To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

April 1st, 2010
Renesas Electronics Corporation

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

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2SK3209

Silicon N Channel MOS FET
High Speed Power Switching

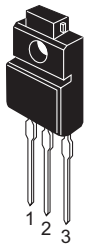
REJ03G1090-0300
(Previous: ADE-208-759A)
Target Specification
Rev.3.00
Sep 07, 2005

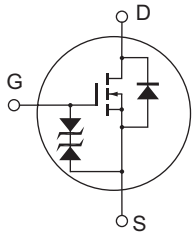
Features

- Low on-resistance
  R_{DS} = 40 mΩ typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0003AD-A
(Package name: TO-220FM)





1. Gate
2. Drain
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	150	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	25	A
Drain peak current	$I_{D(pulse)}$*[1]	100	A
Body-drain diode reverse drain current	I_{DR}	25	A
Avalanche current	I_{AP}*[3]	25	A
Avalanche energy	E_{AR}*[3]	46	mJ
Channel dissipation	Pch*[2]	35	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C
3. Value at Tch = 25°C, Rg ≥ 50 Ω

Electrical Characteristics

(Ta = 25°C)

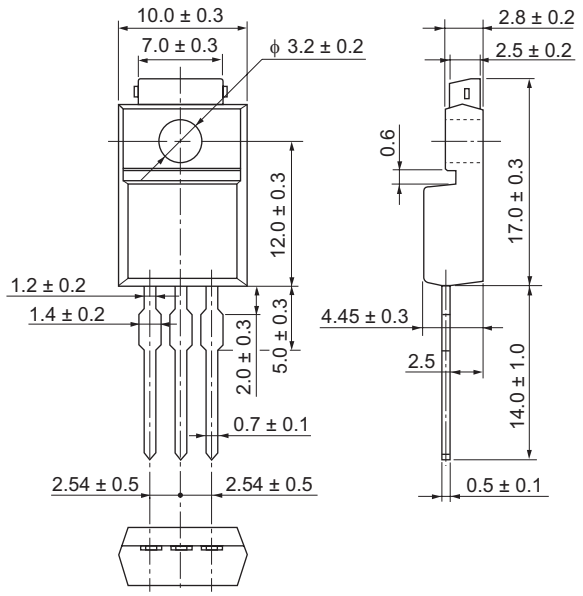
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	10	µA	V_{DS} = 150 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	40	45	mΩ	I_D = 15 A, V_{GS} = 10 V*[4]
	$R_{DS(on)}$	—	45	63	mΩ	I_D = 15 A, V_{GS} = 4 V*[4]
Forward transfer admittance	$\|y_{fs}\|$	18	30	—	S	I_D = 15 A, V_{DS} = 10 V*[4]
Input capacitance	Ciss	—	2600	—	pF	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz
Output capacitance	Coss	—	820	—	pF	
Reverse transfer capacitance	Crss	—	350	—	pF	
Turn-on delay time	$t_{d(on)}$	—	25	—	ns	I_D = 15 A, V_{GS} = 10 V, R_L = 2 Ω
Rise time	t_r	—	180	—	ns	
Turn-off delay time	$t_{d(off)}$	—	600	—	ns	
Fall time	t_f	—	280	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.90	—	V	I_F = 25 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	100	—	ns	I_F = 25 A, V_{GS} = 0, di_F/dt = 50 A/µs

Note: 4. Pulse test

Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-67	PRSS0003AD-A	TO-220FM / TO-220FMV	1.8g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SK3209-E	500 pcs	Box (Sack)

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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http://www.renesas.com

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