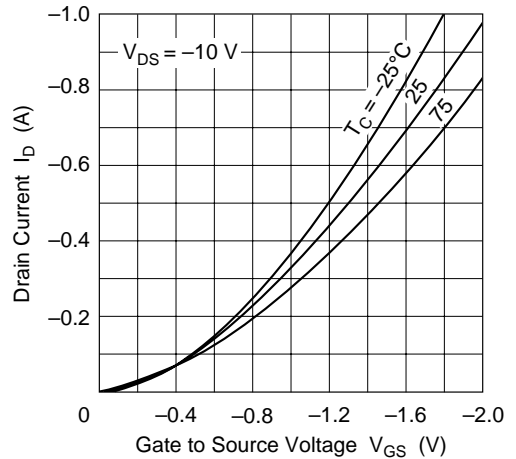
Maximum Safe Operation Area



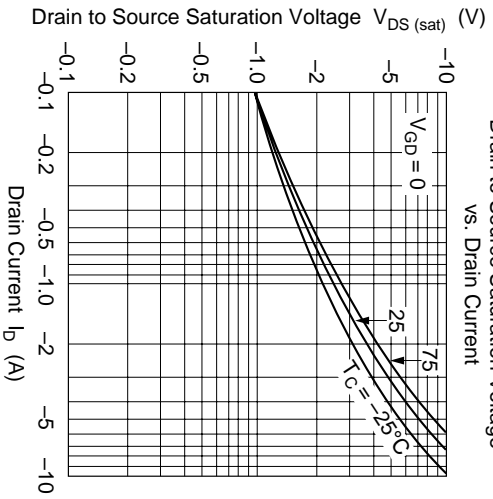
Typical Output Characteristics



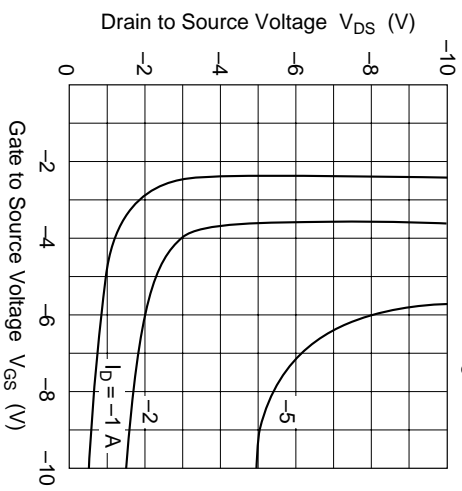
Typical Transfer Characteristics



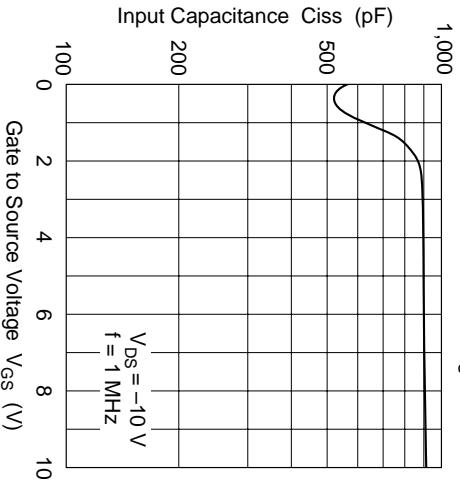
Drain to Source Saturation Voltage  $V_{DS(sat)}$  vs. Drain Current



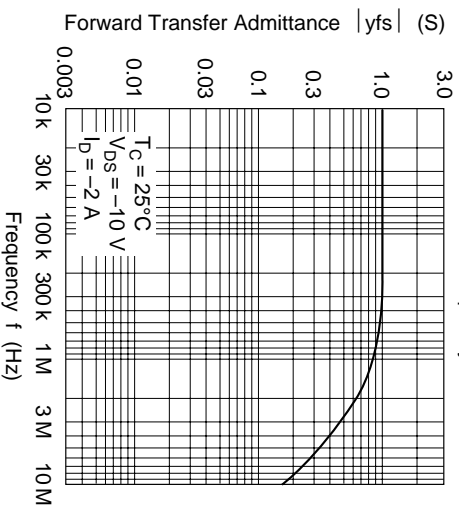
Drain to Source Voltage  $V_{DS}$  vs. Gate to Source Voltage  $V_{GS}$

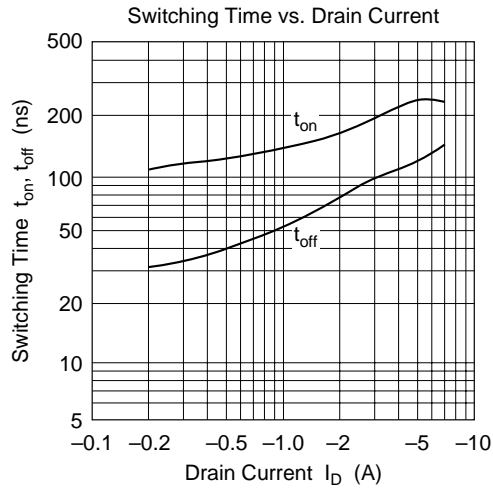


Input Capacitance vs. Gate to Source Voltage

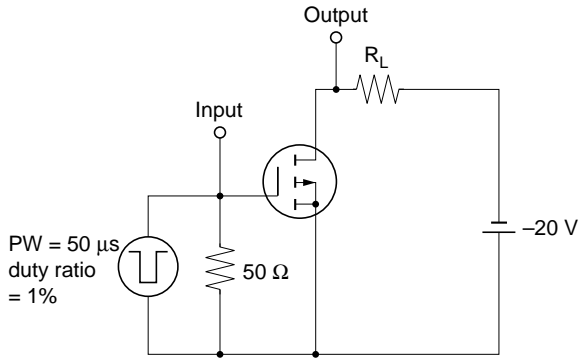


Forward Transfer Admittance vs. Frequency

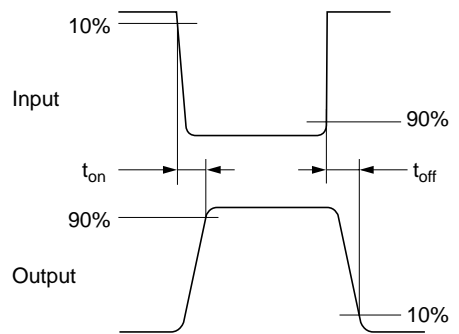


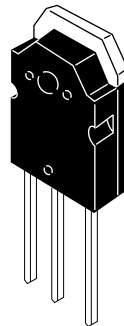
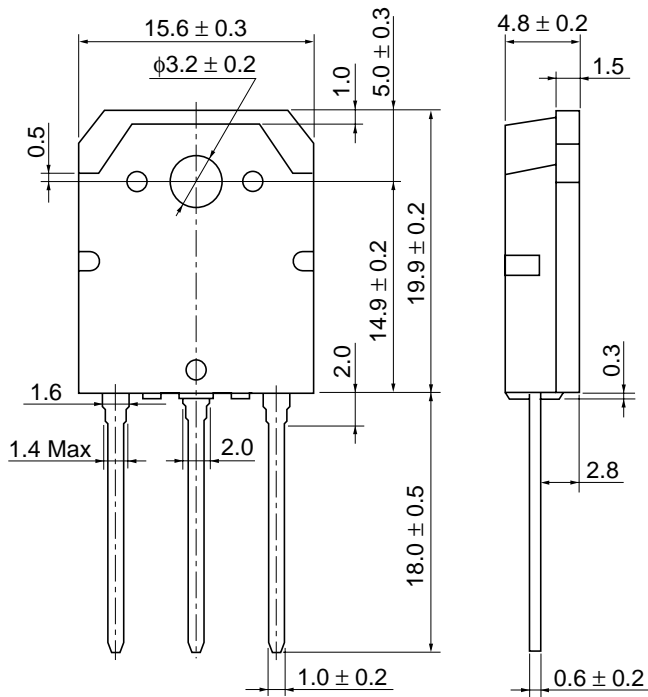


### Switching Time Test Circuit



### Waveforms





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

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