

2SJ518

Silicon P Channel MOS FET

REJ03G0875-0400
(Previous: ADE-208-580B)
Rev.4.00
Sep 07, 2005

Description

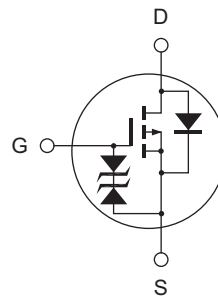
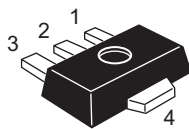
High speed power switching

Features

- Low on-resistance
 $R_{DS(on)} = 0.35 \Omega$ typ. (at $V_{GS} = -10 \text{ V}$, $I_D = -1 \text{ A}$)
- Low drive current
- 4 V gate drive devices
- High speed switching

Outline

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



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

Note: Marking is "AZ".

*UPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	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	$I_{D(pulse)}$ ^{Note 1}	-4	A
Body to drain diode reverse drain current	I_{DR}	-2	A
Avalanche current	I_{AP} ^{Note 2}	-2	A
Avalanche energy	E_{AR}	0.34	mJ
Channel dissipation	P_{ch} ^{Note 3}	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. Value at $T_{ch} = 25^\circ C$, $R_g \geq 50 \Omega$ 3. Value at when using the aluminum ceramic board ($12.5 \times 20 \times 0.7$ mm)

Electrical Characteristics

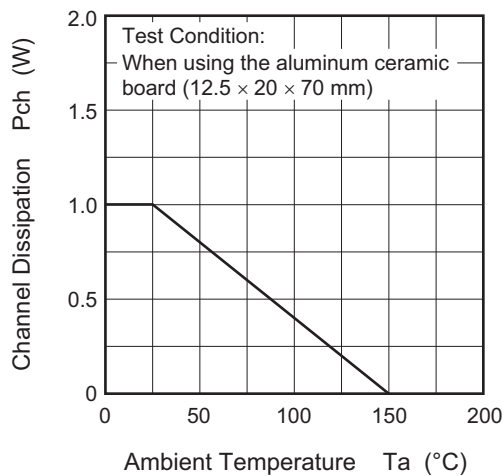
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	—	—	V	$I_D = -10$ mA, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-10	μA	$V_{DS} = -60$ V, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 16$ V, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$I_D = -1$ mA, $V_{DS} = -10$ V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.35	0.46	Ω	$I_D = -1$ A, $V_{GS} = -10$ V ^{Note 4}
	$R_{DS(on)}$	—	0.45	0.63	Ω	$I_D = -1$ A, $V_{GS} = -4$ V ^{Note 4}
Forward transfer admittance	$ y_{fs} $	1.2	2.0	—	S	$I_D = -1$ A, $V_{DS} = -10$ V ^{Note 4}
Input capacitance	C_{iss}	—	220	—	pF	$V_{DS} = -10$ V
Output capacitance	C_{oss}	—	110	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	35	—	pF	$f = 1$ MHz
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$V_{GS} = -10$ V
Rise time	t_r	—	11	—	ns	$I_D = -1$ A
Turn-off delay time	$t_{d(off)}$	—	45	—	ns	$R_L = 30 \Omega$
Fall time	t_f	—	30	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-1.05	—	V	$I_F = -2$ A, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	50	—	ns	$I_F = -2$ A, $V_{GS} = 0$ $di_F/dt = 50$ A/ μs

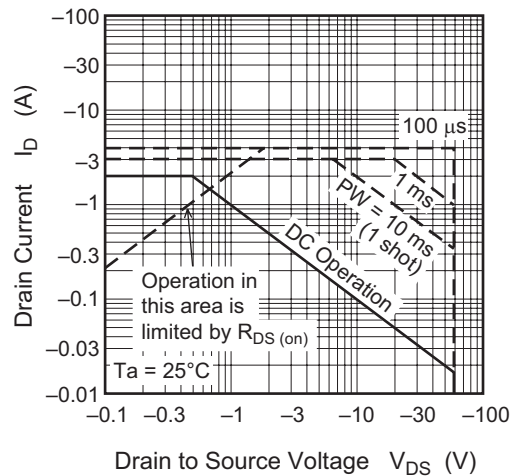
Note: 4. Pulse test

Main Characteristics

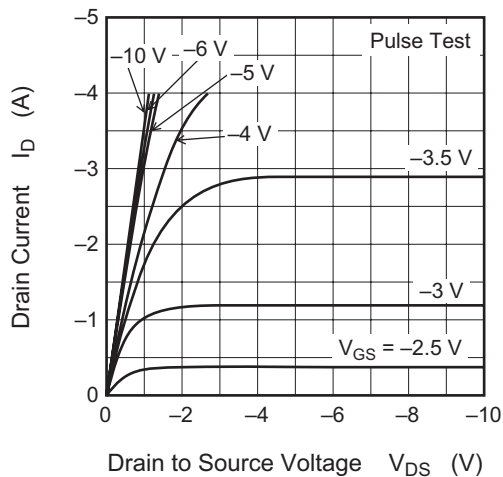
Power vs. Temperature Derating



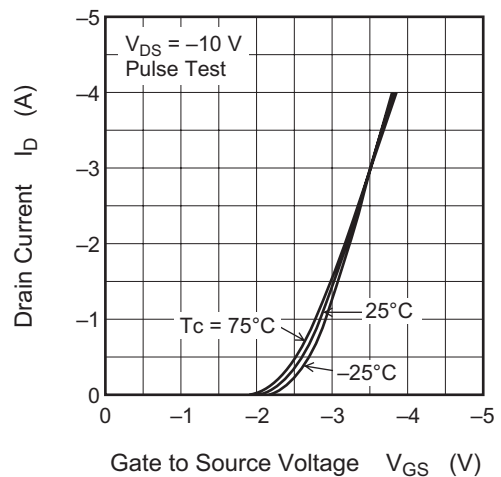
Maximum Safe Operation Area



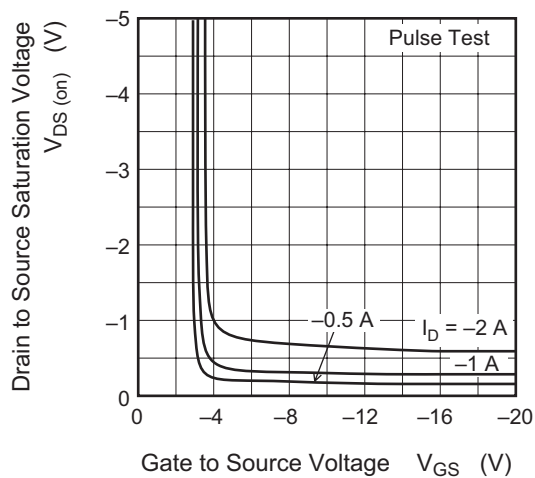
Typical Output Characteristics



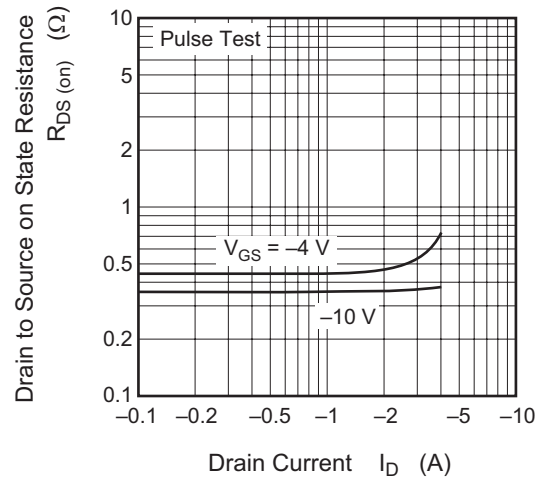
Typical Transfer Characteristics

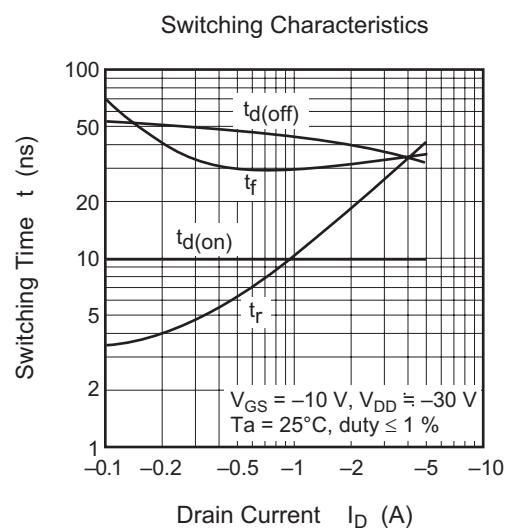
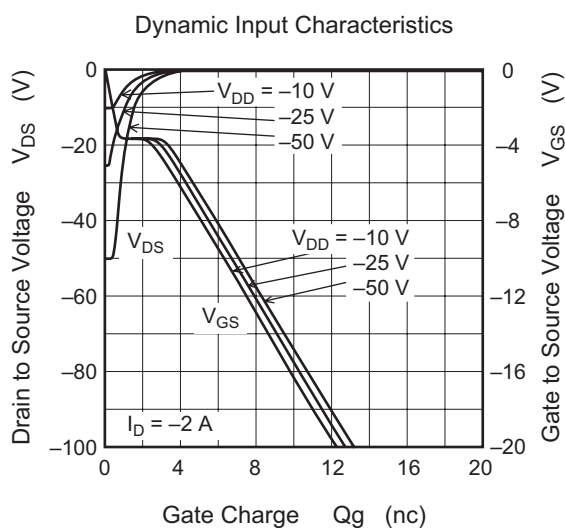
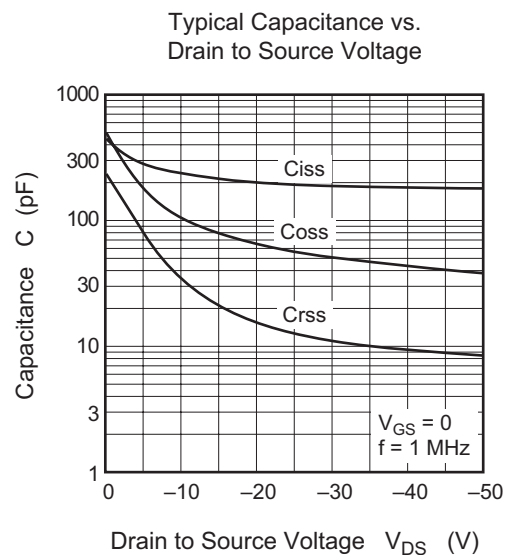
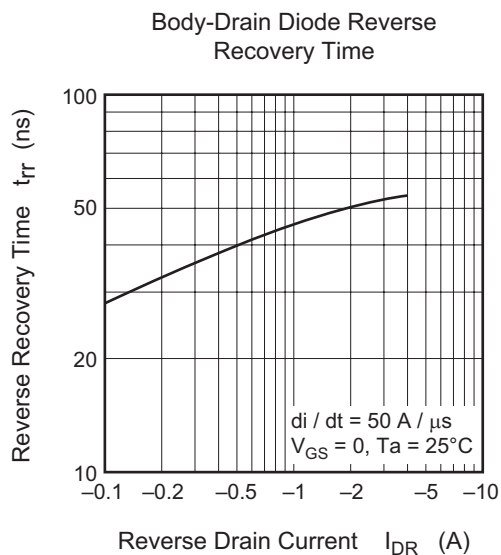
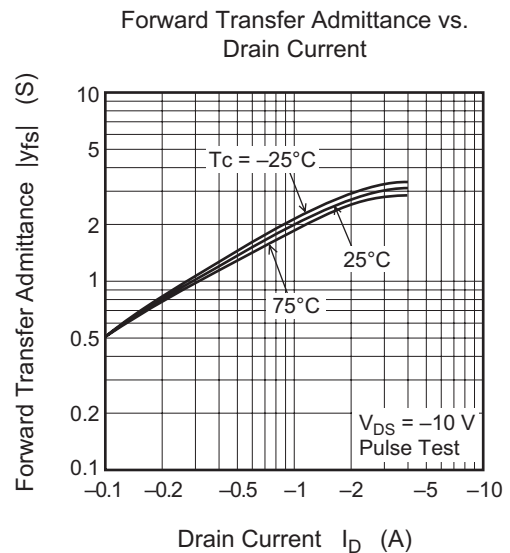
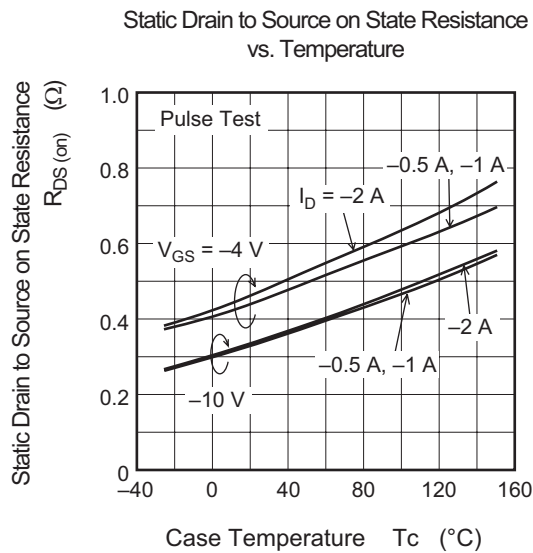


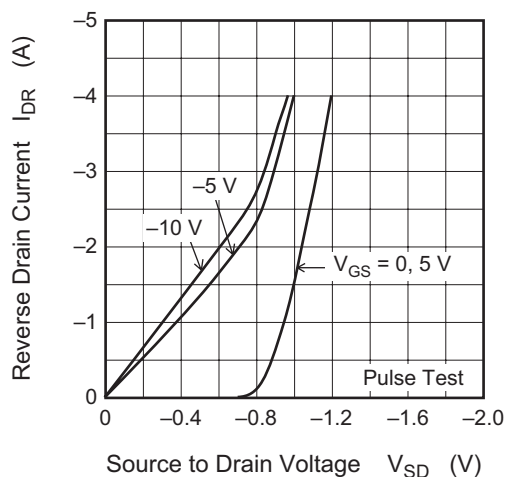
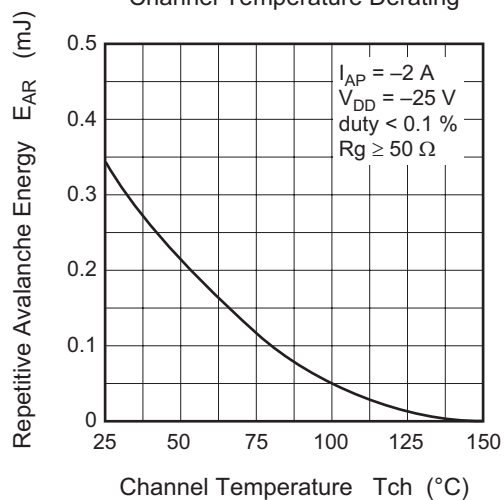
Drain to Source Saturation Voltage vs. Gate to Source Voltage



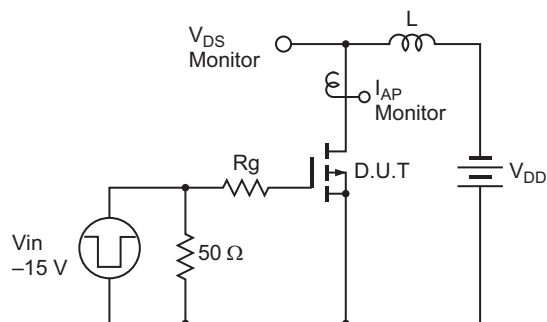
Static Drain to Source on State Resistance vs. Drain Current



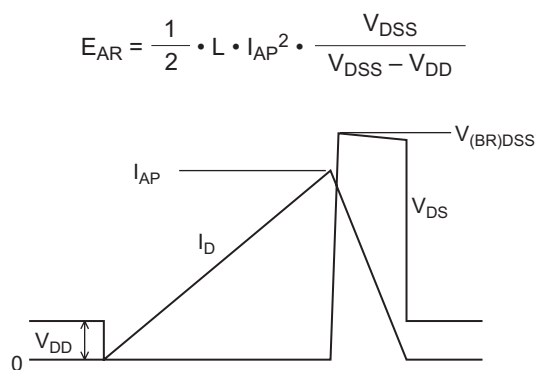


Reverse Drain Current vs.
Source to Drain VoltageMaximum Avalanche Energy vs.
Channel Temperature Derating

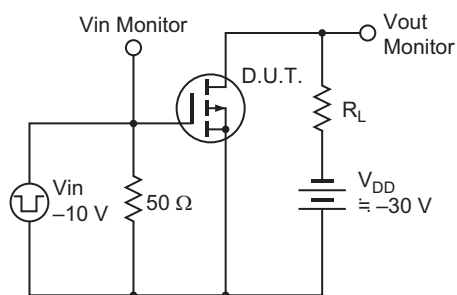
Avalanche Test Circuit



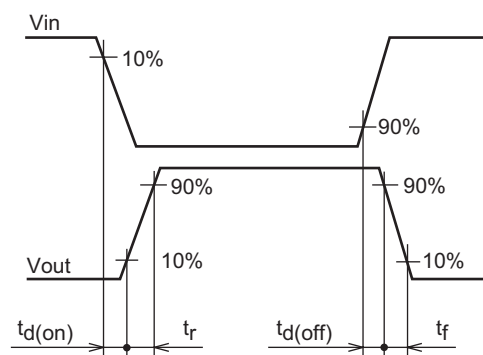
Avalanche Waveform



Switching Time Test Circuit



Waveform



Package Dimensions

JEITA Package Code	RENEAS 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 mounting pad has a diameter of $\phi 1$ mm. The distance from the center to the side leads is 1.5 ± 0.1 mm. The lead width is 0.53 mm Max and 0.48 mm Max. The distance between the two side leads is 3.0 mm. The distance from the center to the bottom leads is 1.5 mm. The bottom lead width is 0.8 mm Min.
- Side View:** The package height is 1.5 ± 0.1 mm. The lead height is 0.44 mm Max. The distance from the base to the top of the package is 2.5 ± 0.1 mm. The total height including the lead is 4.25 mm Max.
- Front View:** The package width is 1.5 mm. The lead width is 0.4 mm (0.4). The distance between the two leads is 2.5 mm. The distance from the center to the edge of the lead is 0.2 mm (0.2).

Ordering Information

Part Name	Quantity	Shipping Container
2SJ518AZTL-E	1000 pcs	Taping
2SJ518AZTR-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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