



2SK1307

Silicon N Channel MOS FET

REJ03G0926-0200

(Previous: ADE-208-1265)

Rev.2.00

Sep 07, 2005

Application

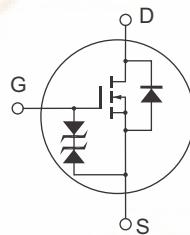
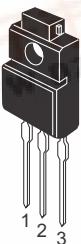
High speed power switching

Features

- Low on-resistance
- High speed switching
- 4 V gate drive device
 - Can be driven from 5 V source
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive

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}	100	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	20	A
Drain peak current	I _{D(pulse)} ^{*1}	80	A
Body to drain diode reverse drain current	I _{DR}	20	A
Channel dissipation	P _{ch} ^{*2}	35	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%

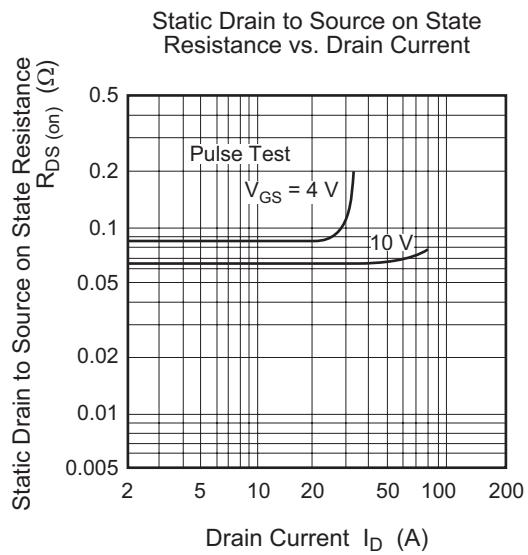
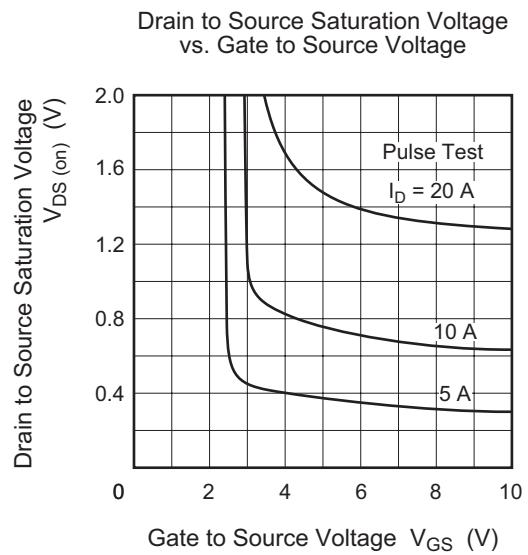
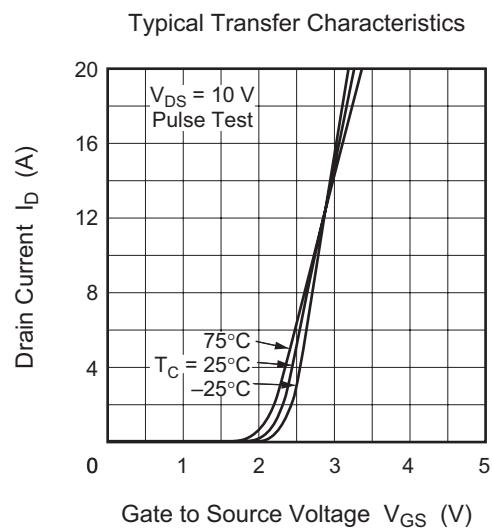
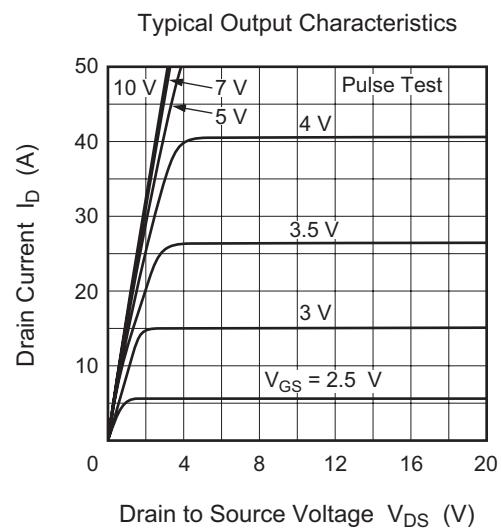
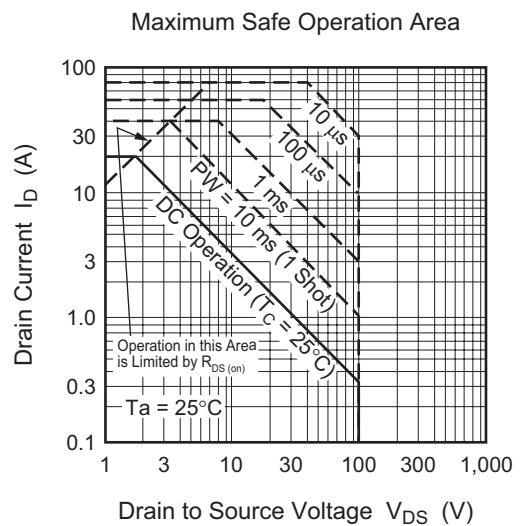
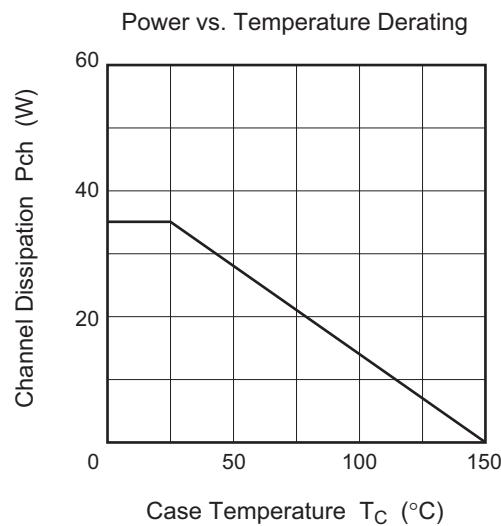
2. Value at T_C = 25°C**Electrical Characteristics**

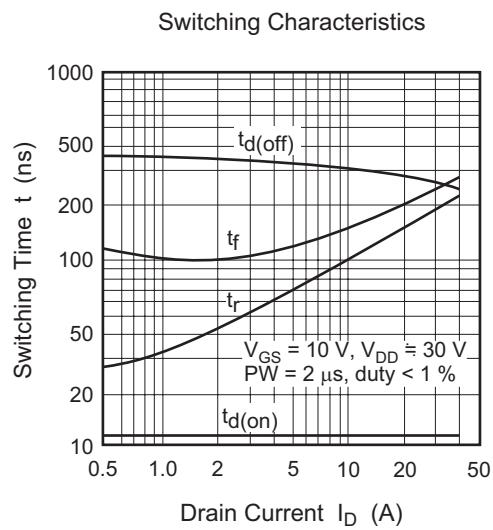
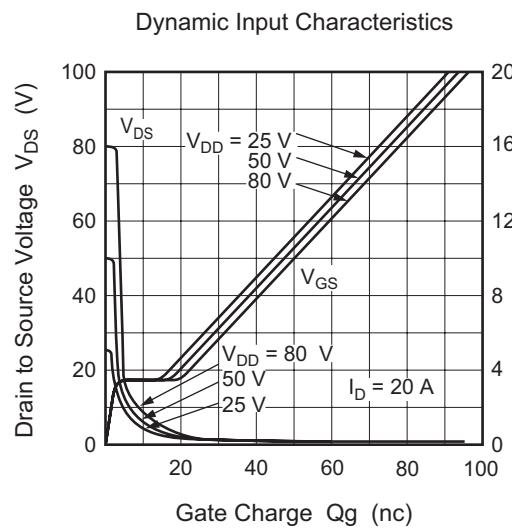
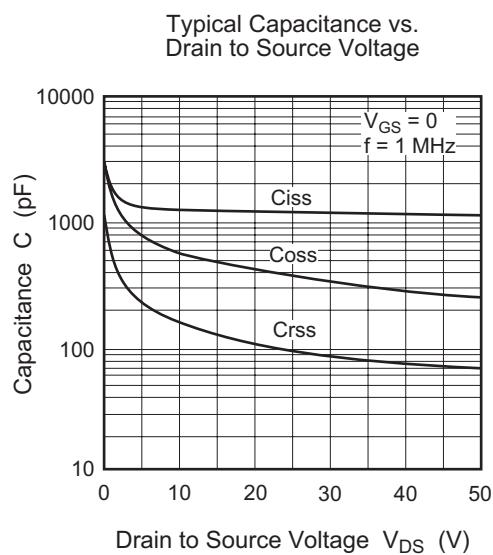
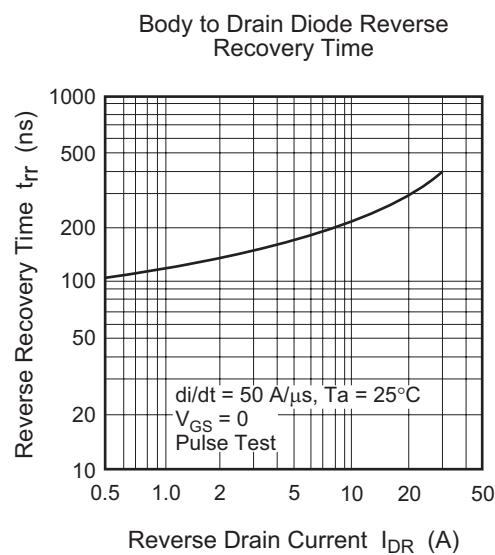
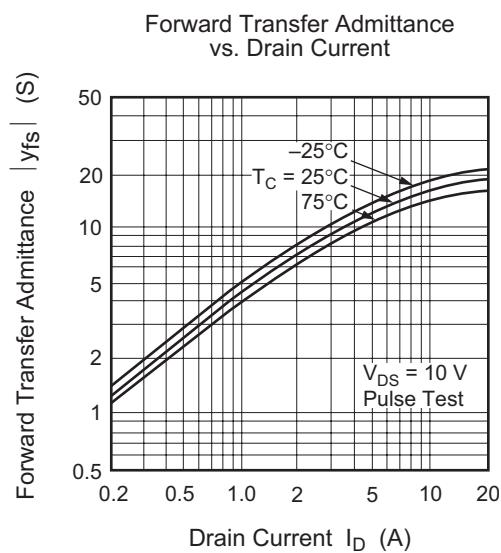
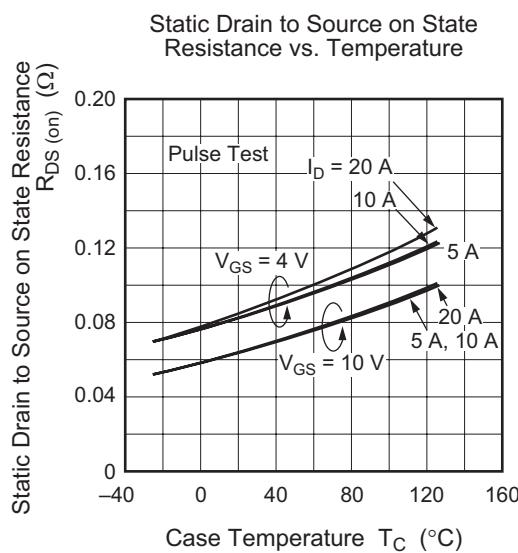
(Ta = 25°C)

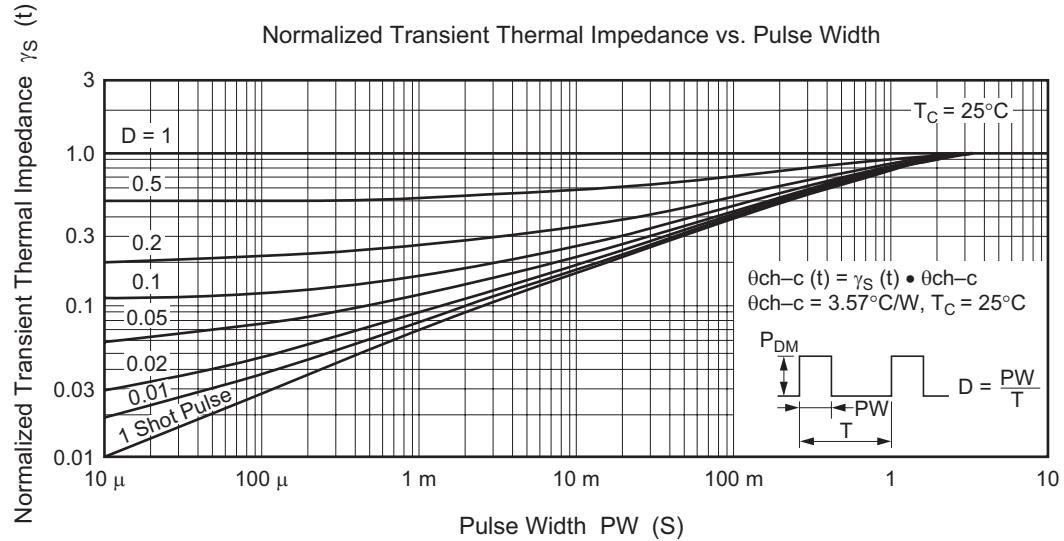
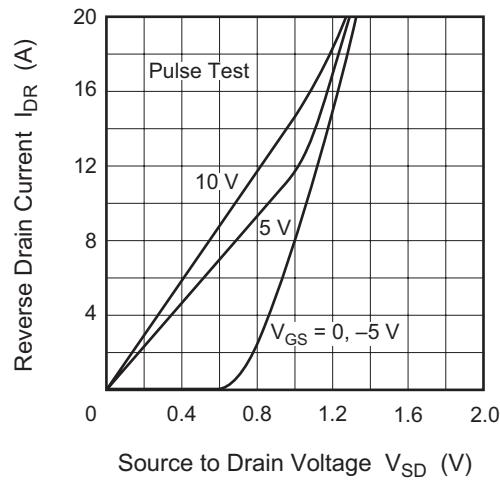
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V _{(BR)DSS}	100	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 µA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	µA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	250	µA	V _{DS} = 80 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DS(on)}	—	0.065	0.085	Ω	I _D = 10 A, V _{GS} = 10 V ^{*3}
		—	0.085	0.12	Ω	I _D = 10 A, V _{GS} = 4 V ^{*3}
Forward transfer admittance	y _{fs}	10	16	—	S	I _D = 10 A, V _{DS} = 10 V ^{*3}
Input capacitance	C _{iss}	—	1300	—	pF	V _{DS} = 10 V, V _{GS} = 0,
Output capacitance	C _{oss}	—	540	—	pF	f = 1 MHz
Reverse transfer capacitance	C _{rss}	—	160	—	pF	
Turn-on delay time	t _{d(on)}	—	12	—	ns	I _D = 10 A, V _{GS} = 10 V,
Rise time	t _r	—	100	—	ns	R _L = 3 Ω
Turn-off delay time	t _{d(off)}	—	300	—	ns	
Fall time	t _f	—	150	—	ns	
Body to drain diode forward voltage	V _{DF}	—	1.3	—	V	I _F = 20 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	300	—	ns	I _F = 20 A, V _{GS} = 0, dI _F /dt = 50 A/µs

Note: 3. Pulse test

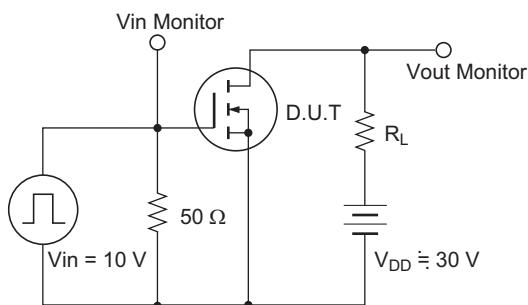
Main Characteristics



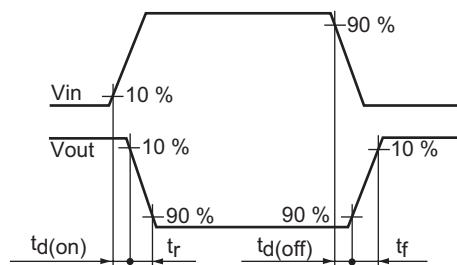


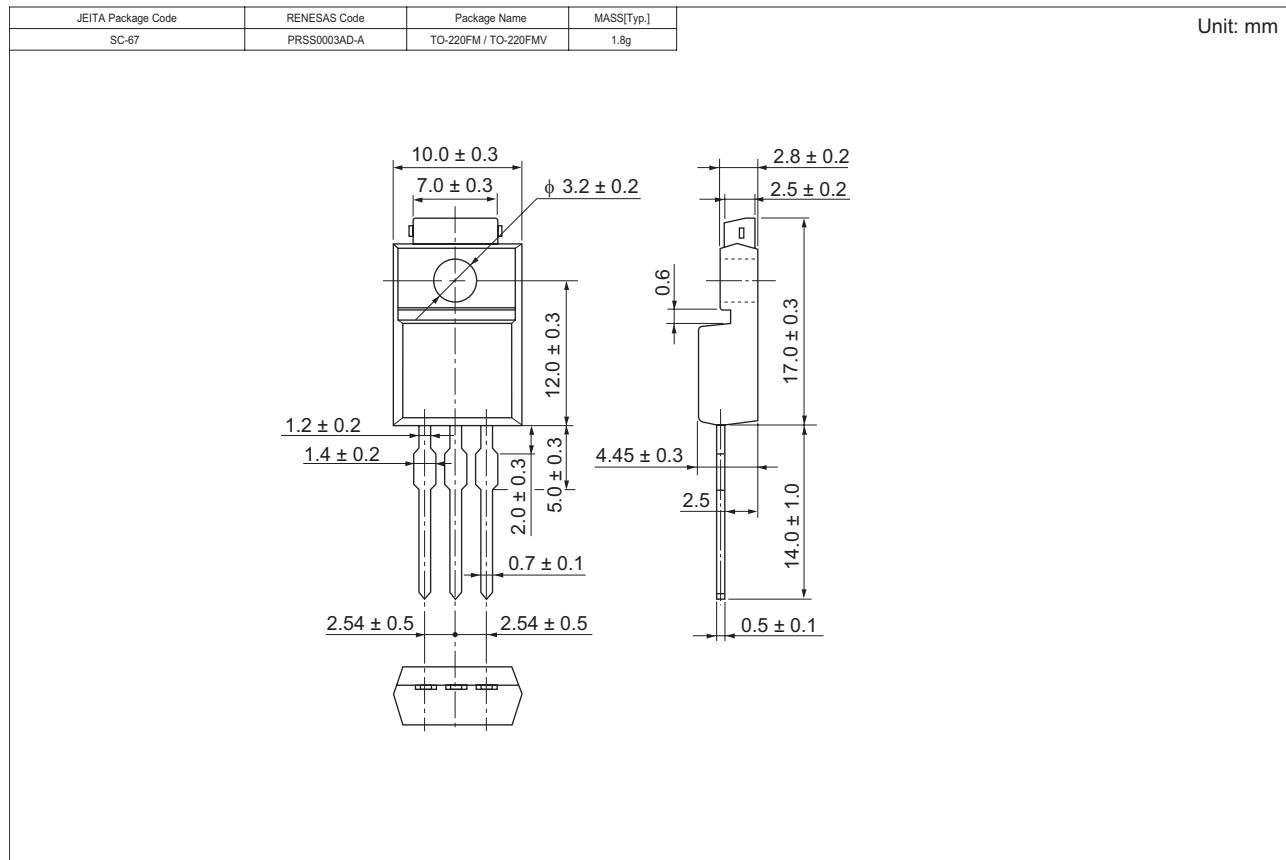
Reverse Drain Current vs.
Source to Drain Voltage

Switching Time Test Circuit



Waveforms



Package Dimensions**Ordering Information**

Part Name	Quantity	Shipping Container
2SK1307-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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