

2SK2788

Silicon N Channel MOS FET High Speed Power Switching

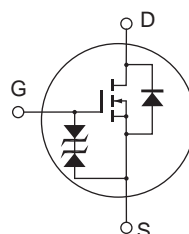
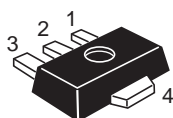
R07DS0511EJ0300
(Previous: REJ03G1033-0200)
Rev.3.00
Jul 27, 2011

Features

- Low on-resistance
 $R_{DS(on)} = 0.12 \Omega$ typ ($V_{GS} = 10 \text{ V}$, $I_D = 1 \text{ A}$)
- Low drive current
- High speed switching
- 4 V gate drive devices.

Outline

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



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

Note: Marking is "VY"

Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	± 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	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

- Notes: 1. $PW \leq 100 \mu\text{s}$, duty cycle $\leq 10 \%$
2. When using the alumina ceramic board (12.5 x 20 x 0.7 mm)

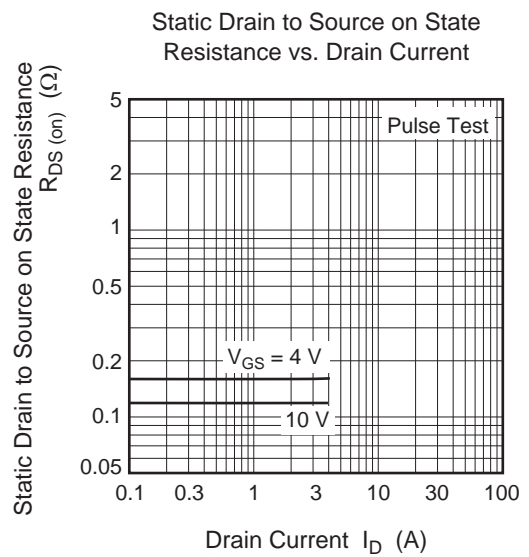
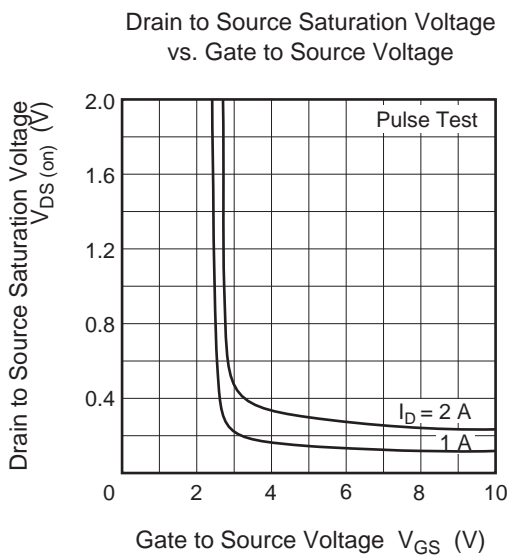
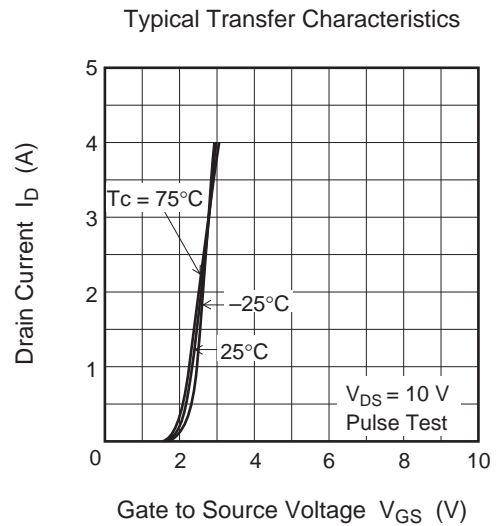
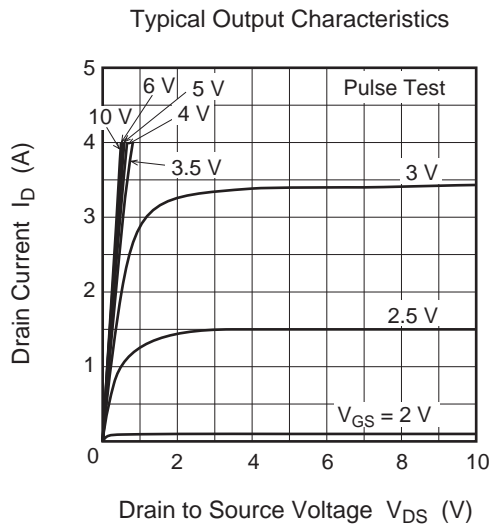
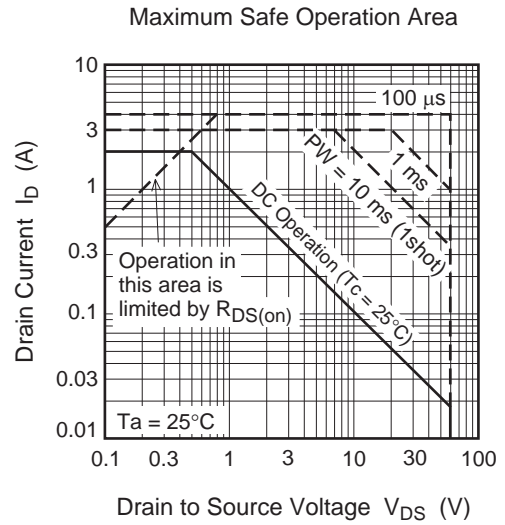
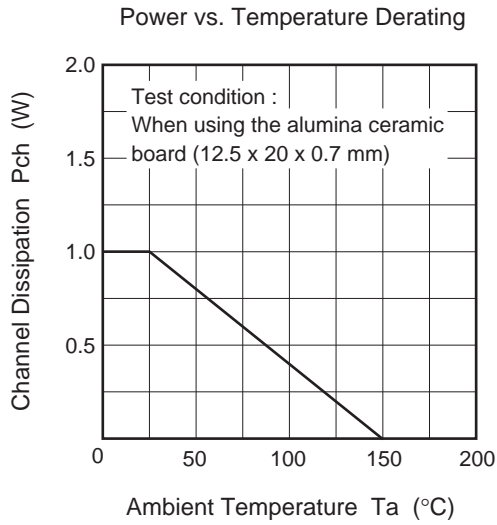
Electrical Characteristics

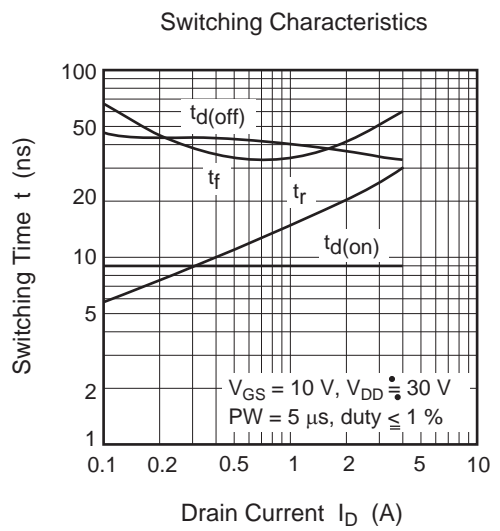
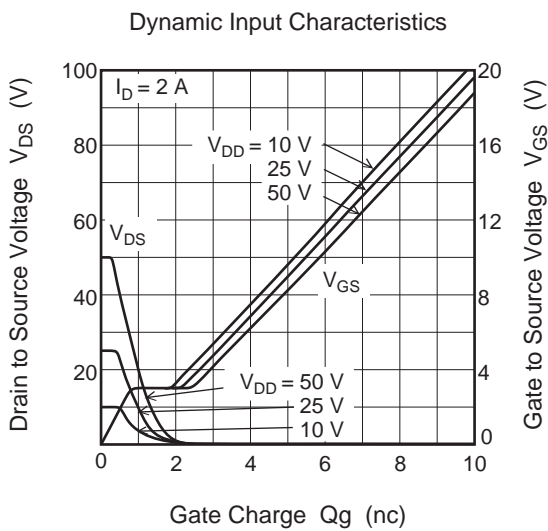
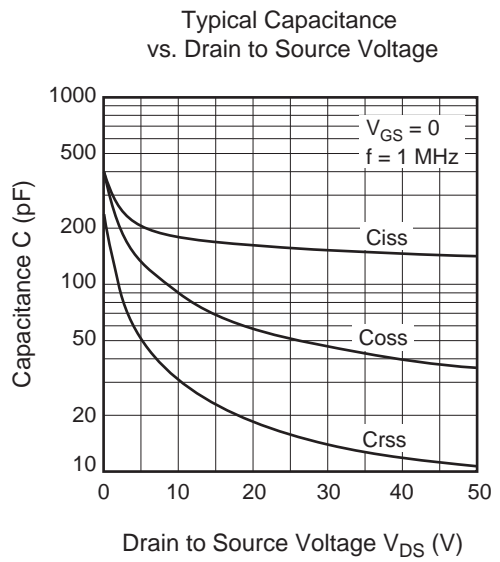
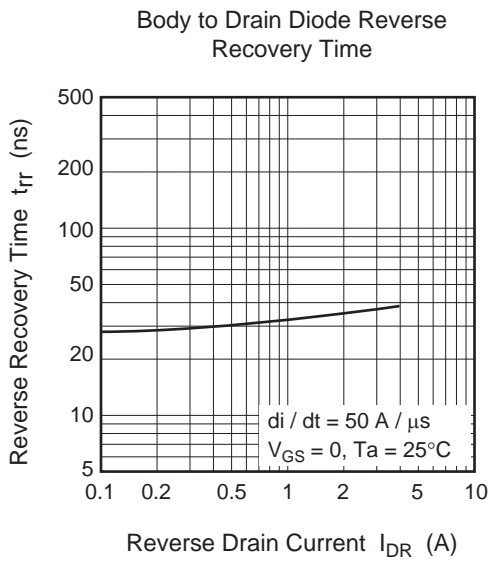
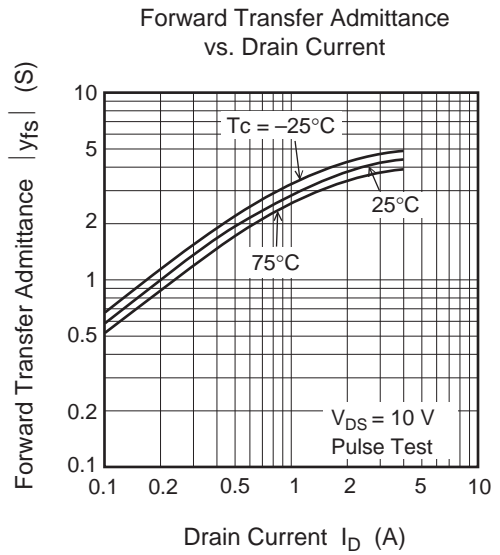
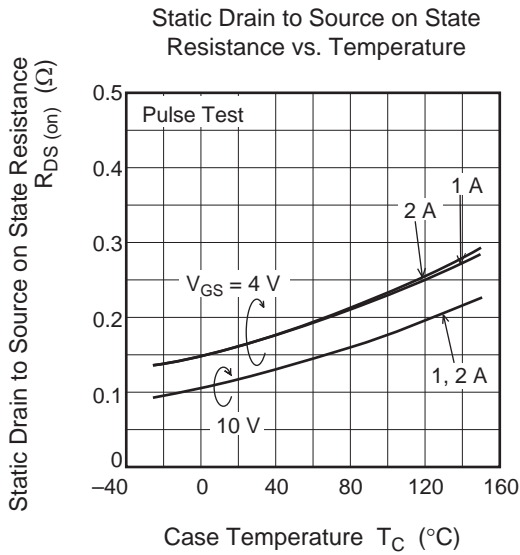
(Ta = 25°C)

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	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \mu\text{A}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 60 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
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	$R_{DS(on)}$	—	0.12	0.16	Ω	$I_D = 1 \text{ A}$, $V_{GS} = 10 \text{ V}^{*3}$
	$R_{DS(on)}$	—	0.16	0.25	Ω	$I_D = 1 \text{ A}$, $V_{GS} = 4 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	1.6	2.8	—	S	$I_D = 1 \text{ A}$, $V_{DS} = 10 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	180	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	90	—	pF	
Reverse transfer capacitance	C_{rss}	—	30	—	pF	
Turn-on delay time	$t_{d(on)}$	—	9	—	ns	$V_{GS} = 10 \text{ V}$, $I_D = 1 \text{ A}$, $R_L = 30 \Omega$
Rise time	t_r	—	15	—	ns	
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	
Fall time	t_f	—	35	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.9	—	V	$I_D = 2 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	35	—	ns	$I_F = 2 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$

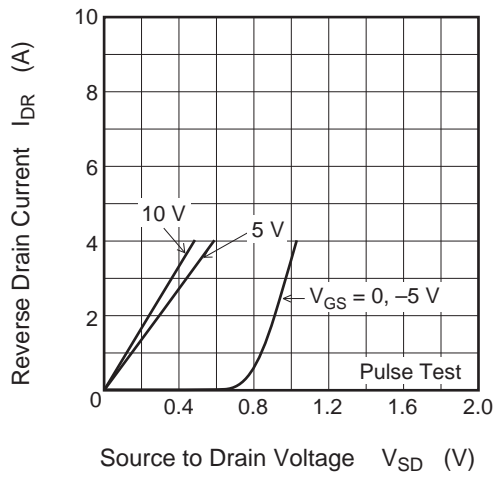
Notes: 3. Pulse test

Main Characteristics

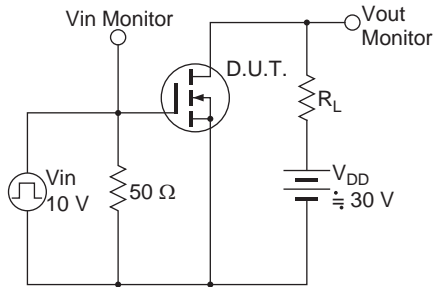




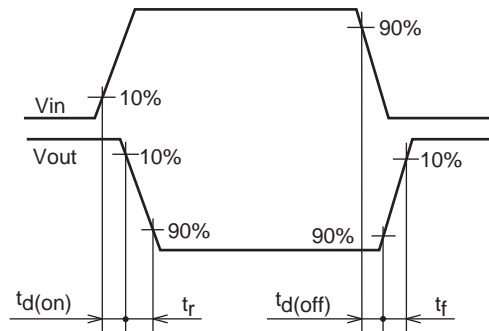
Reverse Drain Current vs. Source to Drain Voltage



Switching Time Test Circuit



Waveform



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 ± 0.1 mm. The lead width is 1.8 Max mm. The lead thickness is 0.4 mm. The lead length is 2.5 ± 0.1 Max mm. The lead spacing is 0.53 Max mm and 0.48 Max mm. The lead width at the base is 1.5 mm. The lead length at the base is 1.5 mm. The lead length at the bottom is 0.8 Min mm. The lead length at the top is 4.25 Max mm. A hole with diameter $\phi 1$ is shown.
- Side View:** The lead height is 1.5 ± 0.1 mm. The lead thickness is 0.44 Max mm. The lead length at the bottom is 0.44 Max mm.
- Bottom View:** The lead width is (1.5) mm. The lead length is (2.5) mm. The lead thickness is (0.4) mm. The lead length at the bottom is (0.2) mm.

Ordering Information

Orderable Part Number	Quantity	Shipping Container
2SK2788VYTL-E	1000 pcs	Taping
2SK2788VYTR-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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