

To our customers,

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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2SK2315

Silicon N Channel MOS FET

REJ03G1006-0200
(Previous: ADE-208-1354)
Rev.2.00
Sep.07,2005

Application

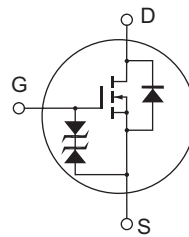
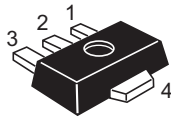
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 2.5 V gate drive device can be driven from 3 V source.
- Suitable for DC-DC converter, motor drive, power switch, solenoid drive

Outline

RENESAS Package code: PLZZ0004CA-A
(Package name: UPAK[®])



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

Note: Marking is "TY"

*UPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	60	V
Gate to source voltage	V_{GS}	± 20	V
Drain current	I_D	2	A
Drain peak current	$I_{D(pulse)}^{*1}$	4	A
Body to drain diode reverse drain current	I_{DR}	2	A
Channel dissipation	P_{ch}^{*2}	1	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$ 2. When using the alumina ceramic board ($12.5 \times 20 \times 0.7 \text{ mm}$)

Electrical Characteristics

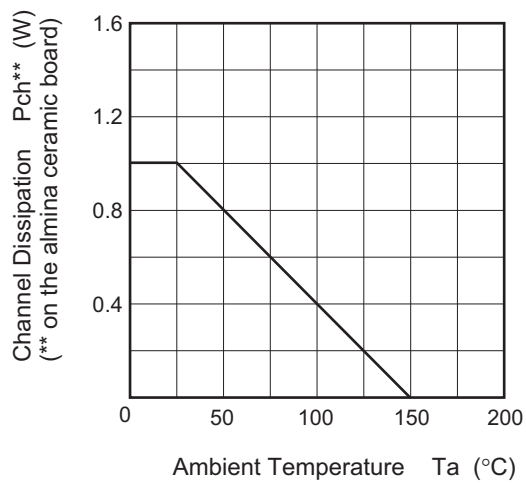
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	± 20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 5	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	5	μA	$V_{DS} = 50 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.4	0.6	Ω	$I_D = 0.3 \text{ A}$, $V_{GS} = 3 \text{ V}^{*3}$
		—	0.35	0.45	Ω	$I_D = 1 \text{ A}$, $V_{GS} = 4 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	1.5	1.8	—	S	$I_D = 1 \text{ A}$, $V_{DS} = 10 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	173	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	85	—	pF	
Reverse transfer capacitance	C_{rss}	—	23	—	pF	
Turn-on time	t_{on}	—	21	—	ns	$I_D = 1 \text{ A}$, $R_L = 30 \Omega$,
Turn-off time	t_{off}	—	85	—	ns	$V_{GS} = 10 \text{ V}$

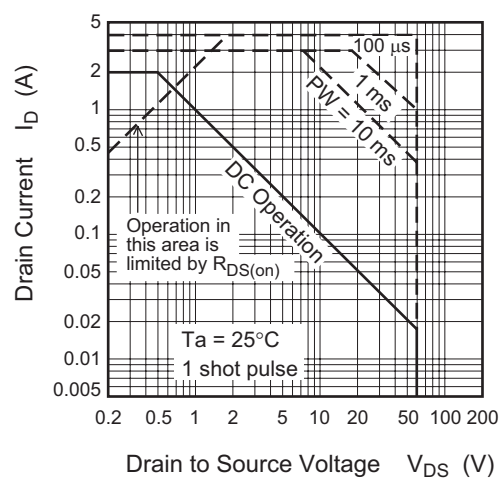
Note: 3. Pulse Test

Main Characteristics

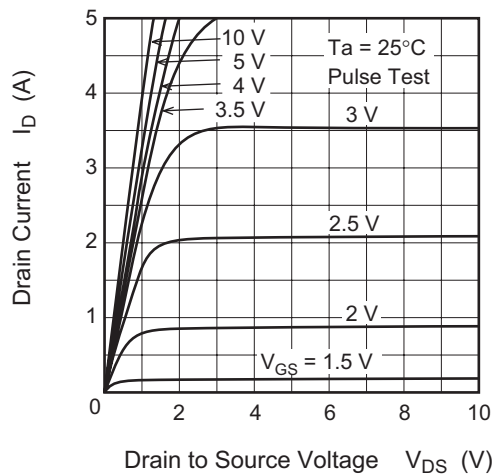
Power vs. Temperature Derating



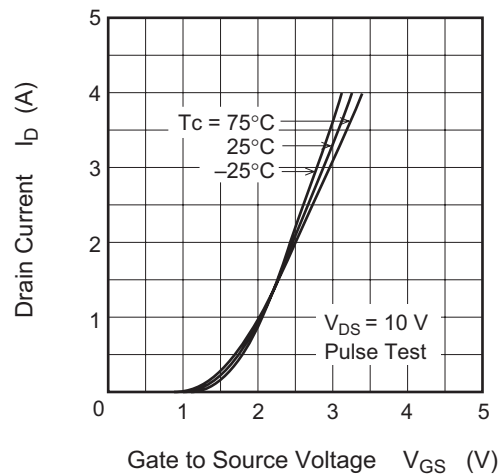
Maximum Safe Operation Area



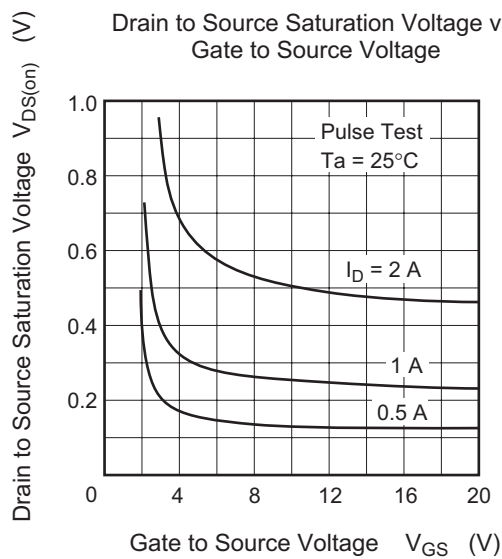
Typical Output Characteristics



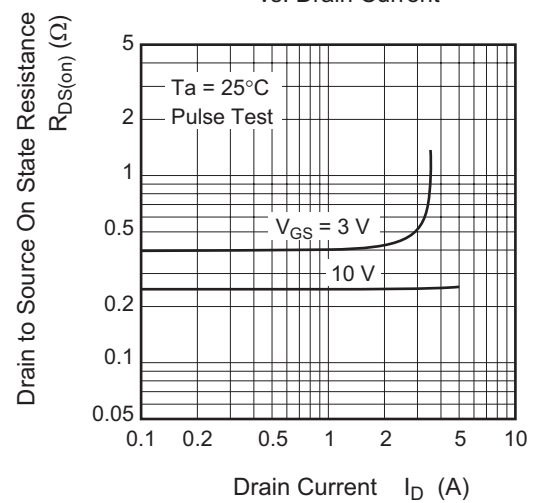
Typical Transfer Characteristics

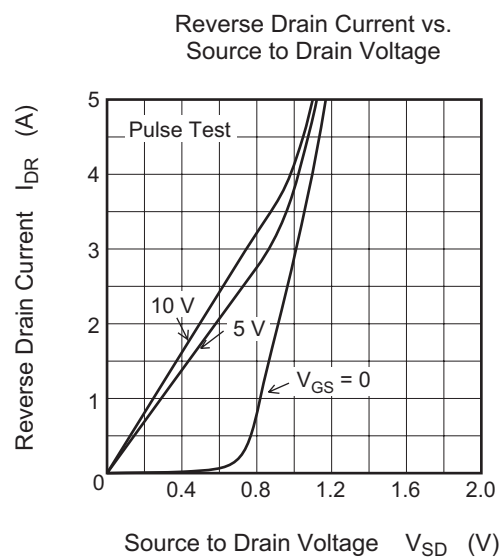
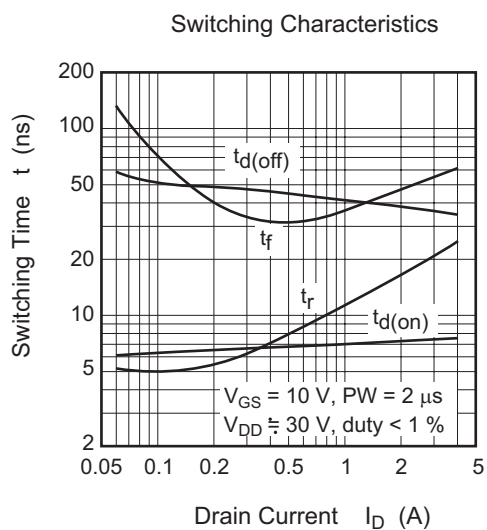
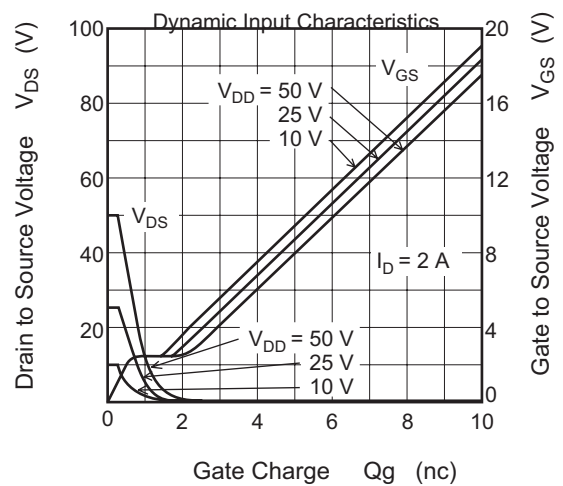
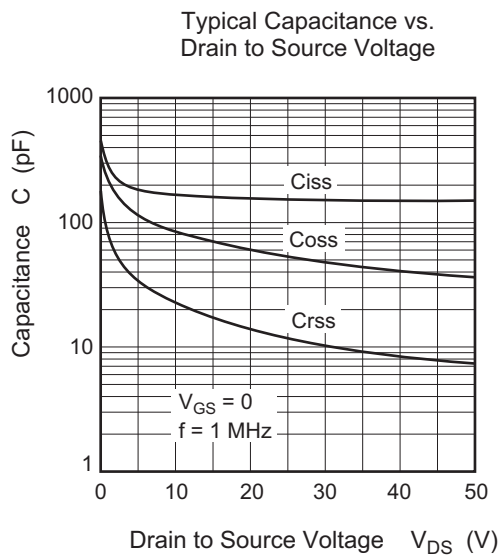
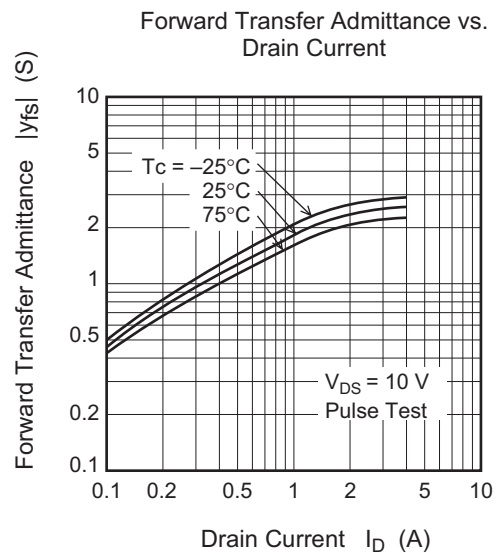
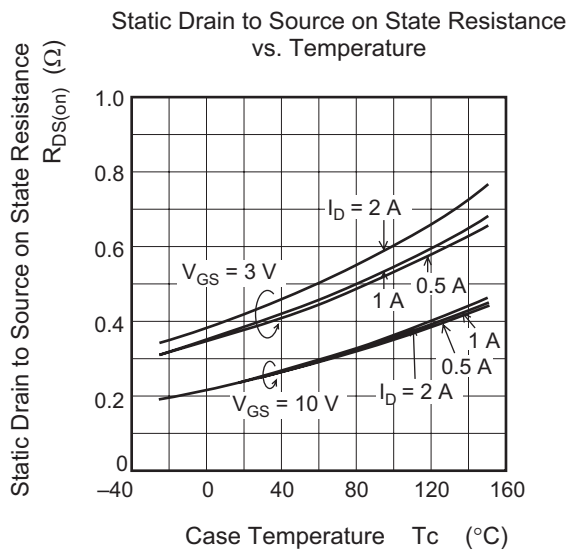


Drain to Source Saturation Voltage vs. Gate to Source Voltage



Static Drain to Source State Resistance vs. Drain Current





Package Dimensions

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

The drawing shows three views of the package:

- Top View:** Overall width is 4.5 ± 0.1 mm. The central circular feature has a diameter of $\phi 1$ mm. The distance from the center to the nearest edge is 1.8 Max mm. The total height is 2.5 ± 0.1 mm. The distance between the two side features is 3.0 mm. The distance from the center to the side features is 1.5 mm. The distance from the center to the bottom edge is 0.53 Max mm. The distance from the center to the bottom edge is 0.48 Max mm. The distance from the center to the bottom edge is 0.8 Min mm. The distance from the center to the bottom edge is 4.25 Max mm.
- Side View:** The height of the package is 1.5 ± 0.1 mm. The distance from the center to the side features is 0.44 Max mm. The distance from the center to the side features is 0.44 Max mm.
- End View:** The width of the package is 1.5 mm. The distance from the center to the side features is (2.5) mm. The distance from the center to the side features is (0.4) mm. The distance from the center to the side features is (0.2) mm.

Ordering Information

Part Name	Quantity	Shipping Container
2SK2315TYTL-E	1000 pcs	Taping
2SK2315TYTR-E	1000 pcs	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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