

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## 2SK2220, 2SK2221

Silicon N Channel MOS FET

REJ03G1004-0200  
(Previous: ADE-208-1352)  
Rev.2.00  
Sep 07, 2005

### Application

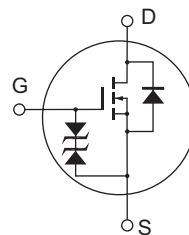
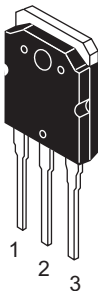
Low frequency power amplifier  
Complementary pair with 2SJ351, 2SJ352

### 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

RENESAS Package code: PRSS0004ZE-A  
(Package name: TO-3P)



1. Gate
2. Source (Flange)
3. Drain

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	2SK2220	180	V
	2SK2221	200	
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	8	A
Body to drain diode reverse drain current	I <sub>DR</sub>	8	A
Channel dissipation	P <sub>ch</sub> *1	100	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Note: 1. Value at Tc = 25°C

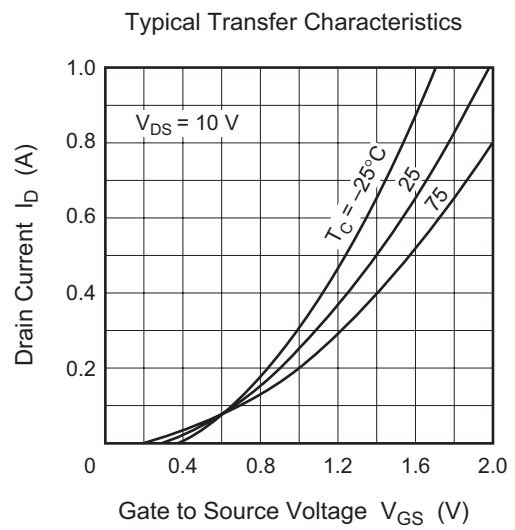
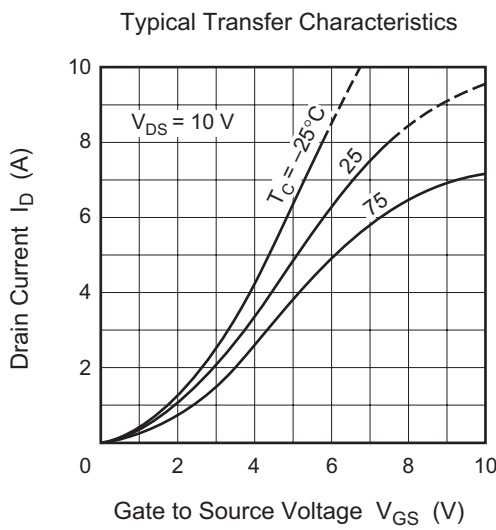
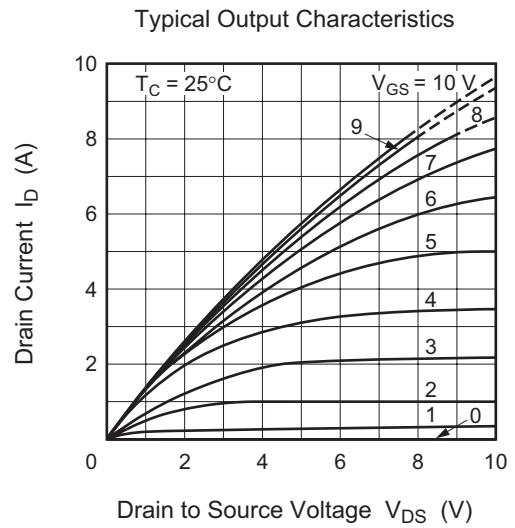
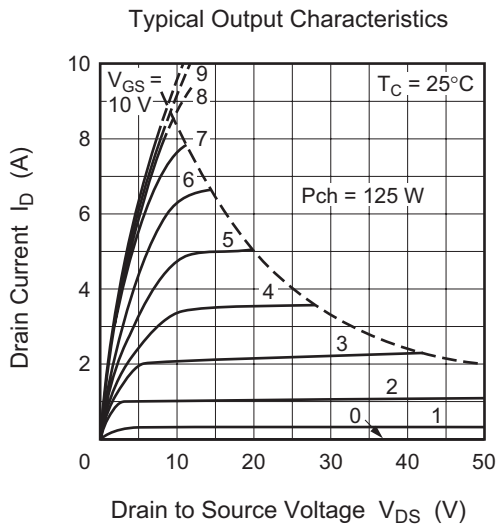
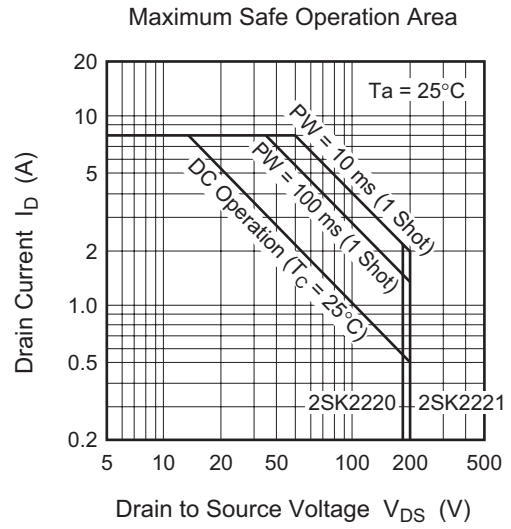
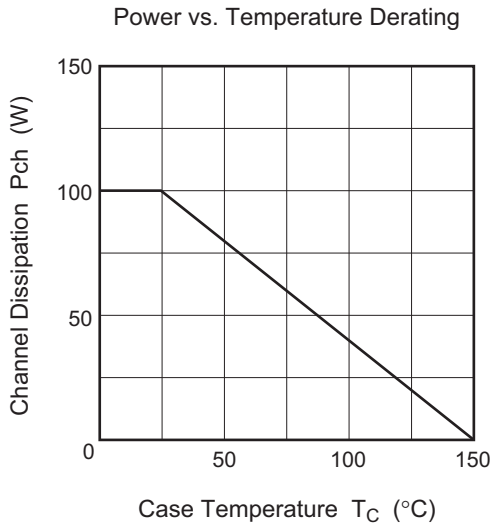
## Electrical Characteristics

(Ta = 25°C)

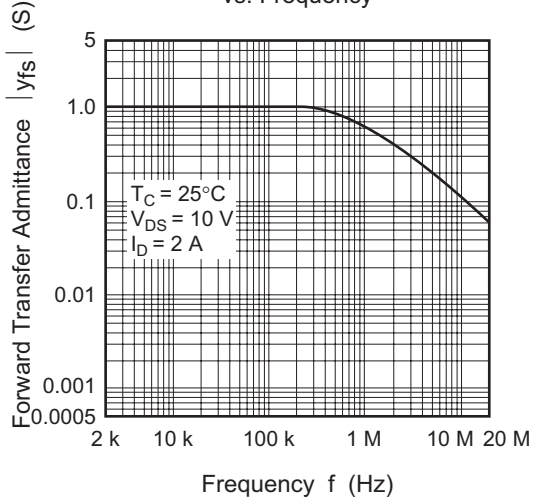
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK2220	180	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = -10 V
	2SK2221	200	—	—		
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	0.15	—	1.45	V	I <sub>D</sub> = 100 mA, V <sub>DS</sub> = 10 V
Drain to source saturation voltage	V <sub>DS(sat)</sub>	—	—	12	V	I <sub>D</sub> = 8 A, V <sub>GD</sub> = 0 V*2
Forward transfer admittance	y <sub>fs</sub>	0.7	1.0	1.4	S	I <sub>D</sub> = 3 A, V <sub>DS</sub> = 10 V*2
Input capacitance	C <sub>iss</sub>	—	600	—	pF	V <sub>GS</sub> = -5 V, V <sub>DS</sub> = 10 V, f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	800	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	8	—	pF	
Turn-on time	t <sub>on</sub>	—	250	—	ns	V <sub>DD</sub> = 30 V, I <sub>D</sub> = 4 A
Turn-off time	t <sub>off</sub>	—	90	—	ns	

Note: 2. Pulse Test

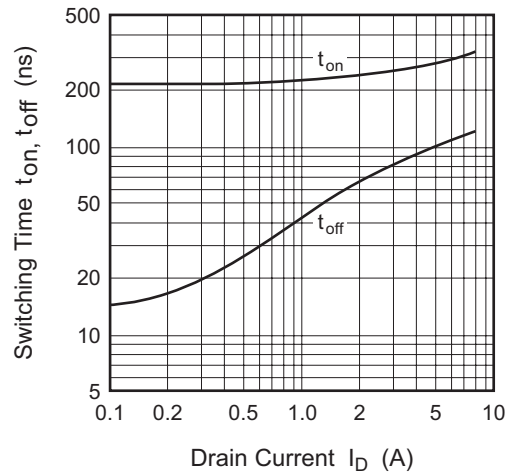
### Main Characteristics



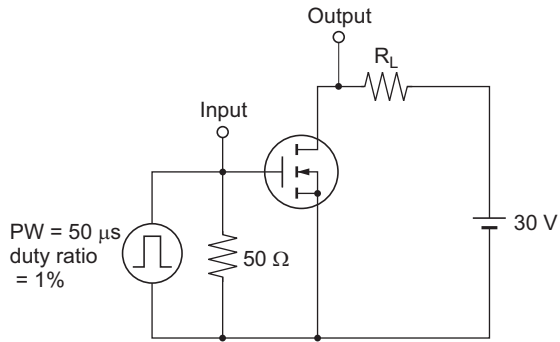
Forward Transfer Admittance vs. Frequency



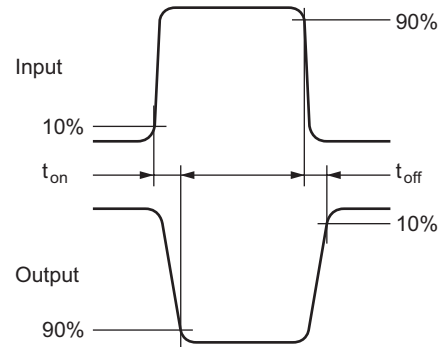
Switching Time vs. Drain Current



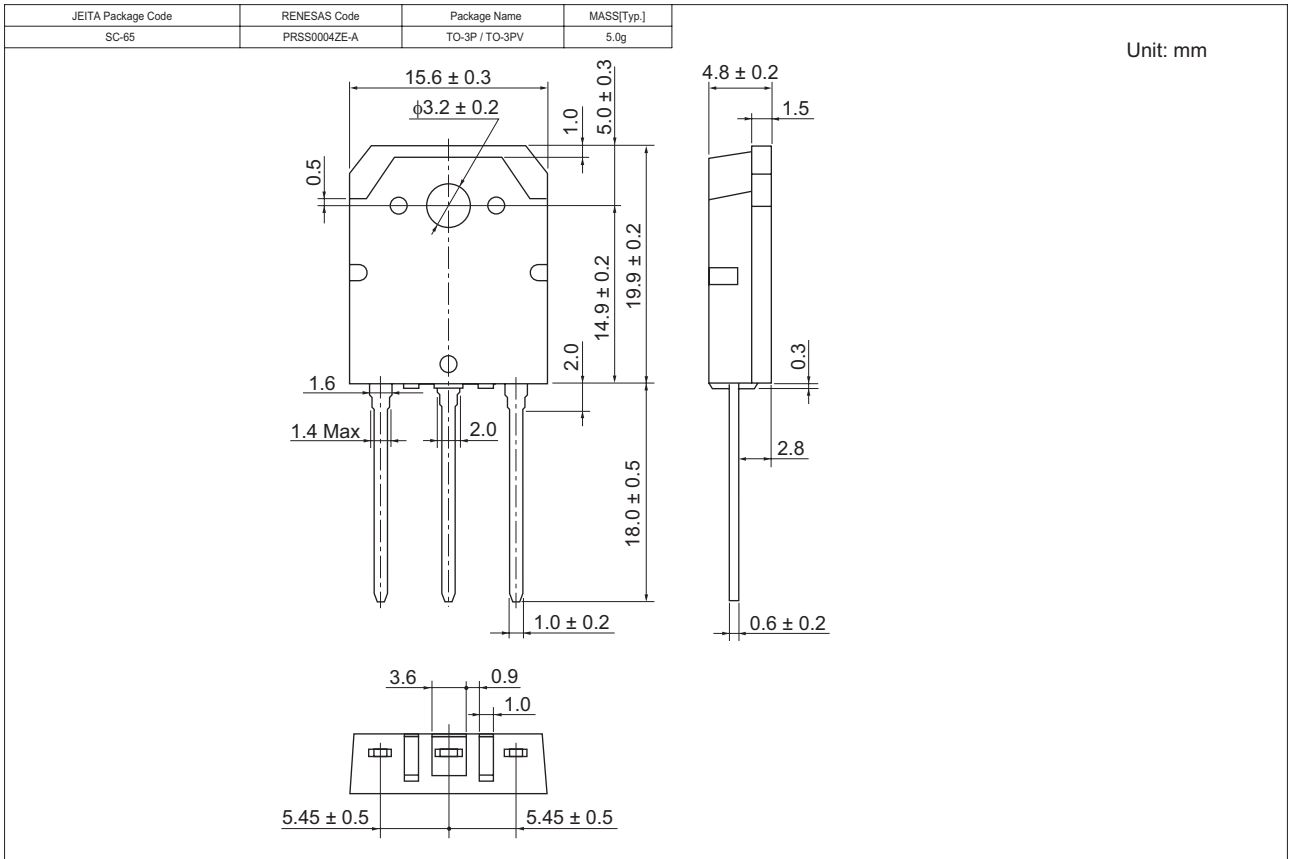
Switching Time Test Circuit



Waveforms



### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SK2220-E	360 pcs	Box (Tube)
2SK2221-E	360 pcs	Box (Tube)

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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