

2SK2980

Silicon N Channel MOS FET
High Speed Power Switching

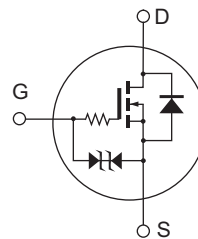
REJ03G1061-0400
(Previous: ADE-208-571B)
Rev.4.00
Sep 07, 2005

Features

- Low on-resistance
 $R_{DS(on)} = 0.2 \Omega$ typ. ($V_{GS} = 4 \text{ V}$, $I_D = 500 \text{ mA}$)
- 2.5 V gate drive devices.
- Small package (MPAK)

Outline

RENESAS Package code: PLSP0003ZB-A
(Package name: MPAK)



1. Source
2. Gate
3. Drain

Note: Marking is "ZZ—"

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	30	V
Gate to source voltage	V_{GS}	+12	V
		-10	V
Drain current	I_D	1.0	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	4	A
Channel dissipation	P_{ch} ^{Note2}	0.8	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 when using alumina ceramic board (12.5 x 20 x 0.7 mm)

Electrical Characteristics

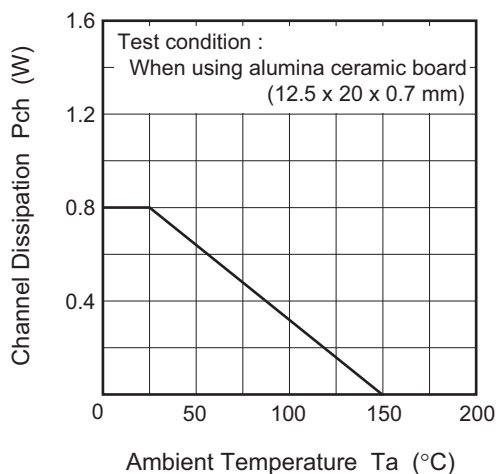
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DS}$	30	—	—	V	$I_D = 100\mu A$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	+12	—	—	V	$I_G = +100\mu A$, $V_{DS} = 0$
		-10	—	—	V	$I_G = -100\mu A$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1.0	μA	$V_{DS} = 30V$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 5.0	μA	$V_{GS} = \pm 8V$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	$I_D = 10\mu A$, $V_{DS} = 5V$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.2	0.28	Ω	$I_D = 500mA$, $V_{GS} = 4V$ ^{Note3}
Static drain to source on state resistance	$R_{DS(on)}$	—	0.3	0.5	Ω	$I_D = 500mA$, $V_{GS} = 2.5V$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	1.2	2.0	—	S	$I_D = 500mA$, $V_{DS} = 10V$ ^{Note3}
Input capacitance	C_{iss}	—	155	—	pF	$V_{DS} = 10V$, $V_{GS} = 0$, $f = 1MHz$
Output capacitance	C_{oss}	—	75	—	pF	
Reverse transfer capacitance	C_{rss}	—	35	—	pF	
Turn-on delay time	$t_{d(on)}$	—	12	—	ns	$V_{GS} = 4V$, $I_D = 500mA$, $R_L = 20\Omega$
Rise time	t_r	—	30	—	ns	
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	t_f	—	30	—	ns	

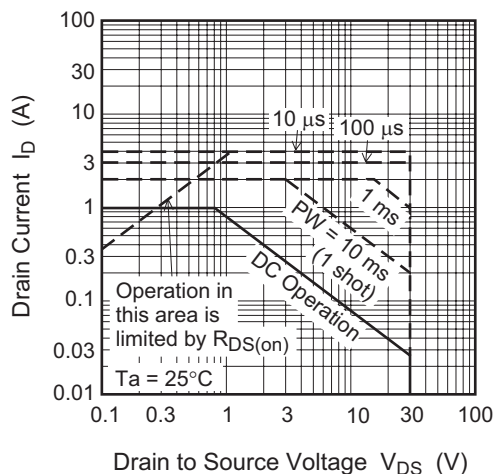
Note: 3. Pulse test

Main Characteristics

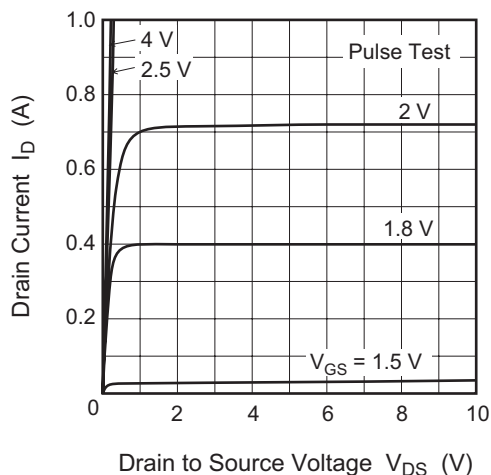
Power vs. Temperature Derating



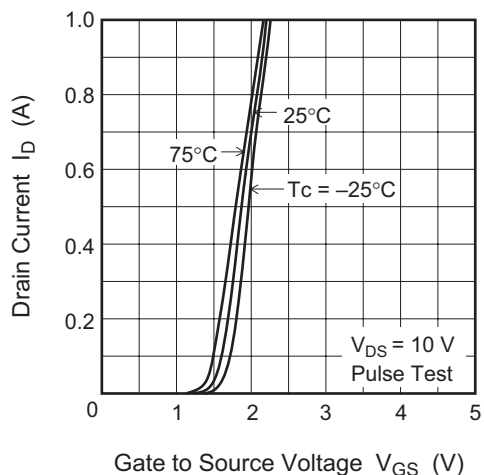
Maximum Safe Operation Area



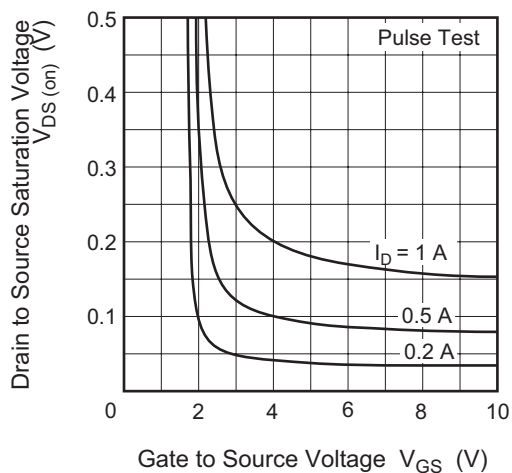
Typical Output Characteristics



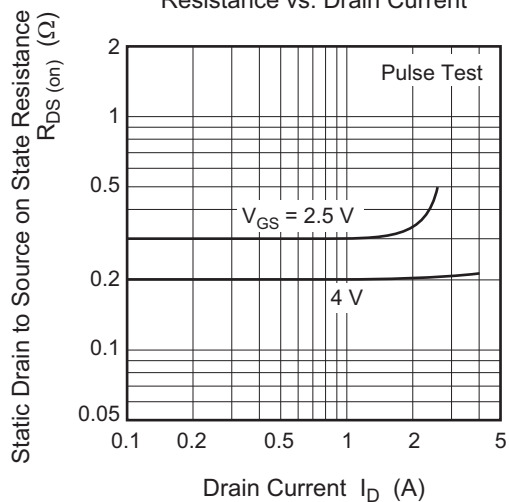
Typical Transfer Characteristics

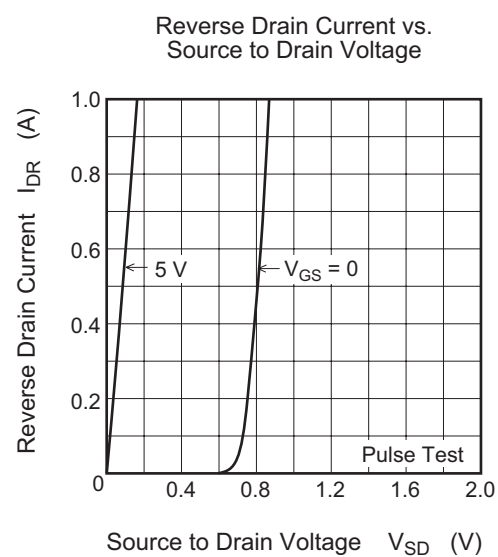
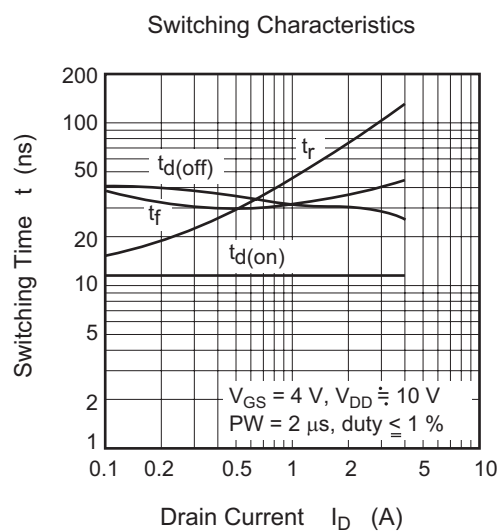
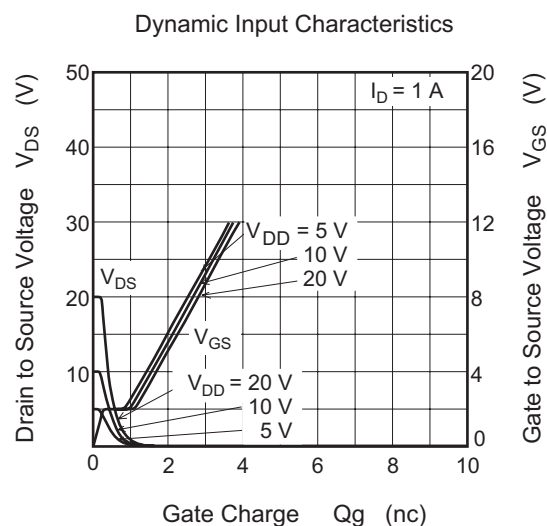
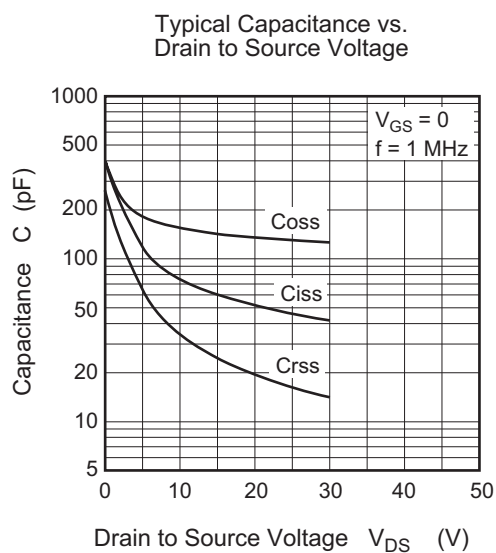
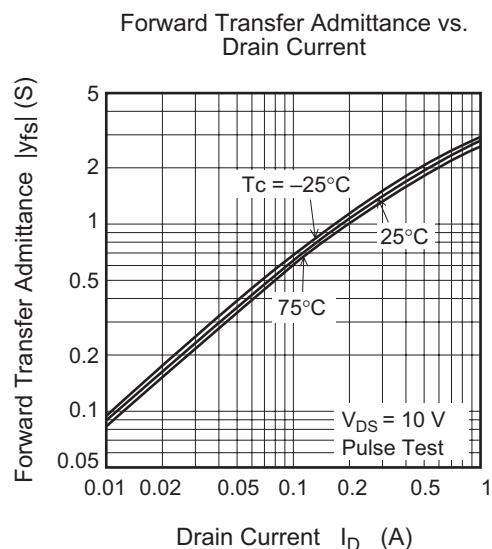
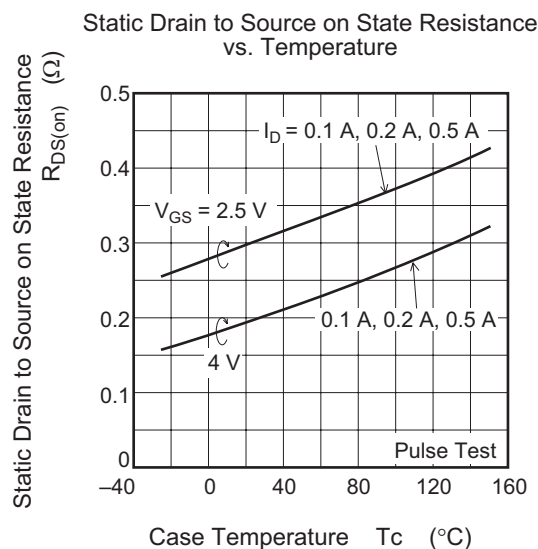


Drain to Source Saturation Voltage vs. Gate to Source Voltage

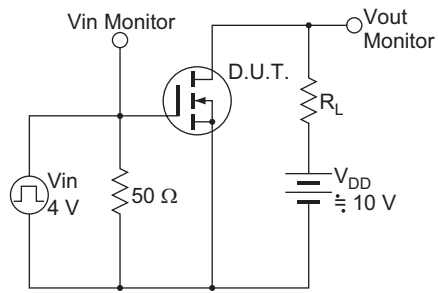


Static Drain to Source on State Resistance vs. Drain Current

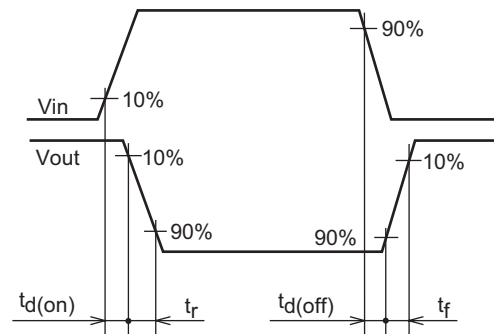




Switching Time Test Circuit



Waveform



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