

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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# 2SK1697

## Silicon N-Channel MOS FET

REJ03G1373-0200  
 (Previous: ADE-208-1313)  
 Rev.2.00  
 May 11, 2006

### Application

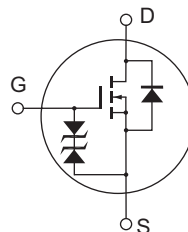
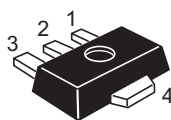
High speed power switching

### Features

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

### Outline

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



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

Note: Marking is "EY".

\*UPAK is a trademark of Renesas Technology Corp.

### Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	60	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	0.5	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	1.5	A
Body to drain diode reverse drain current	I <sub>DR</sub>	0.5	A
Channel dissipation	P <sub>ch</sub> <sup>*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)

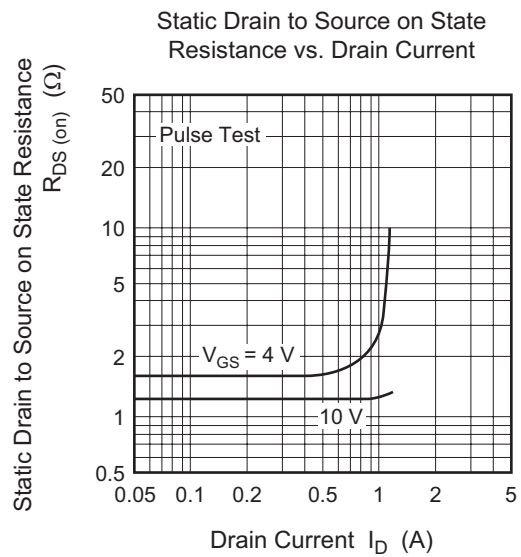
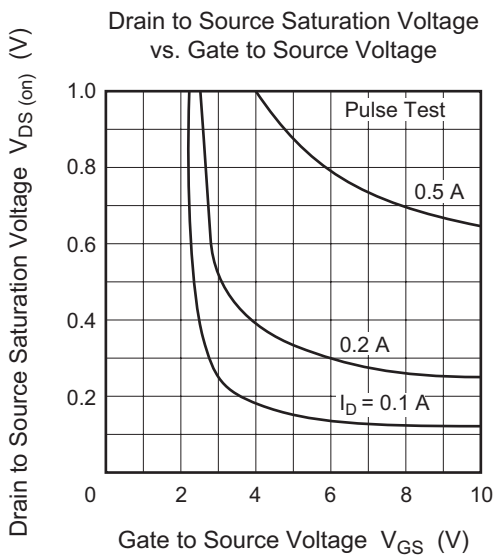
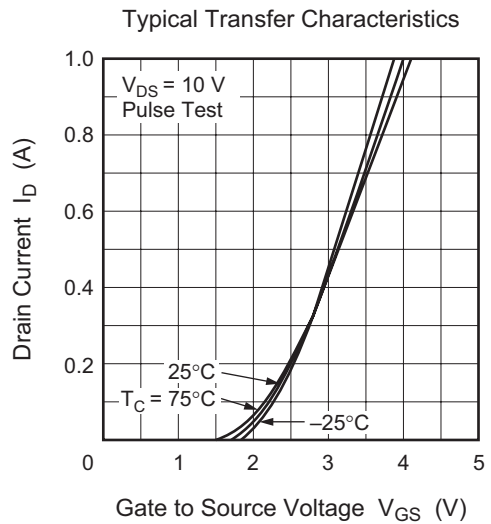
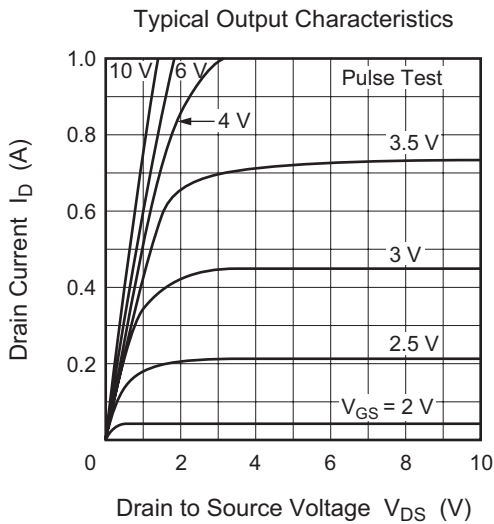
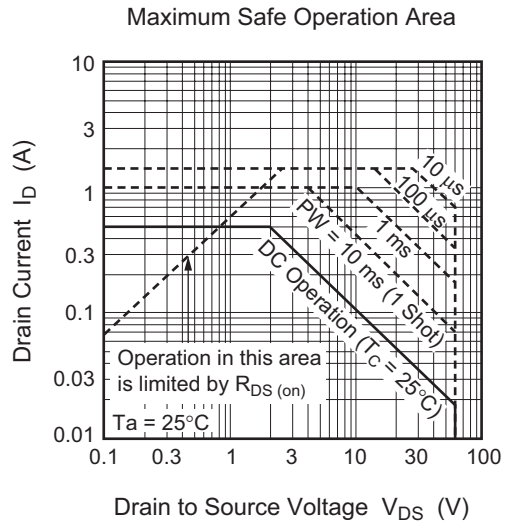
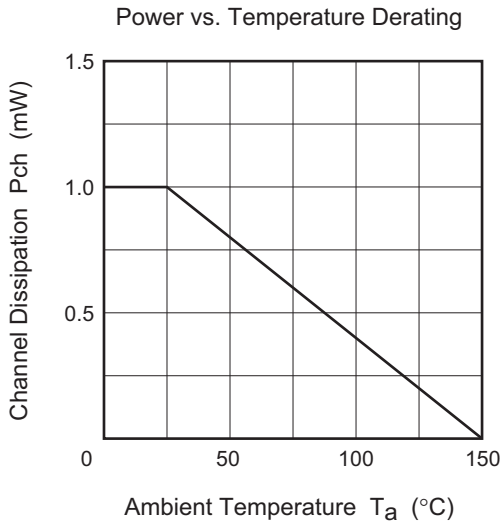
## Electrical Characteristics

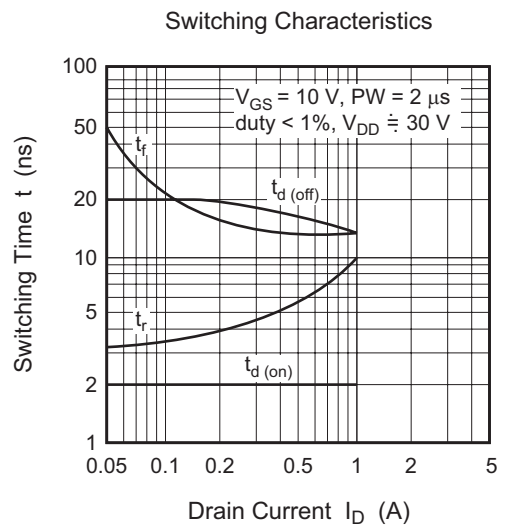
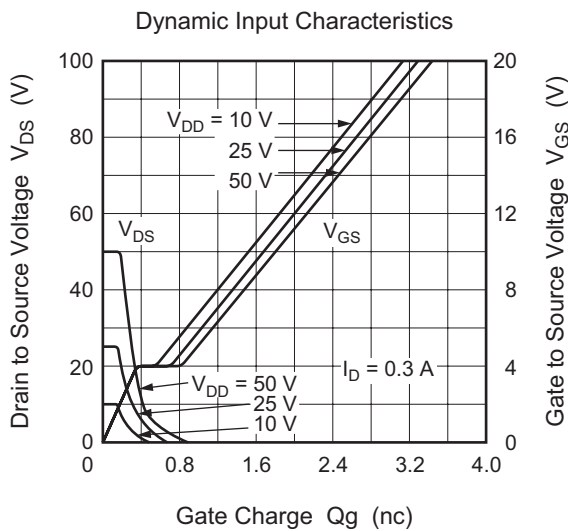
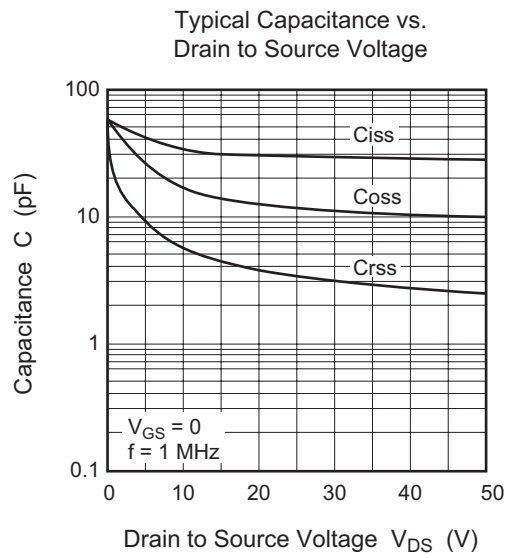
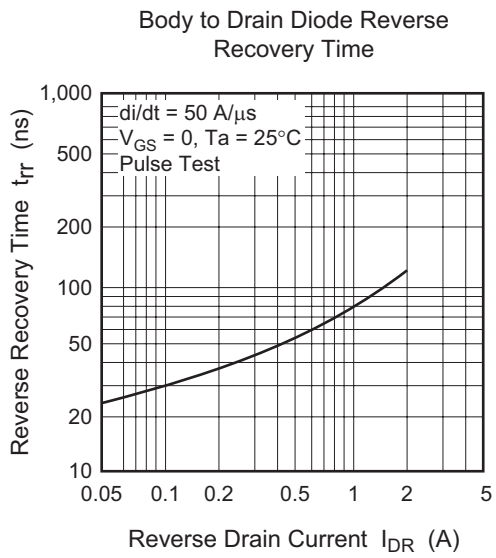
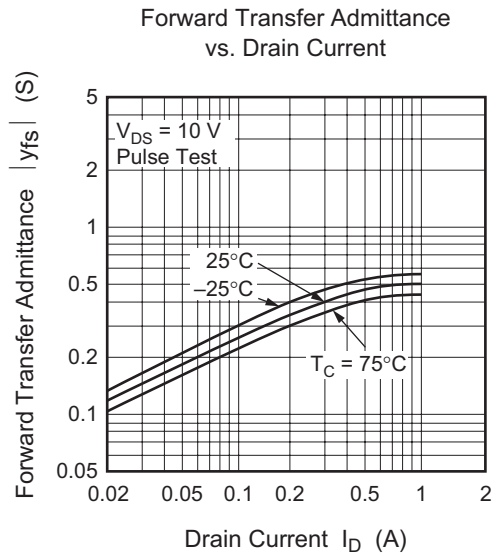
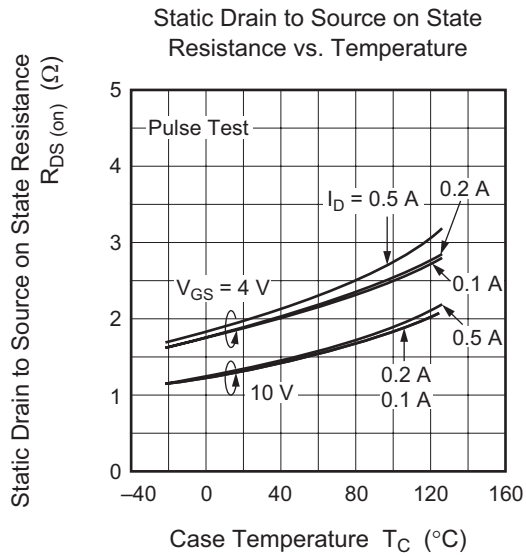
(Ta = 25°C)

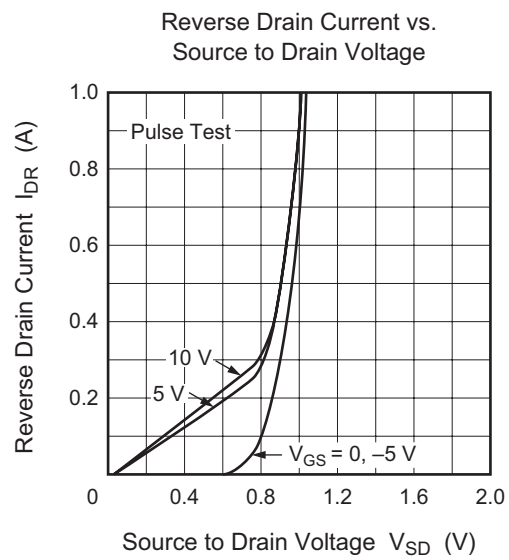
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	50	$\mu\text{A}$	$V_{DS} = 50 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1 \text{ mA}$ , $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.3	1.7	$\Omega$	$I_D = 0.3 \text{ A}$ , $V_{GS} = 10 \text{ V}^{*1}$
		—	1.8	2.5	$\Omega$	$I_D = 0.3 \text{ A}$ , $V_{GS} = 4 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.25	0.38	—	S	$I_D = 0.3 \text{ A}$ , $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	33	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	17	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	5	—	pF	
Turn-on delay time	$t_{d(on)}$	—	3	—	ns	$I_D = 0.3 \text{ A}$ , $V_{GS} = 10 \text{ V}$ , $R_L = 100 \Omega$
Rise time	$t_r$	—	8	—	ns	
Turn-off delay time	$t_{d(off)}$	—	18	—	ns	
Fall time	$t_f$	—	14	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1	—	V	$I_F = 0.5 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	45	—	ns	$I_F = 0.5 \text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 50 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

Main Characteristics







## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g	

The drawing shows three views of the package:

- Top View:** Overall width is  $4.5 \pm 0.1$  mm. The lead spacing is  $1.8$  Max mm. The lead width is  $0.53$  Max mm. The lead thickness is  $0.48$  Max mm. The distance from the lead edge to the center of the package is  $1.5$  mm. The total length of the package is  $3.0$  mm. The diameter of the central hole is  $\phi 1$  mm. The distance from the lead edge to the top edge is  $2.5 \pm 0.1$  mm. The distance from the lead edge to the bottom edge is  $0.8$  Min mm. The distance from the lead edge to the top edge of the package is  $4.25$  Max mm. The distance from the lead edge to the top edge of the package is  $0.4$  mm.
- Side View:** The height of the package is  $1.5 \pm 0.1$  mm. The distance from the lead edge to the top edge of the package is  $0.44$  Max mm. The distance from the lead edge to the bottom edge of the package is  $0.44$  Max mm.
- Bottom View:** The distance between the leads is  $(1.5)$  mm. The distance from the lead edge to the bottom edge of the package is  $(0.4)$  mm. The distance from the lead edge to the bottom edge of the package is  $(0.2)$  mm.

## Ordering Information

Part Name	Quantity	Shipping Container
2SK1697EYTL-E	1000 pcs	$\phi 178$ mm Reel, 12 mm Emboss Taping
2SK1697EYTR-E		

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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