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# 2SK2220, 2SK2221

Silicon N-Channel MOS FET

# HITACHI

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## Application

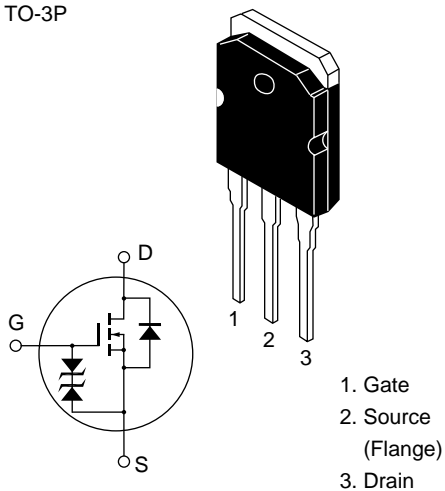
Low frequency power amplifier  
Complementary pair with 2SJ351, 2SJ352

## 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

## Outline

TO-3P



2SK2220, 2SK2221

Absolute Maximum Ratings (Ta = 25°C)

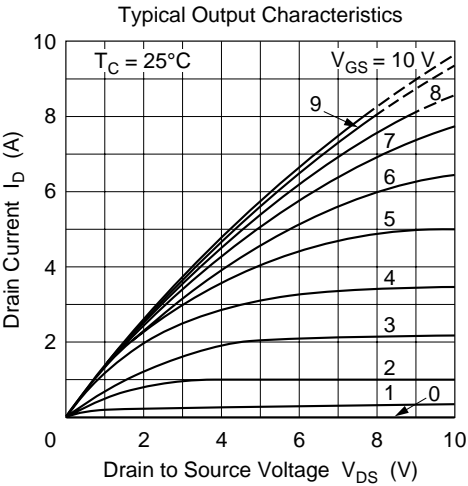
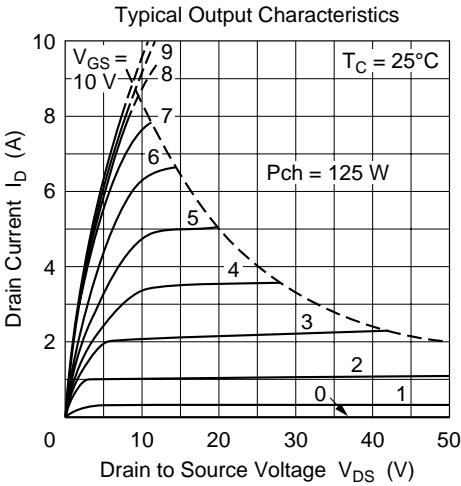
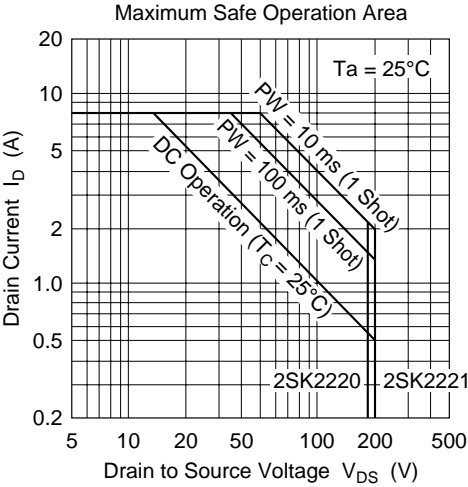
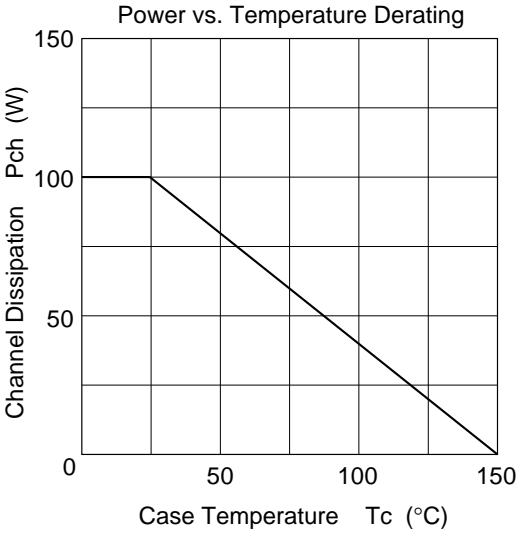
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK2220	$V_{DSX}$	180	V
	2SK2221		200	
Gate to source voltage		$V_{GSS}$	±20	V
Drain current		$I_D$	8	A
Body to drain diode reverse drain current		$I_{DR}$	8	A
Channel dissipation		$P_{ch}^{*1}$	100	W
Channel temperature		$T_{ch}$	150	°C
Storage temperature		$T_{stg}$	−55 to +150	°C

Note 1. Value at Tc = 25 °C

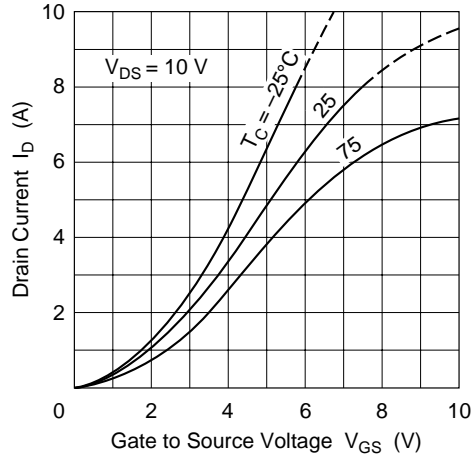
Electrical Characteristics (Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK2220	$V_{(BR)DSX}$	180	—	—	V	$I_D = 10\text{ mA}$ , $V_{GS} = -10\text{ V}$
	2SK2221		200	—	—		
Gate to source breakdown voltage		$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\text{ }\mu\text{A}$ , $V_{DS} = 0$
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	$I_D = 8\text{ A}$ , $V_{GD} = 0\text{ V}^{*1}$
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	$V_{GS} = -5\text{ V}$
Output capacitance		$C_{oss}$	—	800	—	pF	$V_{DS} = 10\text{ V}$
Reverse transfer capacitance		$C_{rss}$	—	8	—	pF	$f = 1\text{ MHz}$
Turn-on time		$t_{on}$	—	250	—	ns	$V_{DD} = 30\text{ V}$
Turn-off time		$t_{off}$	—	90	—	ns	$I_D = 4\text{ A}$

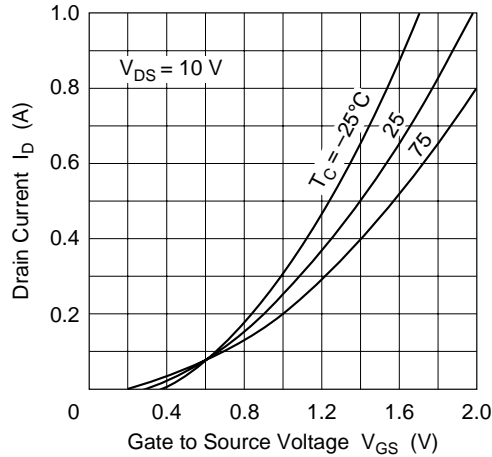
Note 1. Pulse Test



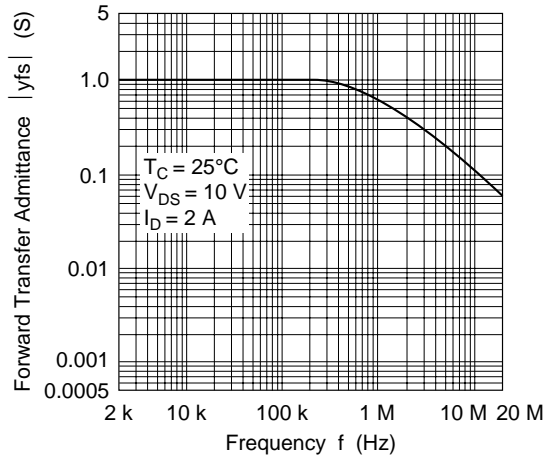
Typical Transfer Characteristics



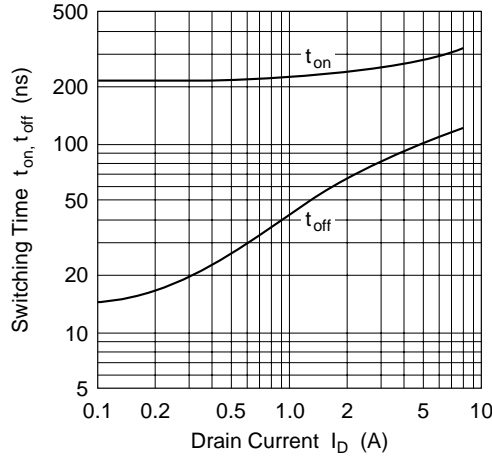
Typical Transfer Characteristics



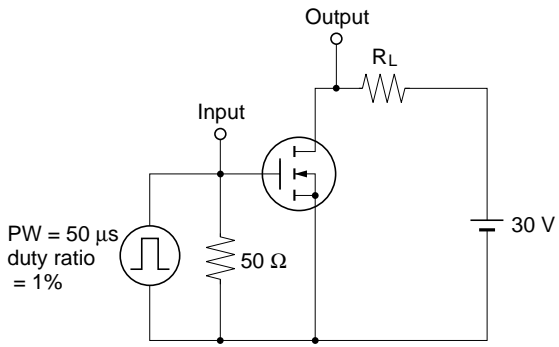
Forward Transfer Admittance vs. Frequency



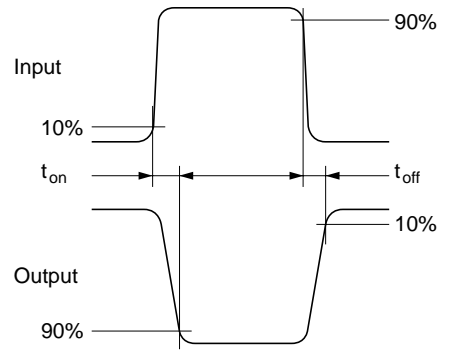
Switching Time vs. Drain Current



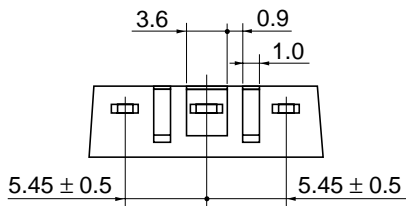
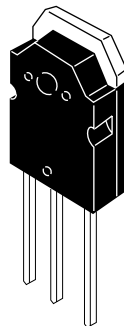
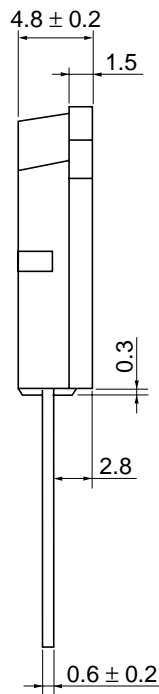
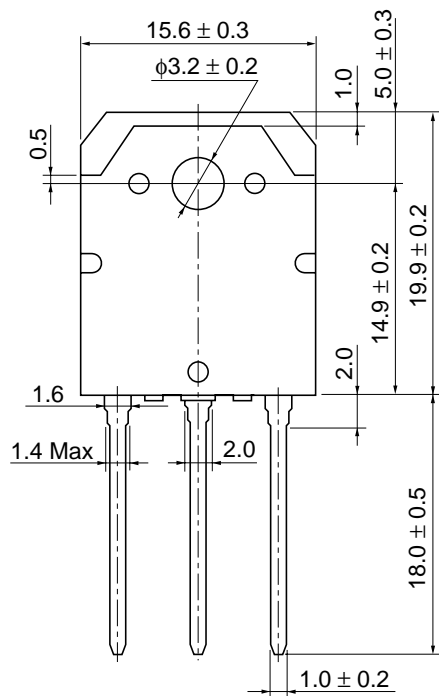
Switching Time Test Circuit



Waveforms



Unit: mm



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

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