

RJJ0315DPA

Silicon P Channel Power MOS FET
High Speed Power Switching

REJ03G1920-0200
Rev.2.00
Apr 27, 2010

Features

- High speed switching
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
 $R_{DS(on)} = 4.8 \text{ m}\Omega$ typ. (at $V_{GS} = -10 \text{ V}$)
- Pb-free
- Halogen-free

Outline

RENESAS Package code: PWSN0008DC-A
(Package name: WPAK(2))

1, 2, 3 Source
4 Gate
5, 6, 7, 8 Drain

Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-30	V
Gate to source voltage	V_{GSS}	-20/+10	V
Drain current	I_D	-35	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	-140	A
Body-drain diode reverse drain current	I_{DR}	-35	A
Channel dissipation	P_{ch} ^{Note2}	30	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes: 1. $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$
2. $T_c = 25^\circ\text{C}$

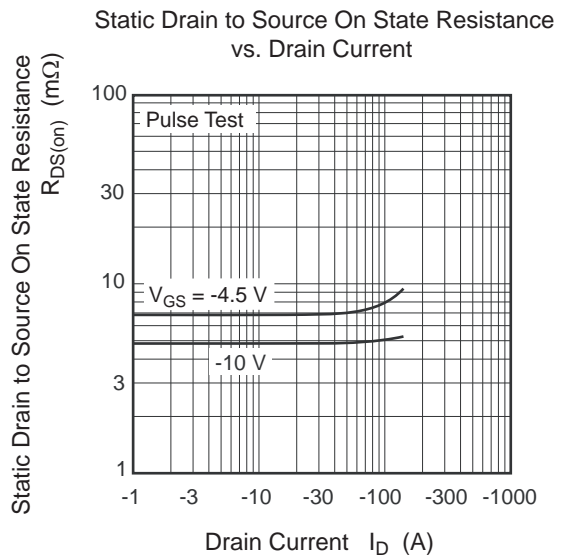
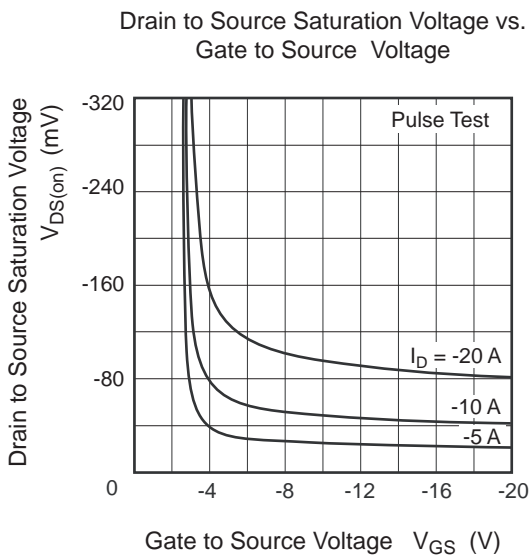
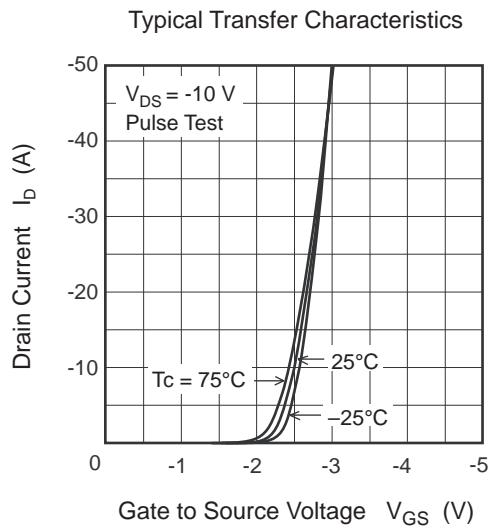
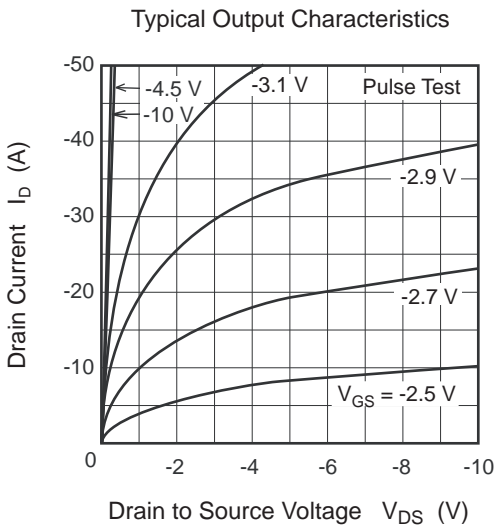
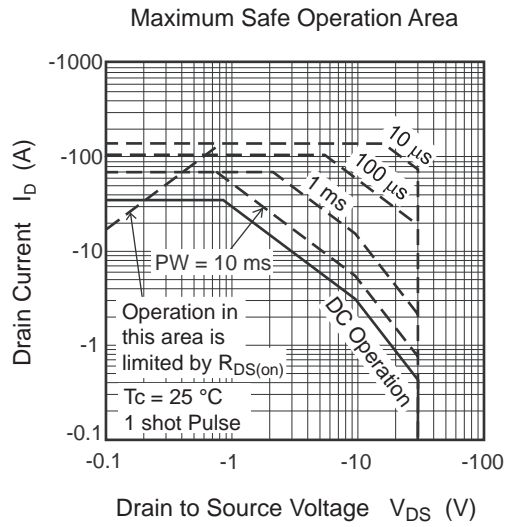
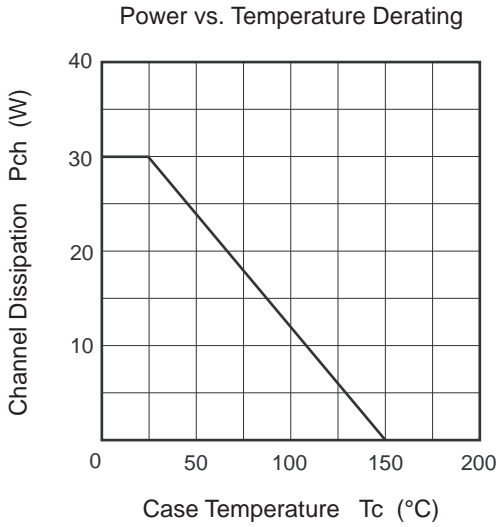
Electrical Characteristics

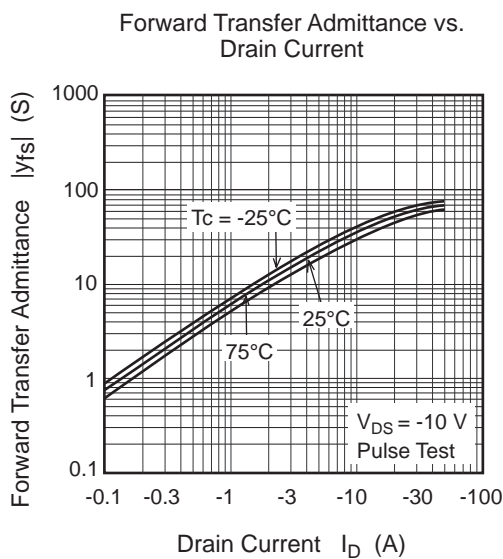
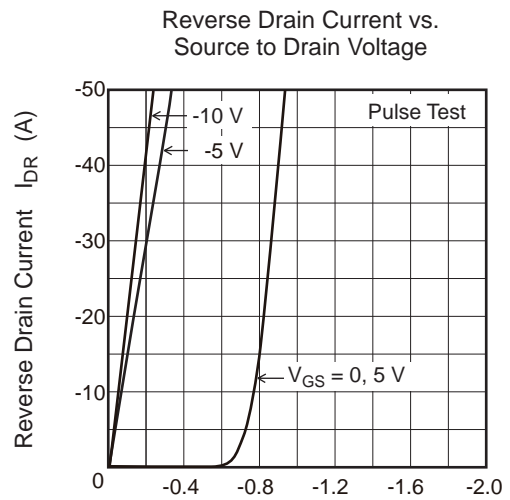
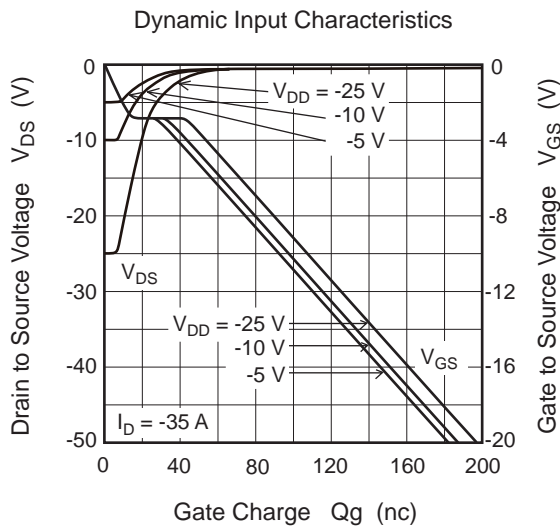
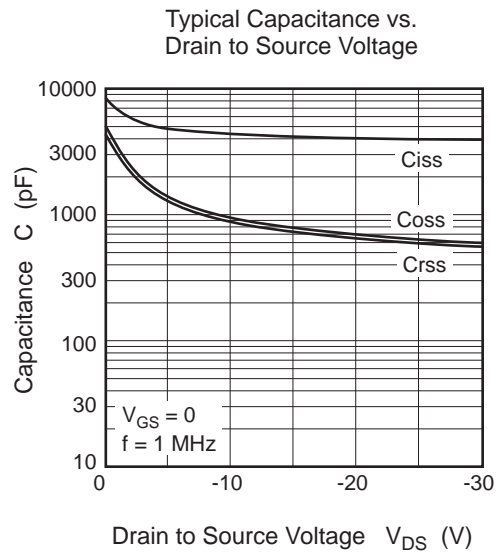
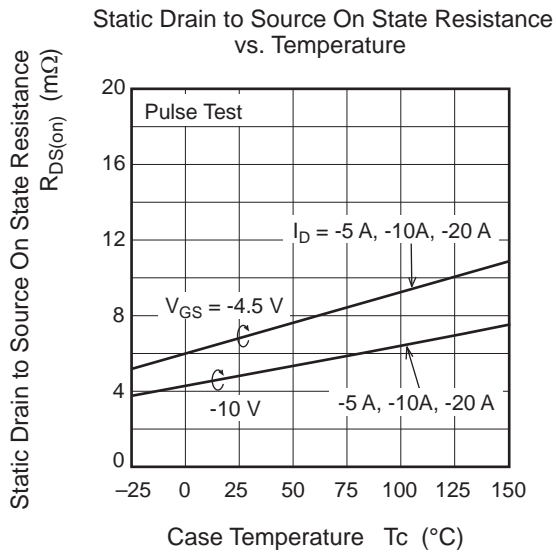
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10\text{mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = -20, +10\text{V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30\text{V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.5	V	$V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	4.8	5.9	$\text{m}\Omega$	$I_D = -17.5\text{A}$, $V_{GS} = -10\text{V}$ ^{Note4}
	$R_{DS(on)}$	—	6.8	10	$\text{m}\Omega$	$I_D = -17.5\text{A}$, $V_{GS} = -4.5\text{V}$ ^{Note4}
Forward transfer admittance	$ y_{fs} $	—	50	—	S	$I_D = -17.5\text{A}$, $V_{DS} = -10\text{V}$ ^{Note4}
Input capacitance	C_{iss}	—	4300	—	pF	$V_{DS} = -10\text{V}$
Output capacitance	C_{oss}	—	930	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	880	—	pF	$f = 1\text{MHz}$
Total gate charge	Q_g	—	48	—	nc	$V_{DD} = -10\text{V}$
Gate to source charge	Q_{gs}	—	14	—	nc	$V_{GS} = -4.5\text{V}$
Gate to drain charge	Q_{gd}	—	20	—	nc	$I_D = -35\text{A}$
Turn-on delay time	$t_{d(on)}$	—	21	—	ns	$V_{GS} = -10\text{V}$, $I_D = -17.5\text{A}$
Rise time	t_r	—	45	—	ns	$V_{DD} \approx -10\text{V}$
Turn-off delay time	$t_{d(off)}$	—	115	—	ns	$R_L = 0.57\ \Omega$
Fall time	t_f	—	71	—	ns	$R_g = 4.7\ \Omega$
Body-drain diode forward voltage	V_{DF}	—	-0.87	-1.13	V	$I_F = -35\text{A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	100	—	ns	$I_F = -35\text{A}$, $V_{GS} = 0$ $di_F/dt = -100\text{A}/\mu\text{s}$

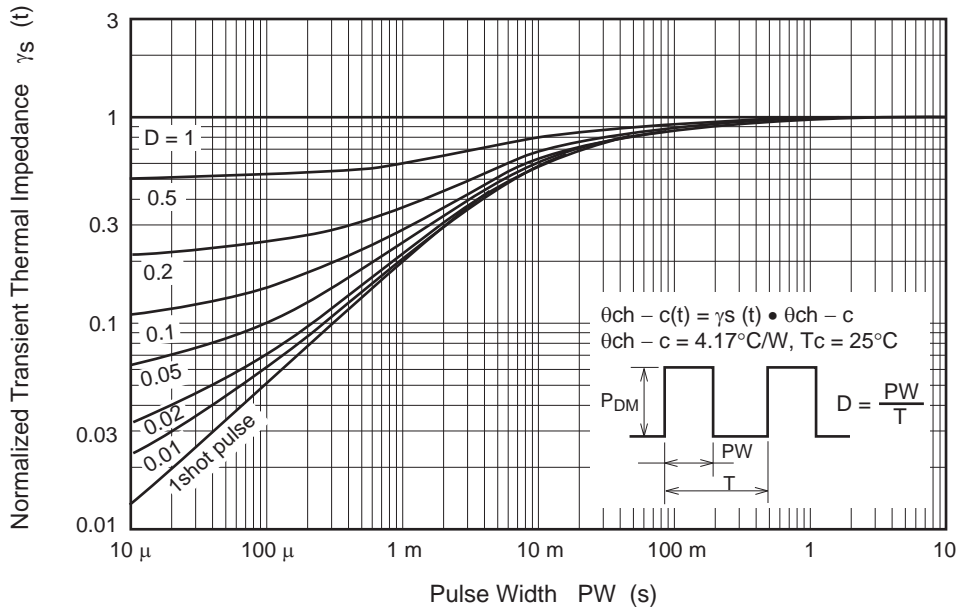
Notes: 4. Pulse test

Main Characteristics

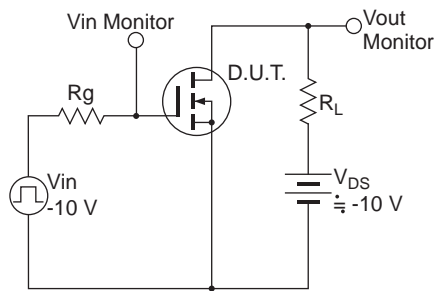




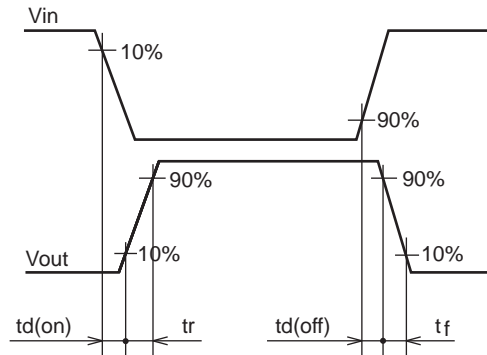
Normalized Transient Thermal Impedance vs. Pulse Width



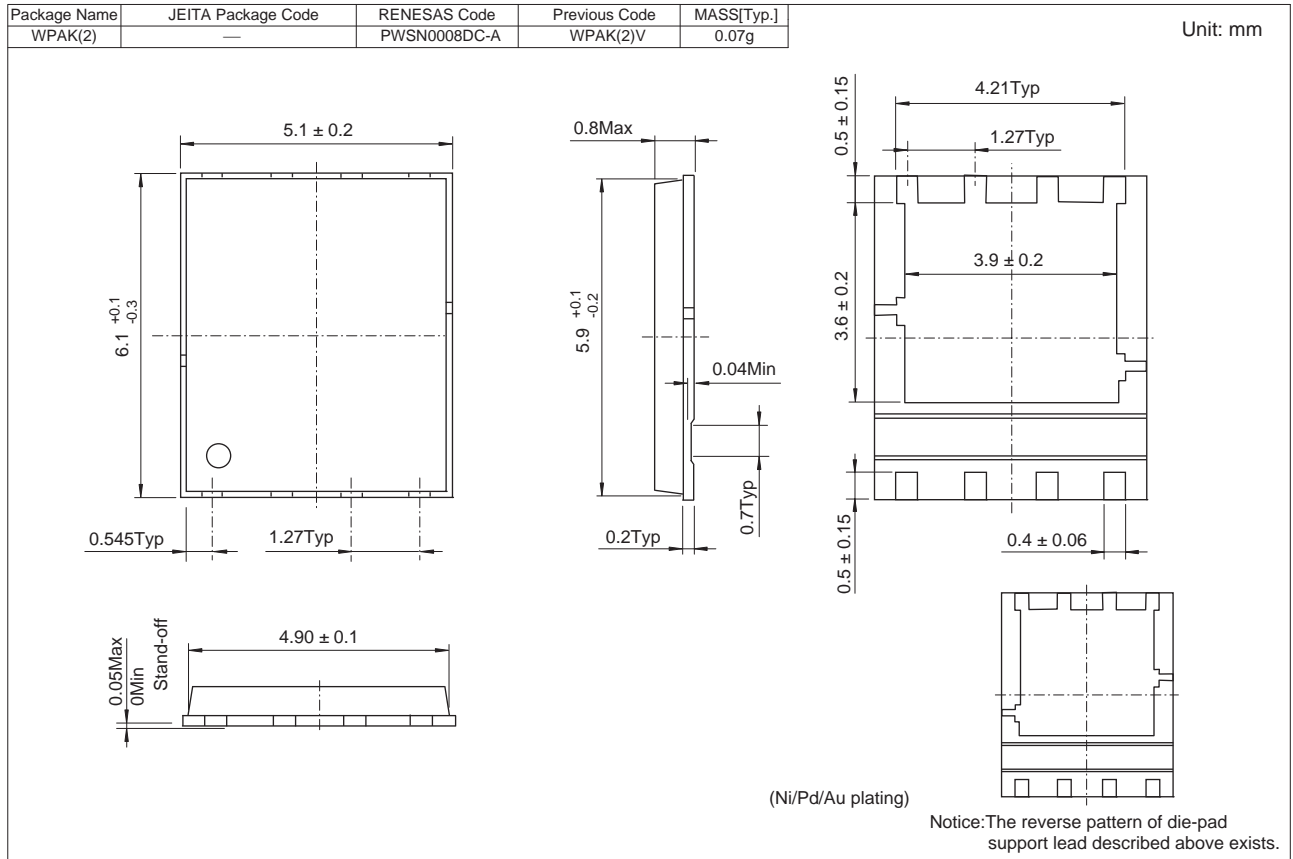
Switching Time Test Circuit



Switching Time Waveform



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
RJJ0315DPA-00-J53	3000 pcs	Taping

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