

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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## 2SJ350

### Silicon P Channel MOS FET

REJ03G0859-0200  
(Previous: ADE-208-138)  
Rev.2.00  
Sep 07, 2005

#### Description

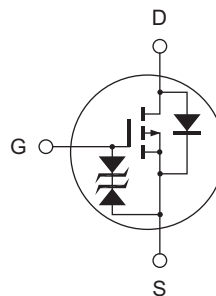
High speed power switching

#### Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for switching regulator, 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	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	-120	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-6	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	-12	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-6	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	20	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%  
 2. Value at Tc = 25°C

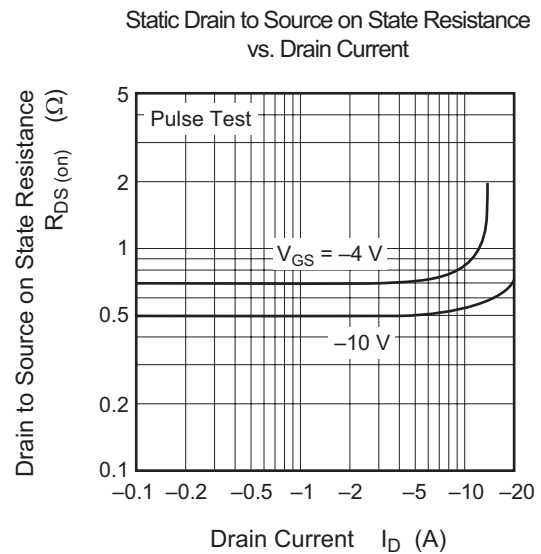
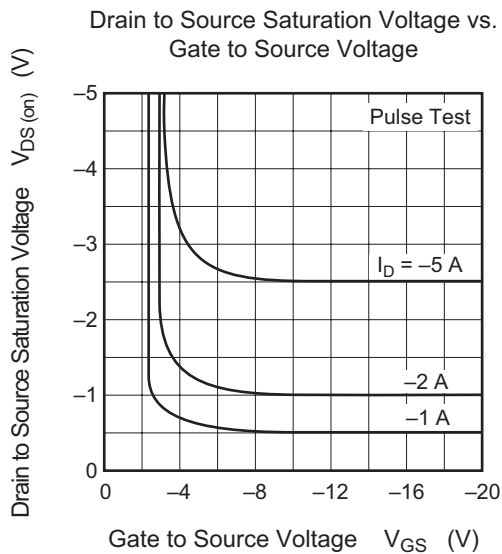
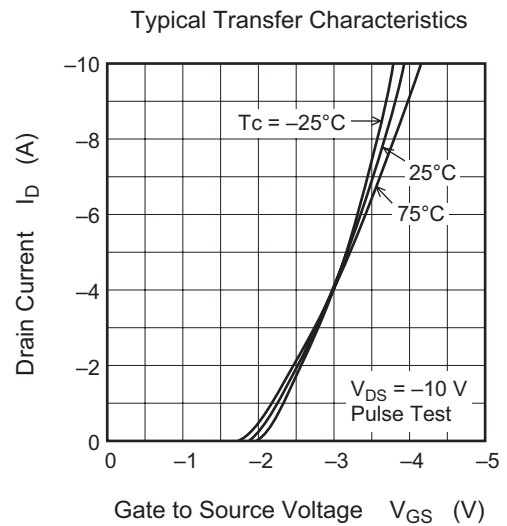
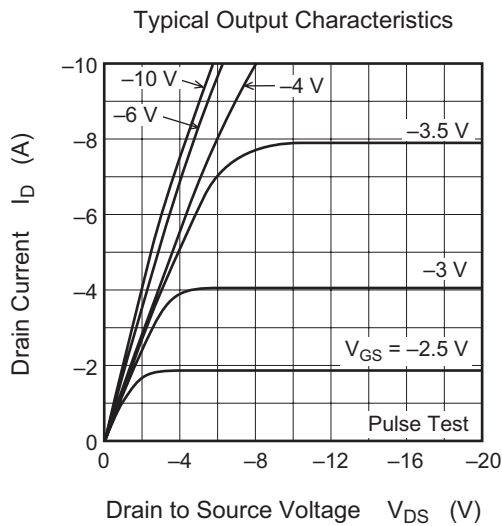
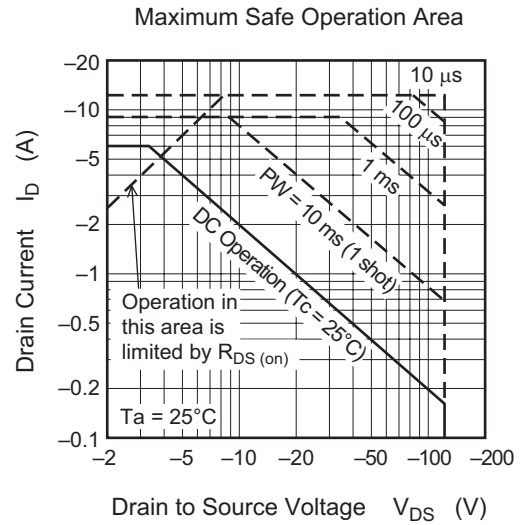
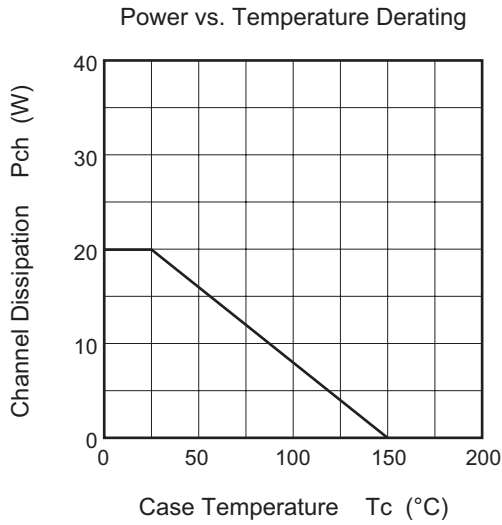
## Electrical Characteristics

(Ta = 25°C)

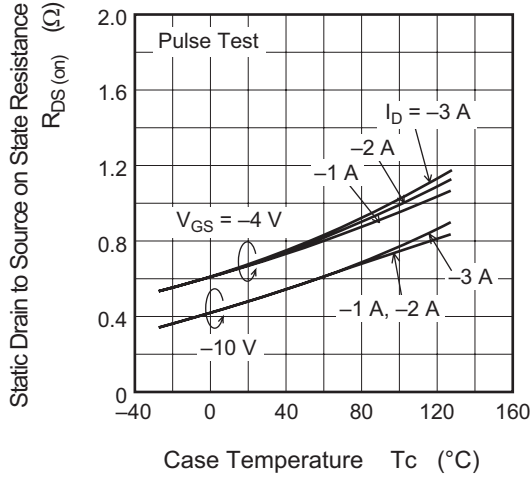
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	-120	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR) GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-250	μA	V <sub>DS</sub> = -100 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	-1.0	—	-2.0	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS (on)</sub>	—	0.5	0.7	Ω	I <sub>D</sub> = -4 A, V <sub>GS</sub> = -10 V <sup>Note 3</sup>
	R <sub>DS (on)</sub>	—	0.7	0.9	Ω	I <sub>D</sub> = -4 A, V <sub>GS</sub> = -4 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	3.0	5.0	—	S	I <sub>D</sub> = -4 A, V <sub>DS</sub> = -10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	900	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	265	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	65	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	—	11	—	ns	I <sub>D</sub> = -4 A
Rise time	t <sub>r</sub>	—	45	—	ns	V <sub>GS</sub> = -10 V
Turn-off delay time	t <sub>d (off)</sub>	—	170	—	ns	R <sub>L</sub> = 7.5 Ω
Fall time	t <sub>f</sub>	—	80	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	-1.2	—	V	I <sub>F</sub> = -6 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	240	—	ns	I <sub>F</sub> = -6 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 50 A/μs

Note: 3. Pulse test

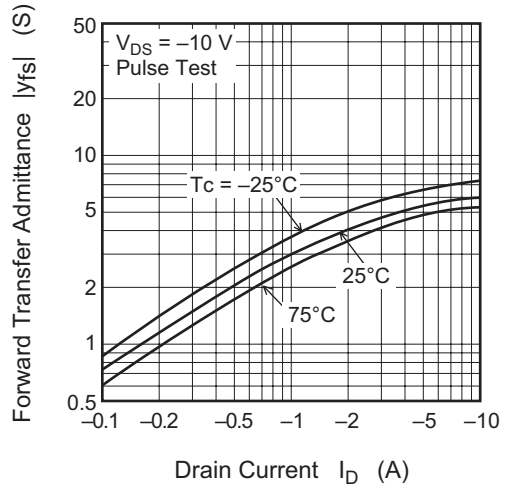
Main Characteristics



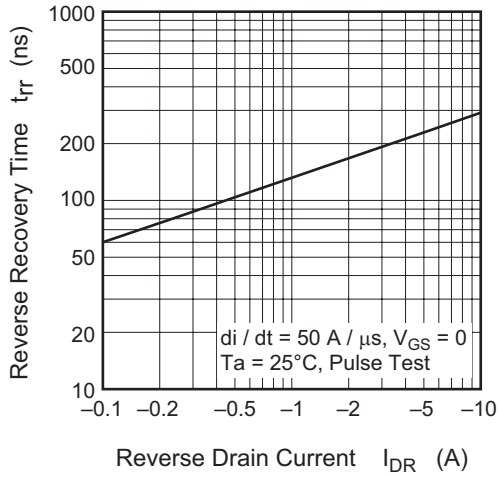
Static Drain to Source on State Resistance vs. Temperature



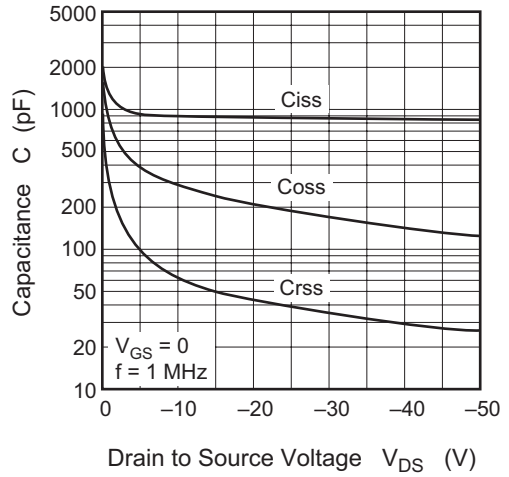
Forward Transfer Admittance vs. Drain Current



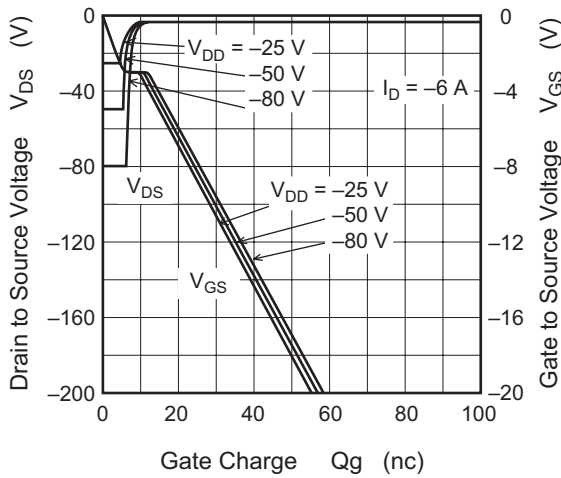
Body-Drain Diode Reverse Recovery Time



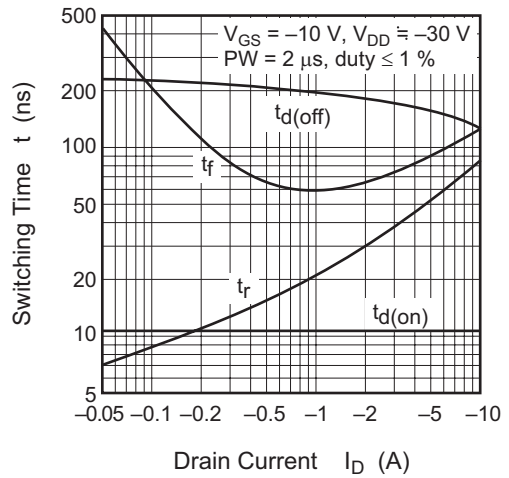
Typical Capacitance vs. Drain to Source Voltage



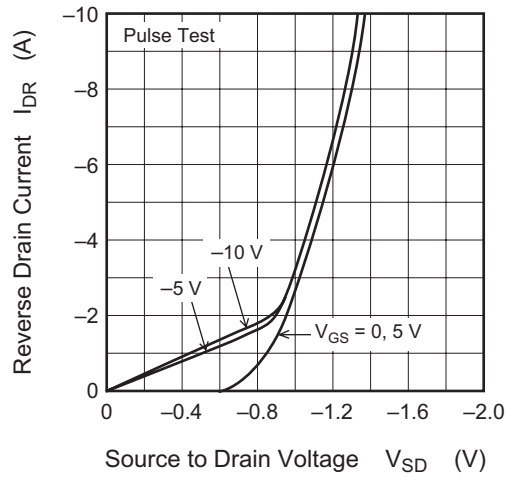
Dynamic Input Characteristics



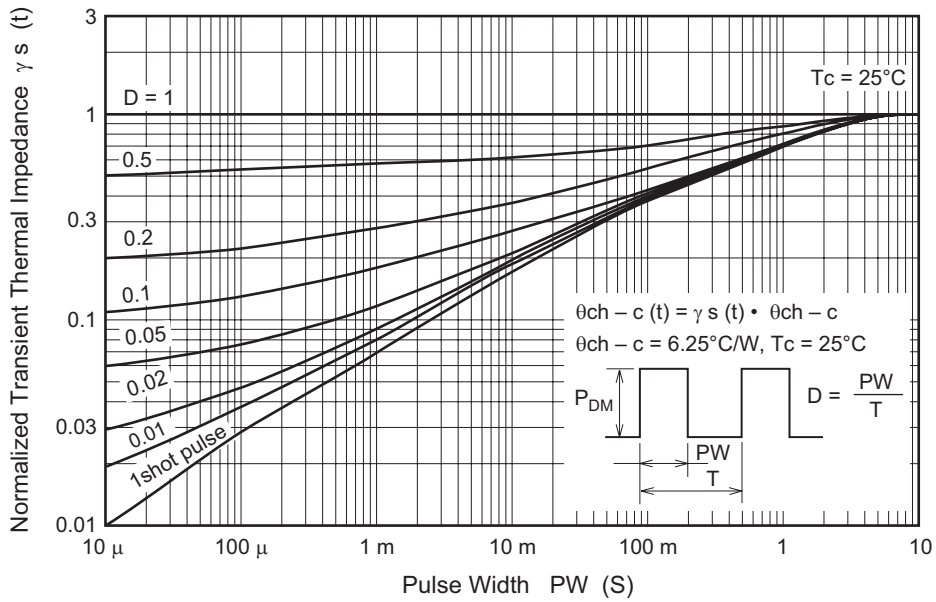
Switching Characteristics



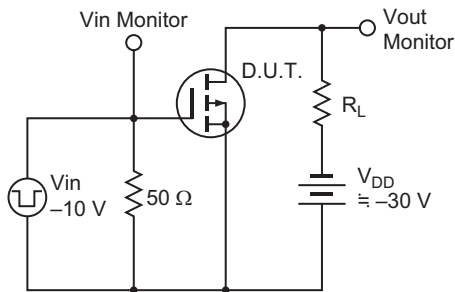
Reverse Drain Current vs. Source to Drain Voltage



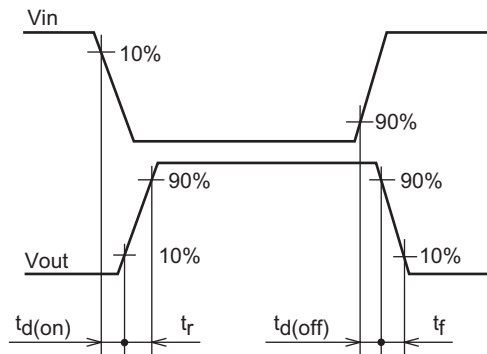
Normalized Transient Thermal Impedance vs. Pulse Width



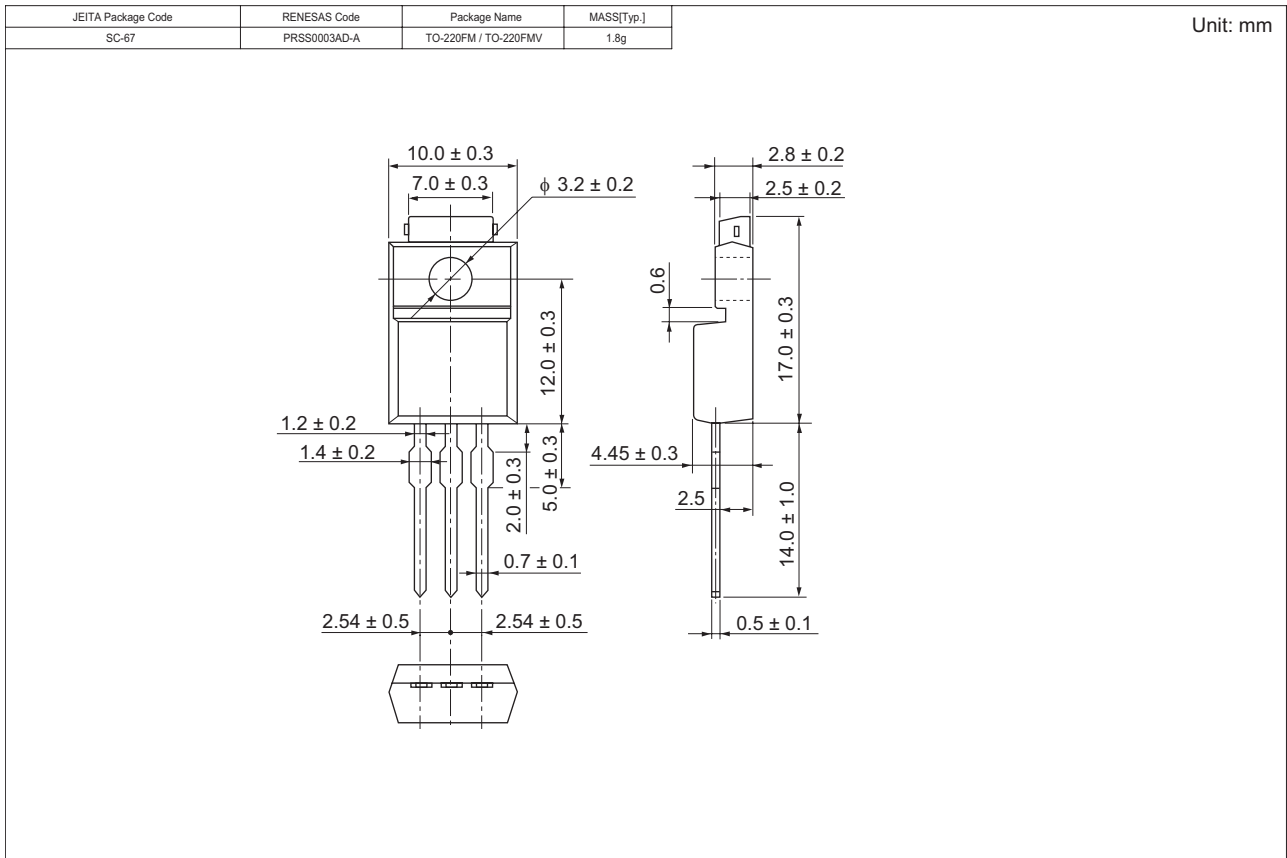
Switching Time Test Circuit



Waveform



## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SJ350-E	500 pcs	Box (Sack)

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