

2SK1566, 2SK1567

Silicon N Channel MOS FET

REJ03G0953-0200

(Previous: ADE-208-1293)

Rev.2.00

Sep 07, 2005

Application

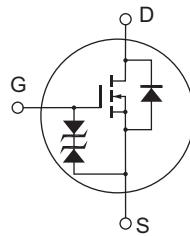
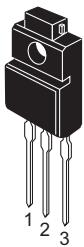
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

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 2SK1566	V _{DSS}	450	V
2SK1567		500	
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	7	A
Drain peak current	I _{D(pulse)} ^{*1}	28	A
Body to drain diode reverse drain current	I _{DR}	7	A
Channel dissipation	P _{ch} ^{*2}	35	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Note: 1. PW ≤ 10 μs, duty cycle ≤ 1%

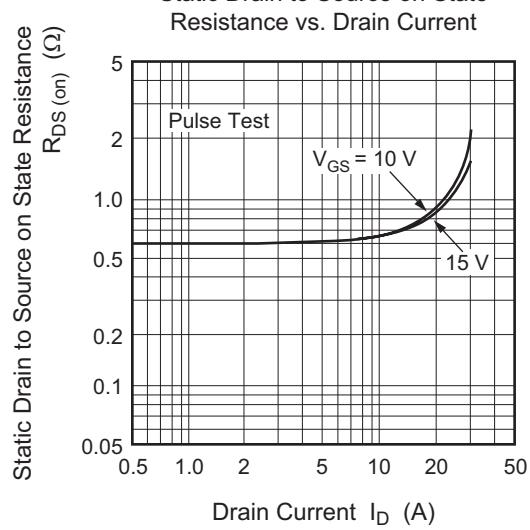
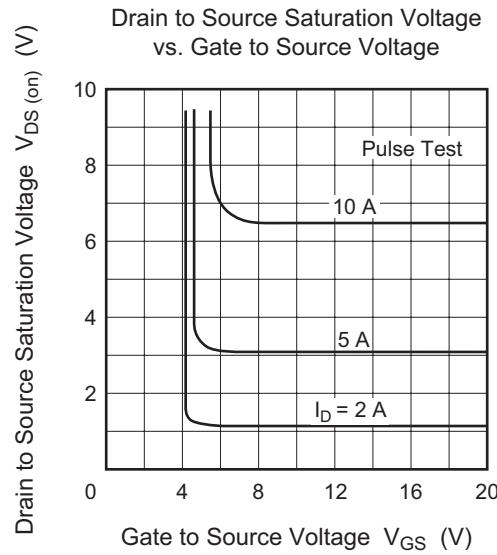
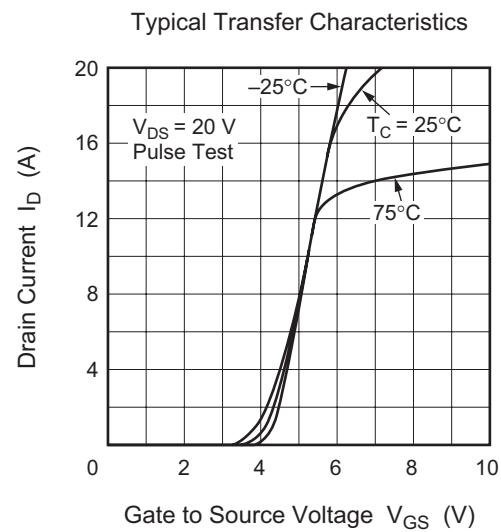
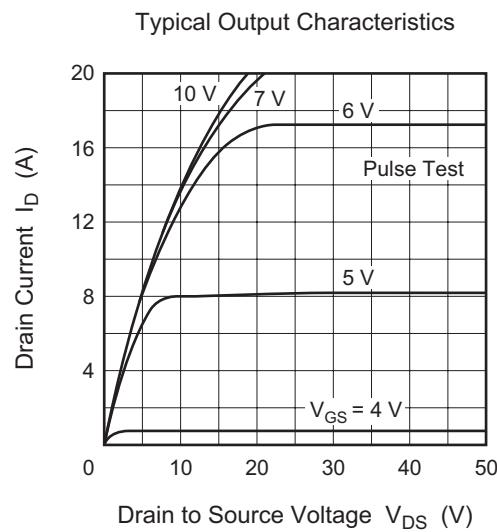
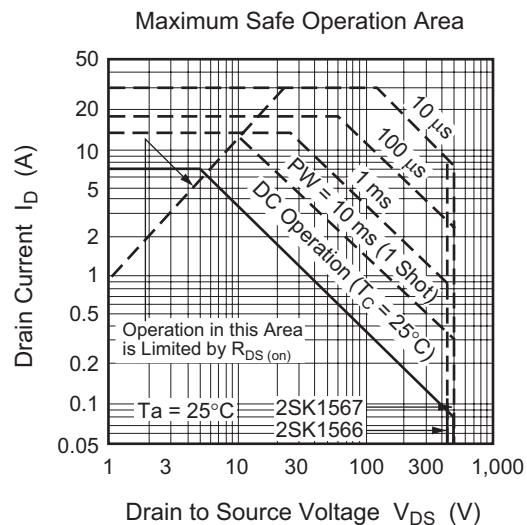
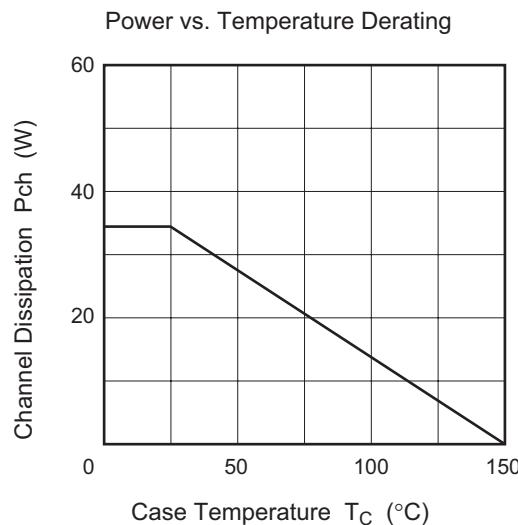
2. Value at T_C = 25°C**Electrical Characteristics**

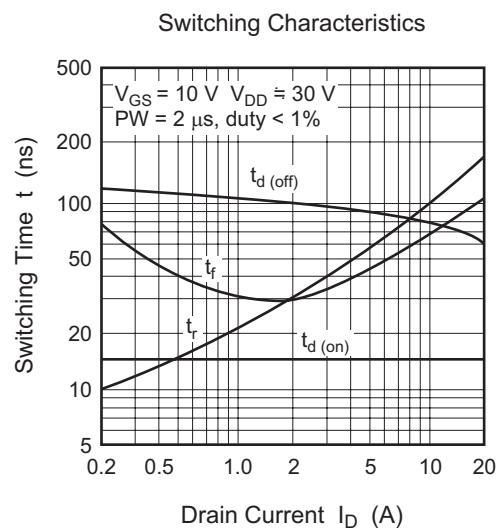
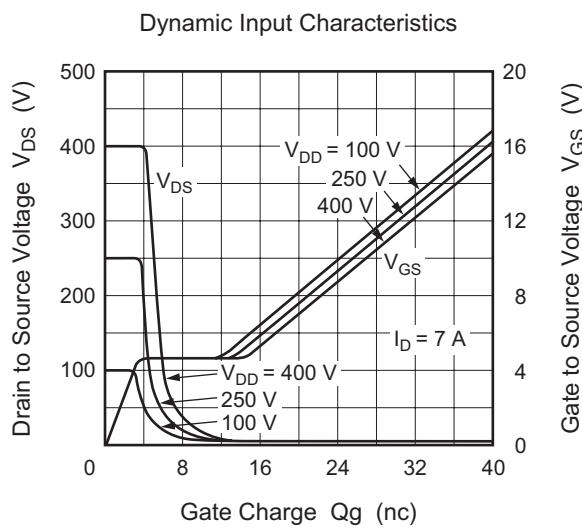
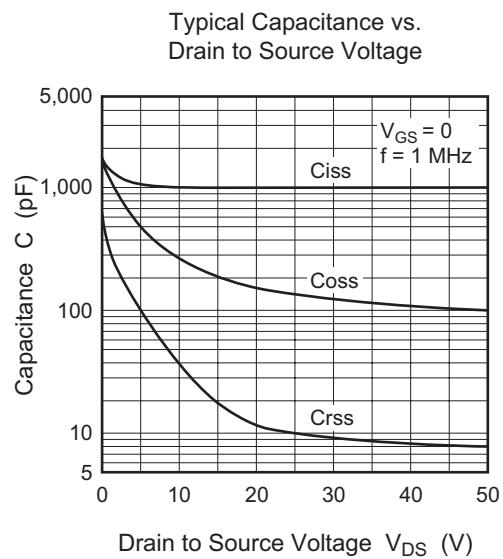
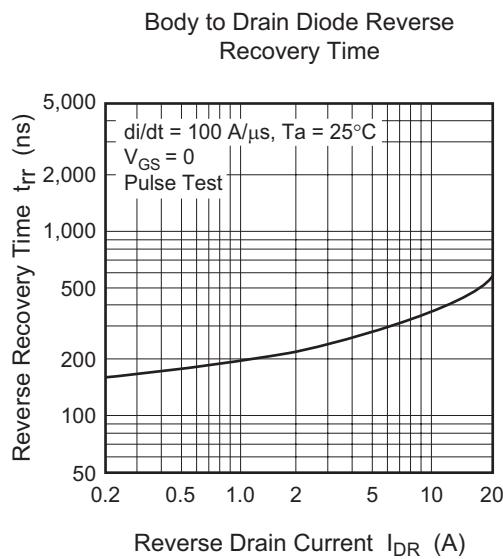
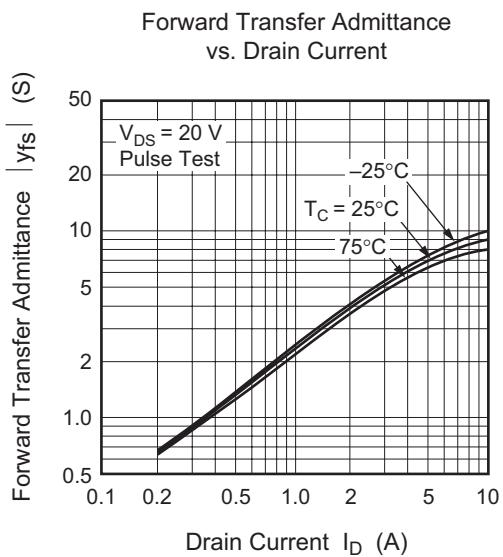
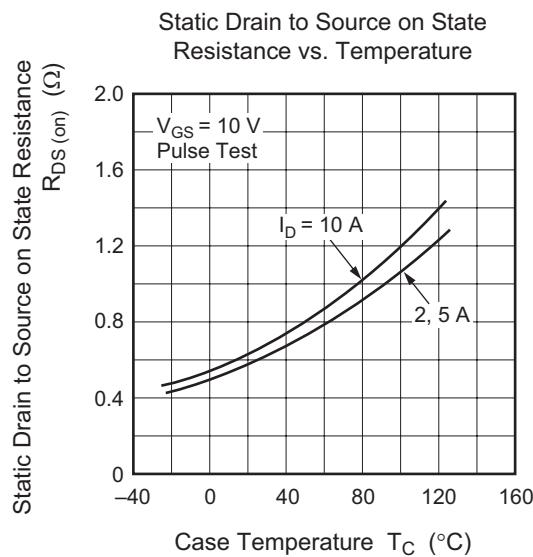
(Ta = 25°C)

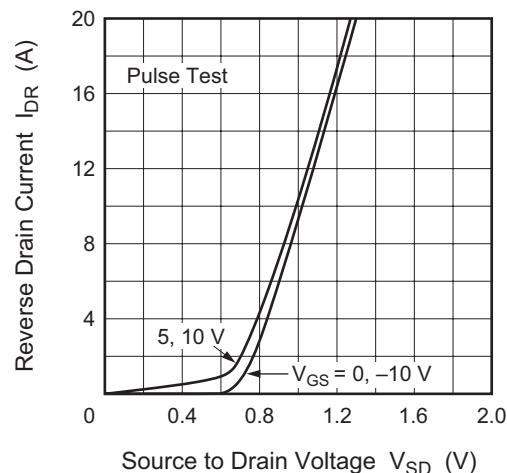
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage 2SK1566	V _{(BR)DSS}	450	—	—	V	I _D = 10 mA, V _{GS} = 0
2SK1567		500		—		
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0
Zero gate voltage drain current 2SK1566	I _{DSS}	—	—	250	μA	V _{DS} = 360 V, V _{GS} = 0
2SK1567		—		—		V _{DS} = 400 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.0	—	3.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance 2SK1566	R _{DS(on)}	—	0.6	0.8	Ω	I _D = 4 A, V _{GS} = 10 V ^{*3}
2SK1567		—	0.7	0.9		
Forward transfer admittance	y _{fs}	4.0	6.5	—	S	I _D = 4 A, V _{DS} = 10 V ^{*3}
Input capacitance	C _{iss}	—	1050	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	280	—	pF	
Reverse transfer capacitance	C _{rss}	—	40	—	pF	
Turn-on delay time	t _{d(on)}	—	15	—	ns	I _D = 4 A, V _{GS} = 10 V, R _L = 7.5 Ω
Rise time	t _r	—	55	—	ns	
Turn-off delay time	t _{d(off)}	—	95	—	ns	
Fall time	t _f	—	40	—	ns	
Body to drain diode forward voltage	V _{DF}	—	0.95	—	V	I _F = 7 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	320	—	ns	I _F = 7 A, V _{GS} = 0, di _F /dt = 100 A/μs

Note: 3. Pulse test

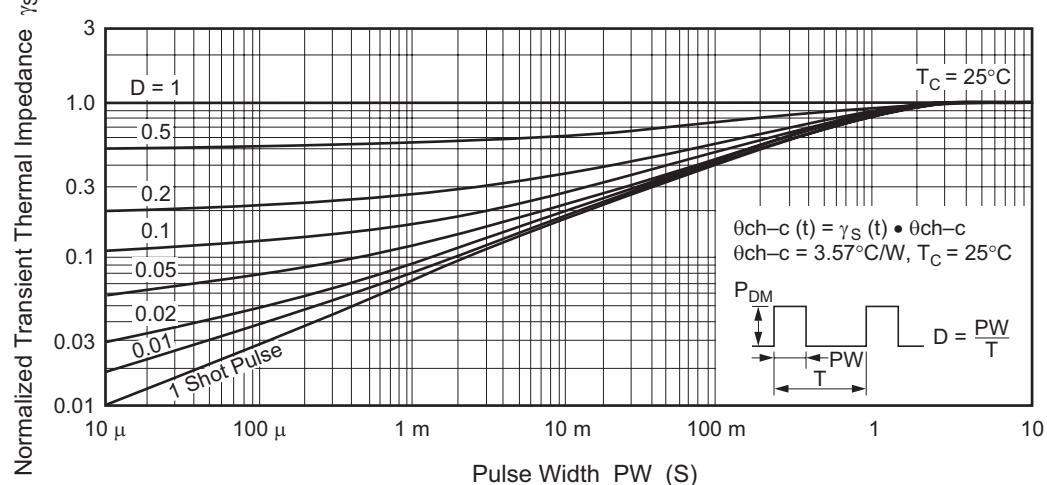
Main Characteristics



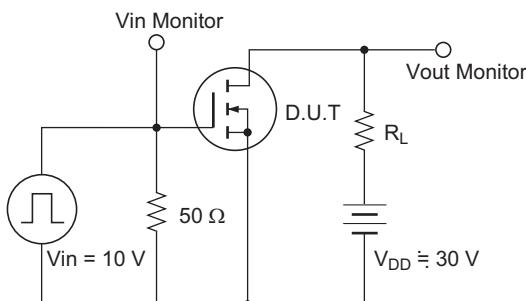


Reverse Drain Current vs.
Source to Drain Voltage

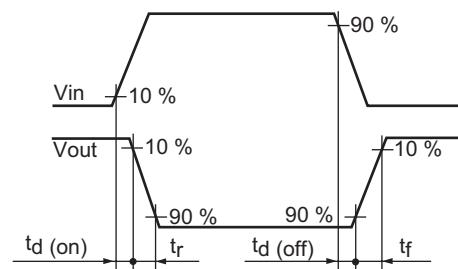
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Waveforms



Package Dimensions

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

Unit: mm

The figure consists of two technical drawings of the TO-220FM/TO-220FMV package. The left drawing is a top view showing the lead spacing (10.0 ± 0.3 mm), lead height (1.2 ± 0.2 mm), lead thickness (1.4 ± 0.2 mm), lead pitch (2.54 ± 0.5 mm), lead width (2.54 ± 0.5 mm), lead thickness (0.7 ± 0.1 mm), lead height (5.0 ± 0.3 mm), lead width (2.0 ± 0.3 mm), lead thickness (1.4 ± 0.2 mm), lead height (12.0 ± 0.3 mm), lead width (7.0 ± 0.3 mm), lead thickness (1.0 ± 0.3 mm), lead height (10.0 ± 0.3 mm), lead width (3.2 ± 0.2 mm), and lead thickness (0.6 mm). The right drawing is a side view showing the total height (17.0 ± 0.3 mm), lead thickness (2.5 ± 1.0 mm), lead width (2.5 ± 0.2 mm), lead height (2.8 ± 0.2 mm), lead thickness (0.5 ± 0.1 mm), and lead width (0.6 mm).

Ordering Information

Part Name	Quantity	Shipping Container
2SK1566-E	500 pcs	Box (Sack)
2SK1567-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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