

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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# 2SK1056, 2SK1057, 2SK1058

## Silicon N Channel MOS FET

REJ03G0906-0200  
(Previous: ADE-208-1244)  
Rev.2.00  
Sep 07, 2005

### Application

Low frequency power amplifier

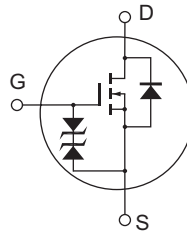
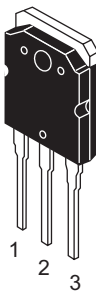
Complementary pair with 2SJ160, 2SJ161 and 2SJ162

### 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

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	2SK1056	$V_{DSX}$	120	V
	2SK1057		140	
	2SK1058		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		$T_{ch}$	150	°C
Storage temperature		$T_{stg}$	-55 to +150	°C

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

## Electrical Characteristics

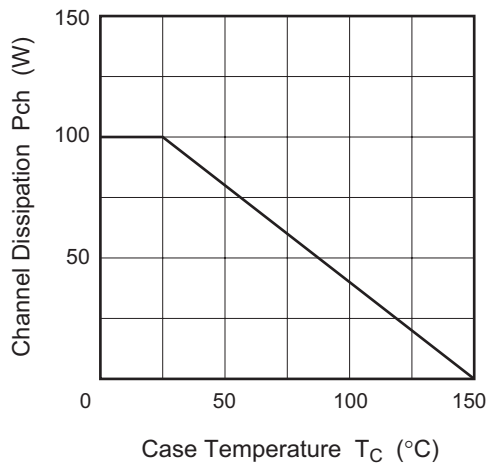
(Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1056	$V_{(BR)DSX}$	120	—	—	V	$I_D = 10\text{ mA}$ , $V_{GS} = -10\text{ V}$
	2SK1057		140				
	2SK1058		160				
Gate to source breakdown voltage		$V_{(BR)GSS}$	±15	—	—	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	$I_D = 7\text{ A}$ , $V_{GD} = 0^{*2}$
Forward transfer admittance		$ y_{fs} $	0.7	1.0	1.4	S	$I_D = 3\text{ A}$ , $V_{DS} = 10\text{ V}^{*2}$
Input capacitance		$C_{iss}$	—	600	—	pF	$V_{GS} = -5\text{ V}$ , $V_{DS} = 10\text{ V}$ , $f = 1\text{ MHz}$
Output capacitance		$C_{oss}$	—	350	—	pF	
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	

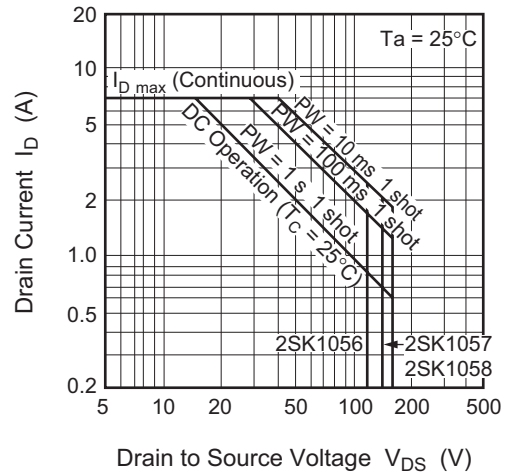
Note: 2. Pulse test

## Main Characteristics

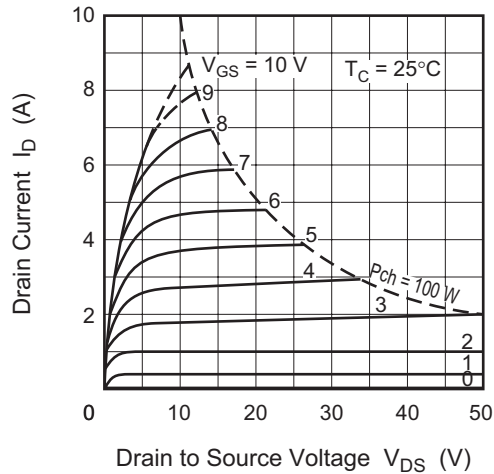
Power vs. Temperature Derating



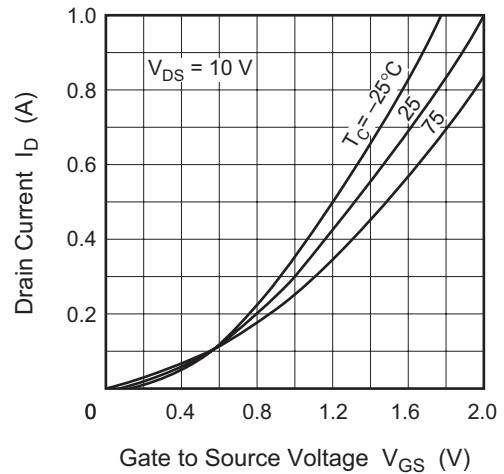
Maximum Safe Operation Area



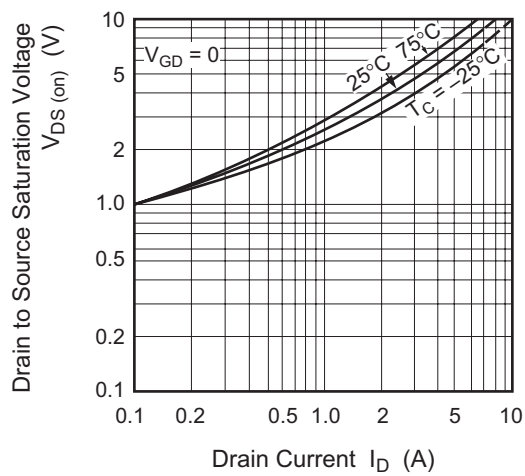
Typical Output Characteristics



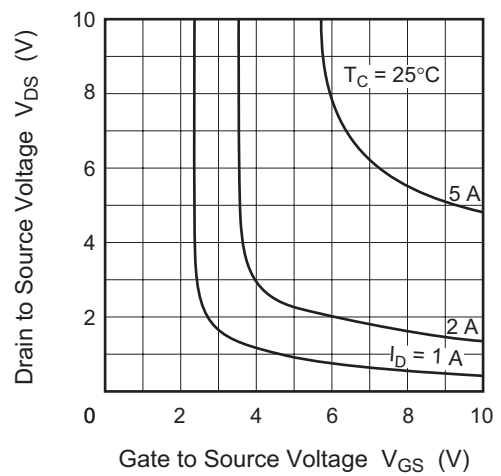
Typical Transfer Characteristics

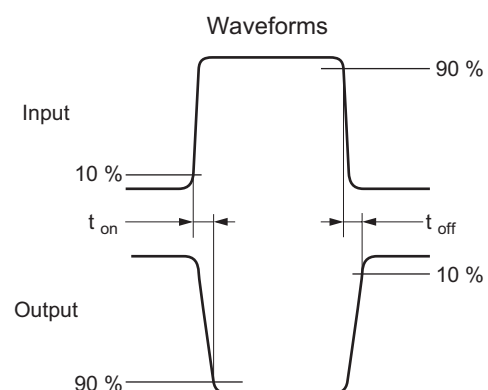
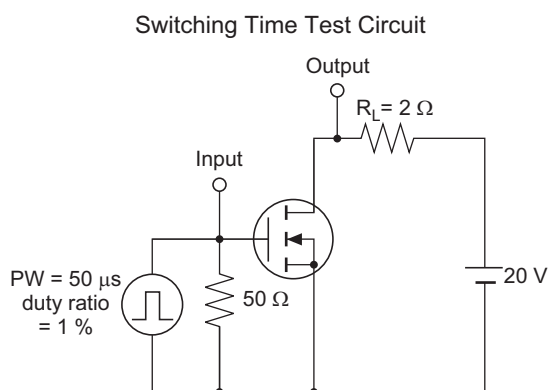
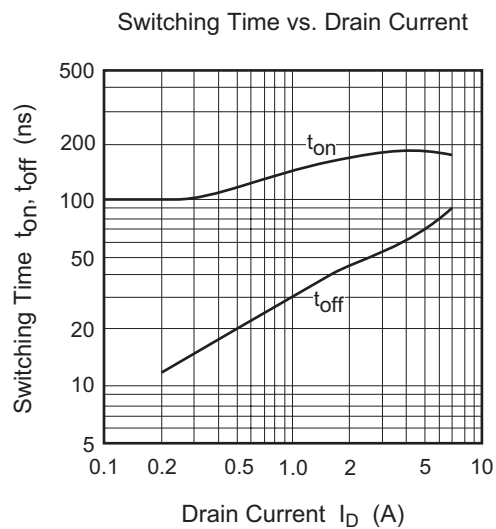
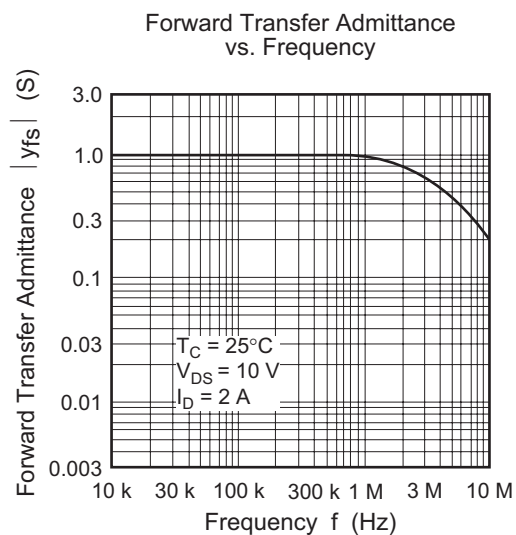
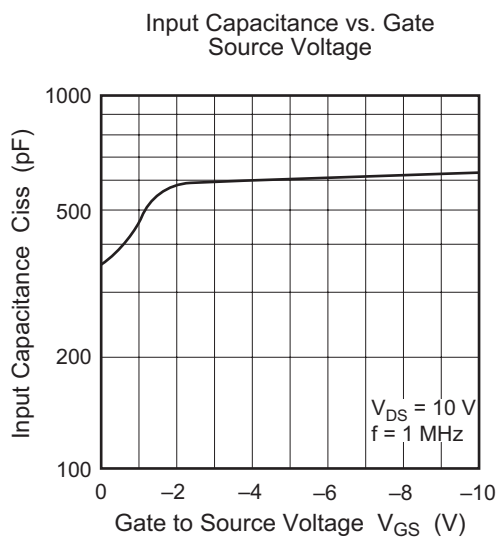


Drain to Source Saturation Voltage vs. Drain Current

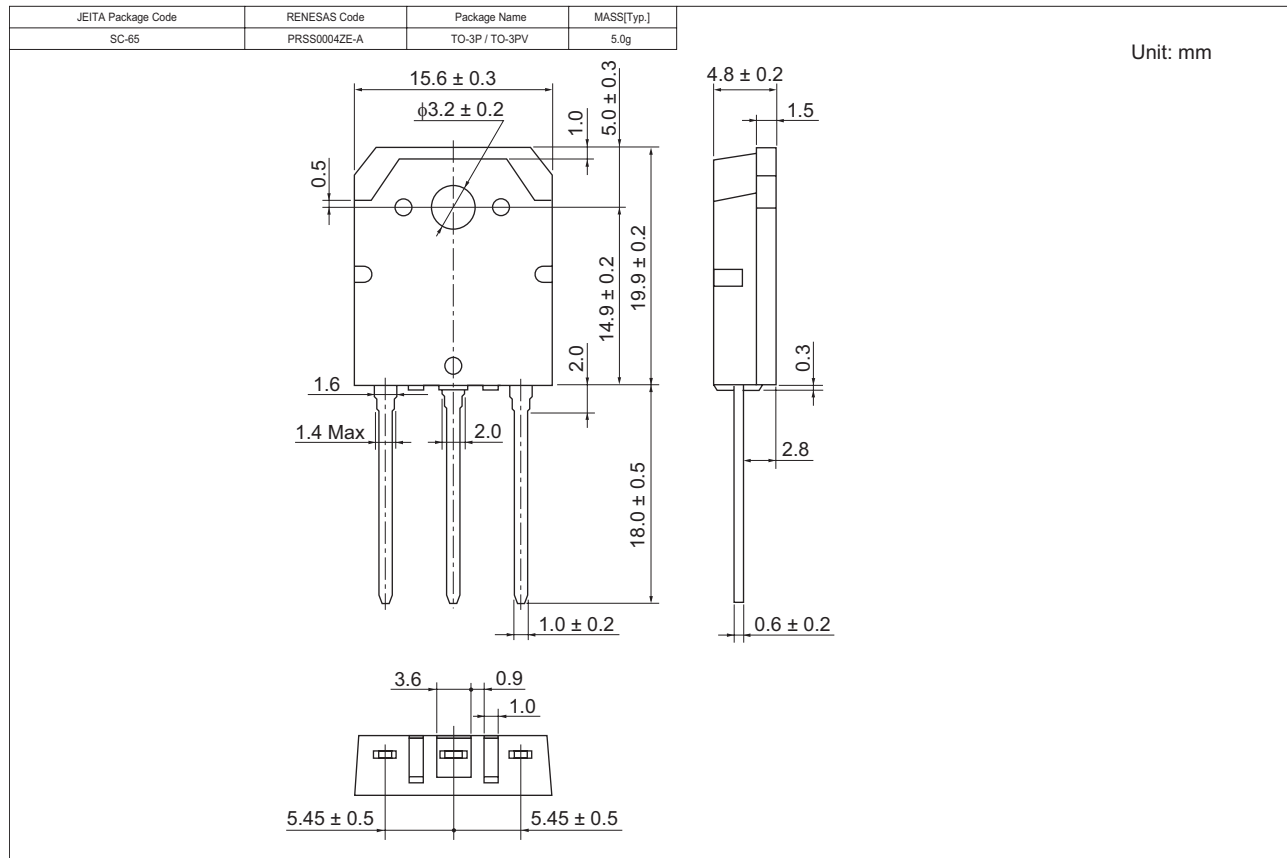


Drain to Source Voltage vs. Gate to Source Voltage





## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SK1056-E	360 pcs	Box (Tube)
2SK1057-E	360 pcs	Box (Tube)
2SK1058-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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