

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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## 2SJ186

### Silicon P Channel MOS FET

REJ03G0849-0200  
(Previous: ADE-208-1184)  
Rev.2.00  
Sep 07, 2005

#### Description

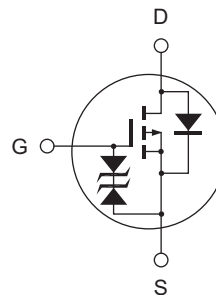
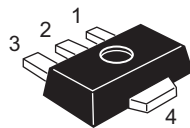
High speed power switching

#### Features

- Low on-resistance
- High speed switching
- Low drive current
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive

#### Outline

RENESAS Package code: PLZZ0004CA-A  
(Package name: UPAK<sup>®</sup>)



1. Gate
2. Drain
3. Source
4. Drain

Note: Marking is "CY".

\*UPAK is a trademark of Renesas Technology Corp.

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	-200	V
Gate to source voltage	V <sub>GSS</sub>	±15	V
Drain current	I <sub>D</sub>	-0.5	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	-1.0	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-0.5	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	1	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. When using the alumina ceramic board (12.5 × 20 × 0.7 mm)

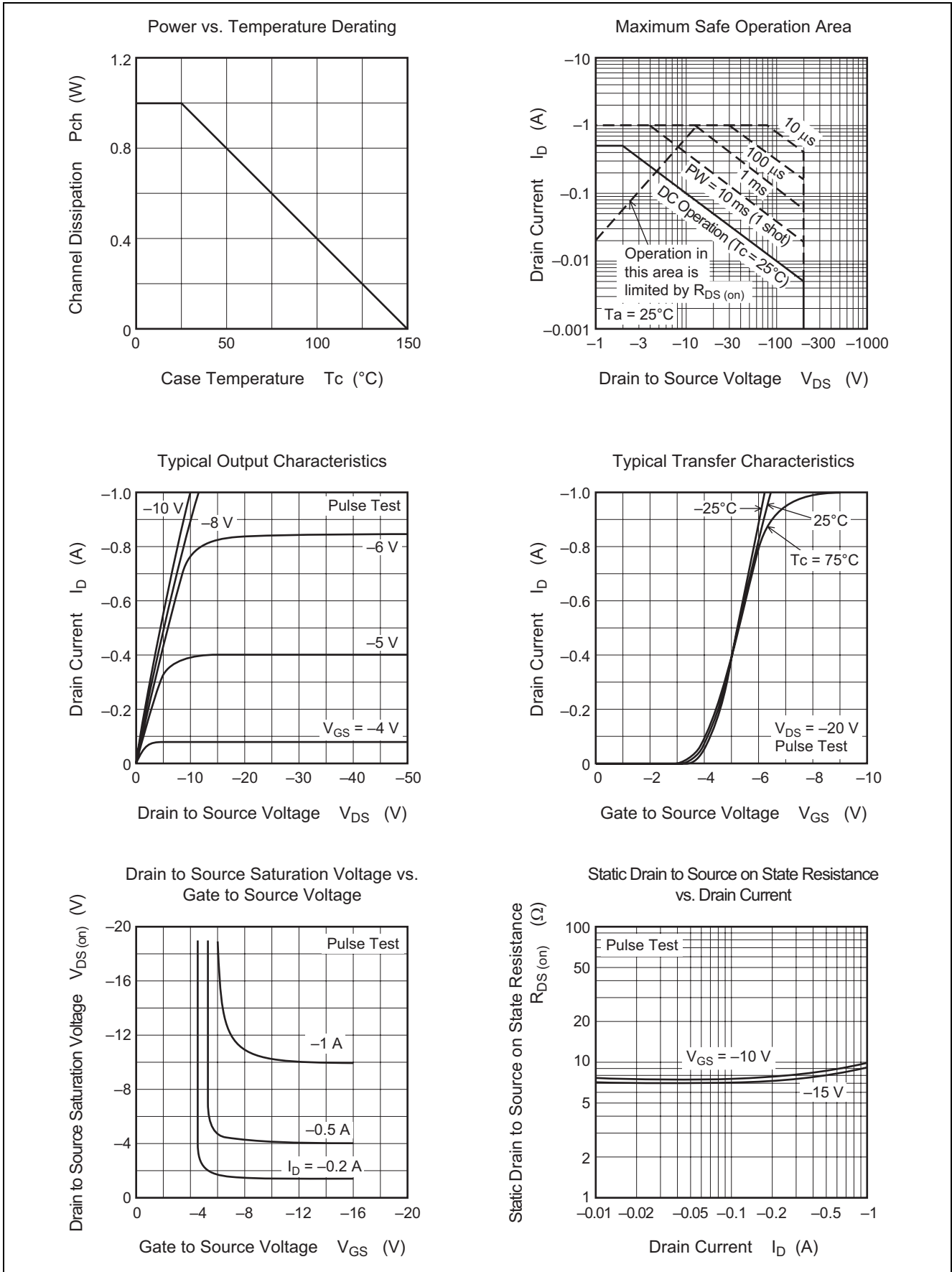
## Electrical Characteristics

(Ta = 25°C)

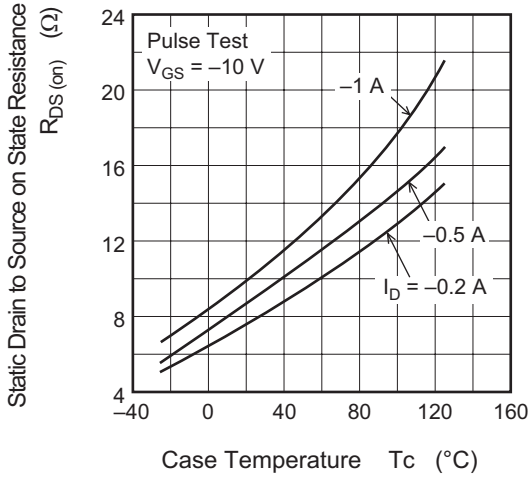
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	-200	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR) GSS</sub>	±15	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±12 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-50	μA	V <sub>DS</sub> = -160 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	-2.0	—	-4.0	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>	—	8.0	12.0	Ω	I <sub>D</sub> = -0.25 A, V <sub>GS</sub> = -10 V <sup>Note 3</sup>
	R <sub>DS (on)</sub>	—	10.0	15.0	Ω	I <sub>D</sub> = -1 A, V <sub>GS</sub> = -10 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	0.18	0.3	—	S	I <sub>D</sub> = -0.25 A, V <sub>DS</sub> = -10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	75	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	32	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	5	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	—	6	—	ns	I <sub>D</sub> = -0.25 A
Rise time	t <sub>r</sub>	—	6	—	ns	V <sub>GS</sub> = -10 V
Turn-off delay time	t <sub>d (off)</sub>	—	17	—	ns	R <sub>L</sub> = 120 Ω
Fall time	t <sub>f</sub>	—	15	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.95	—	V	I <sub>F</sub> = -0.5 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	100	—	ns	I <sub>F</sub> = -0.5 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 50 A/μs

Note: 3. Pulse test

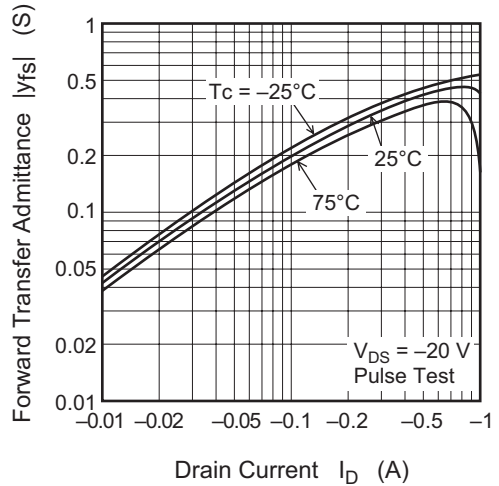
### Main Characteristics



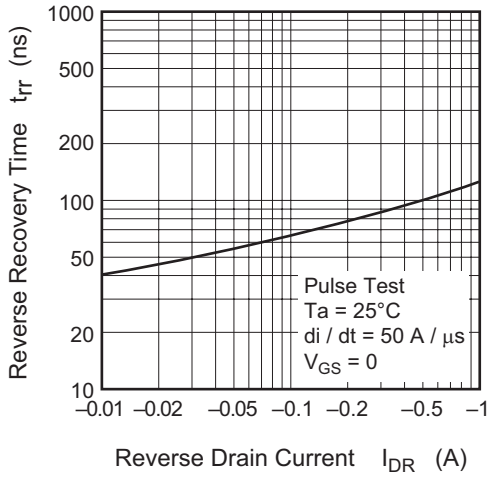
Static Drain to Source on State Resistance vs. Temperature



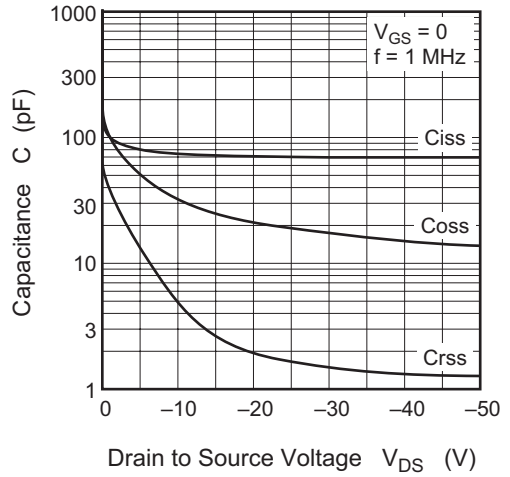
Forward Transfer Admittance vs. Drain Current



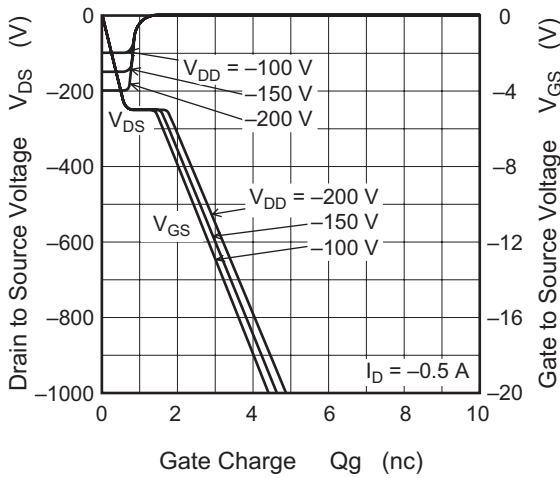
Body-Drain Diode Reverse Recovery Time



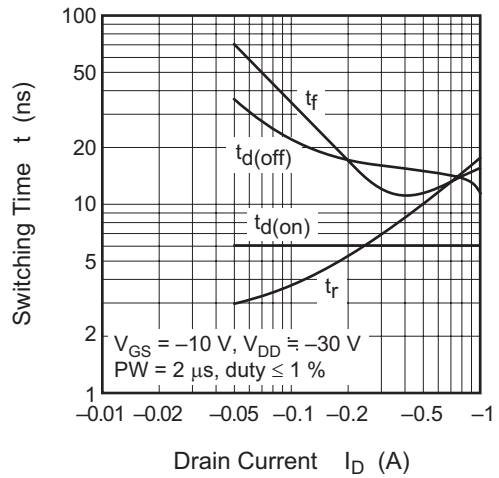
Capacitance vs. Drain to Source Voltage

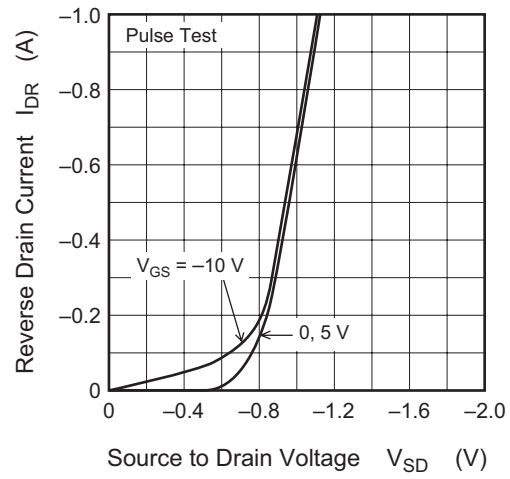


Dynamic Input Characteristics

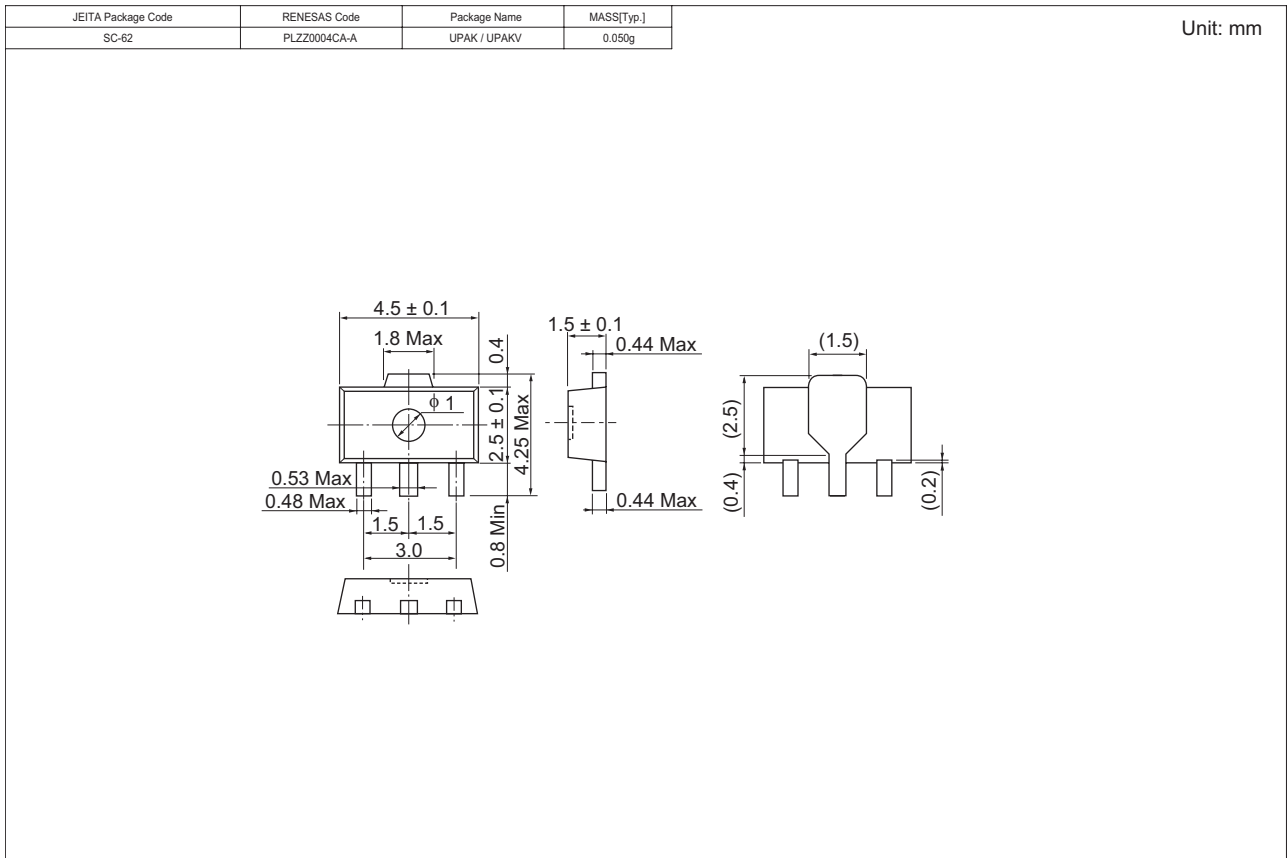


Switching Characteristics



Reverse Drain Current vs.  
Source to Drain Voltage

## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SJ186CYEL-E	1000 pcs	$\phi 178$ mm Reel, 12 mm Emboss Taping

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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