

RJK0355DPA

Silicon N Channel Power MOS FET Power Switching

REJ03G1649-0500

Rev.5.00

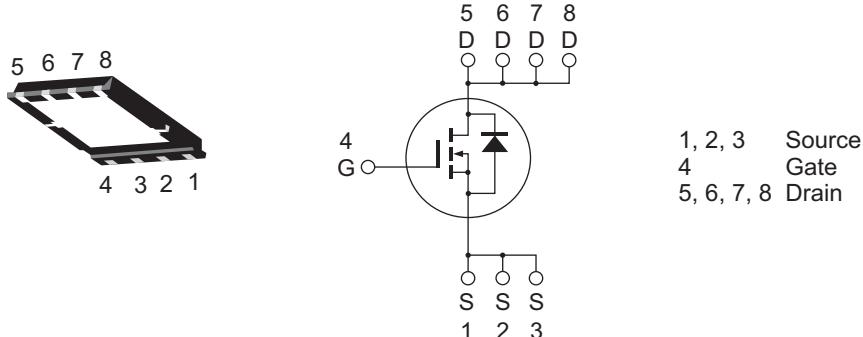
Aug 05, 2008

Features

- High speed switching
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
- $R_{DS(on)} = 8.2 \text{ m}\Omega \text{ typ. (at } V_{GS} = 10 \text{ V)}$
- Pb-free

Outline

RENESAS Package code: PWSN0008DA-A
(Package name: WPAK)



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	30	A
Drain peak current	I _{D(pulse)} ^{Note1}	120	A
Body-drain diode reverse drain current	I _{DR}	30	A
Avalanche current	I _{AP} ^{Note 2}	9	A
Avalanche energy	E _{AR} ^{Note 2}	8.1	mJ
Channel dissipation	P _{ch} ^{Note3}	25	W
Channel to case thermal resistance	θ _{ch-c} ^{Note3}	5	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at T_{ch} = 25°C, R_g ≥ 50 Ω3. T_c = 25°C

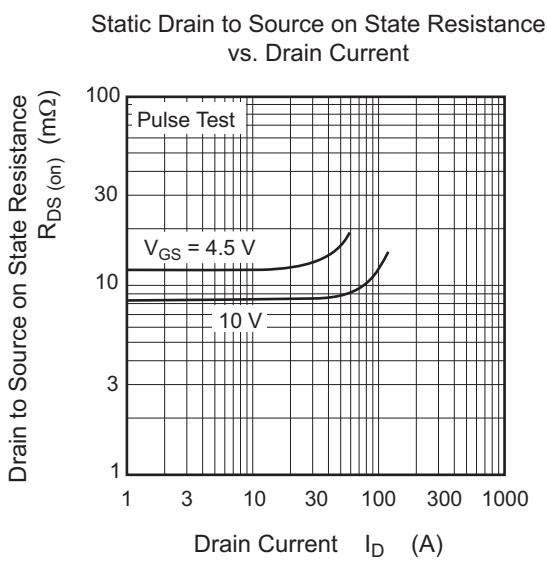
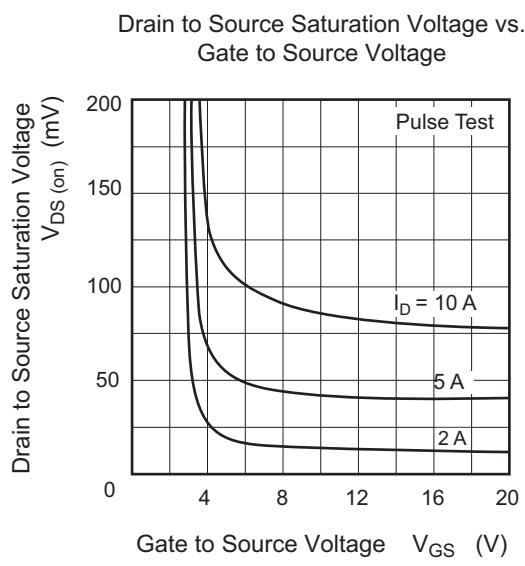
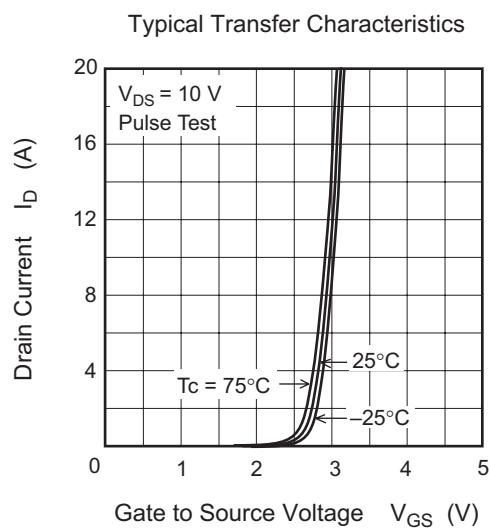
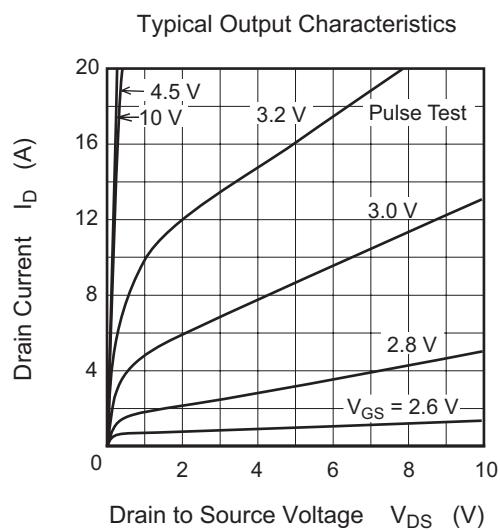
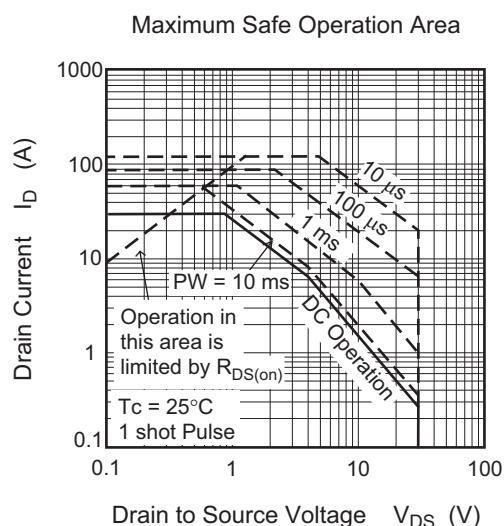
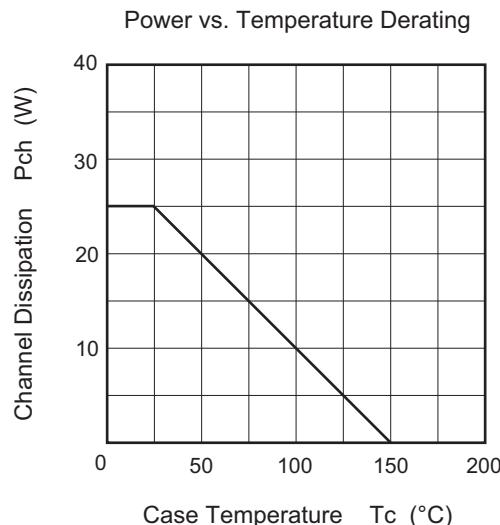
Electrical Characteristics

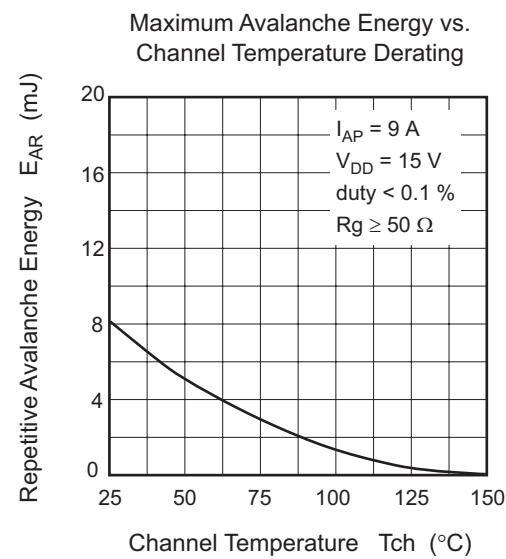
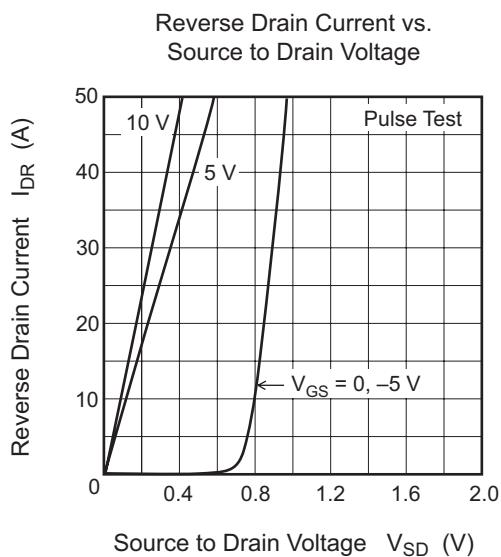
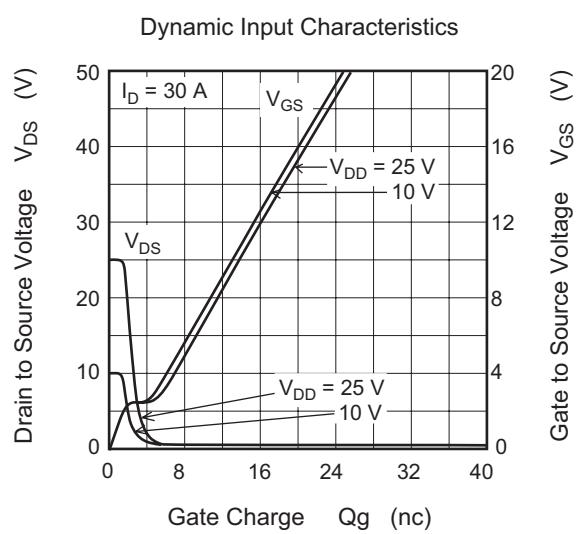
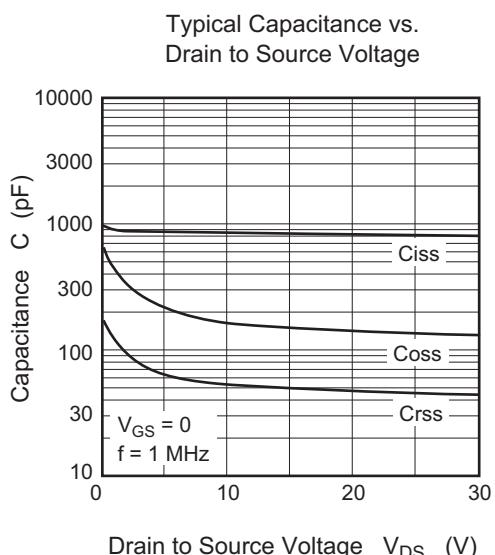
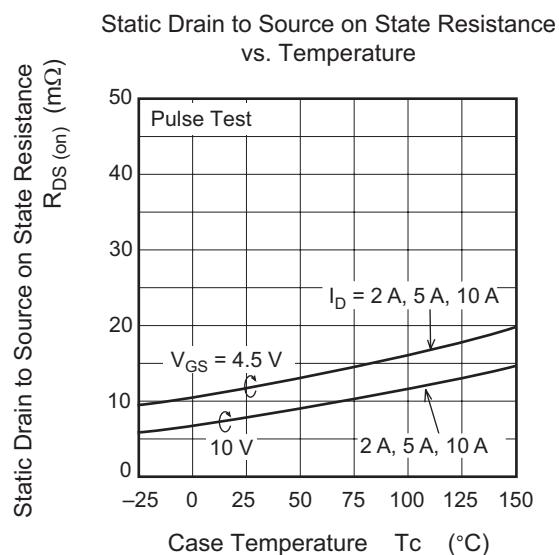
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	30	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source leak current	I _{GSS}	—	—	± 0.1	µA	V _{GS} = ±20 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	1	µA	V _{DS} = 30 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.2	—	2.5	V	V _{DS} = 10 V, I _D = 1 mA
Static drain to source on state resistance	R _{DS(on)}	—	8.2	10.7	mΩ	I _D = 15 A, V _{GS} = 10 V ^{Note4}
	R _{DS(on)}	—	11.8	16.5	mΩ	I _D = 15 A, V _{GS} = 4.5 V ^{Note4}
Forward transfer admittance	y _{fs}	—	55	—	S	I _D = 15 A, V _{DS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	860	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	165	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	53	—	pF	f = 1 MHz
Gate Resistance	R _g	—	4.2	—	Ω	
Total gate charge	Q _g	—	6.3	—	nC	V _{DD} = 10 V
Gate to source charge	Q _{gs}	—	2.3	—	nC	V _{GS} = 4.5 V
Gate to drain charge	Q _{gd}	—	1.4	—	nC	I _D = 30 A
Turn-on delay time	t _{d(on)}	—	6.9	—	ns	V _{GS} = 10 V, I _D = 15 A
Rise time	t _r	—	4.1	—	ns	V _{DD} ≈ 10 V
Turn-off delay time	t _{d(off)}	—	40.8	—	ns	R _L = 0.66 Ω
Fall time	t _f	—	5.6	—	ns	R _g = 4.7 Ω
Body-drain diode forward voltage	V _{DF}	—	0.87	1.14	V	I _F = 30 A, V _{GS} = 0 ^{Note4}
Body-drain diode reverse recovery time	t _{rr}	—	20	—	ns	I _F = 30 A, V _{GS} = 0 di _F /dt = 100 A/µs

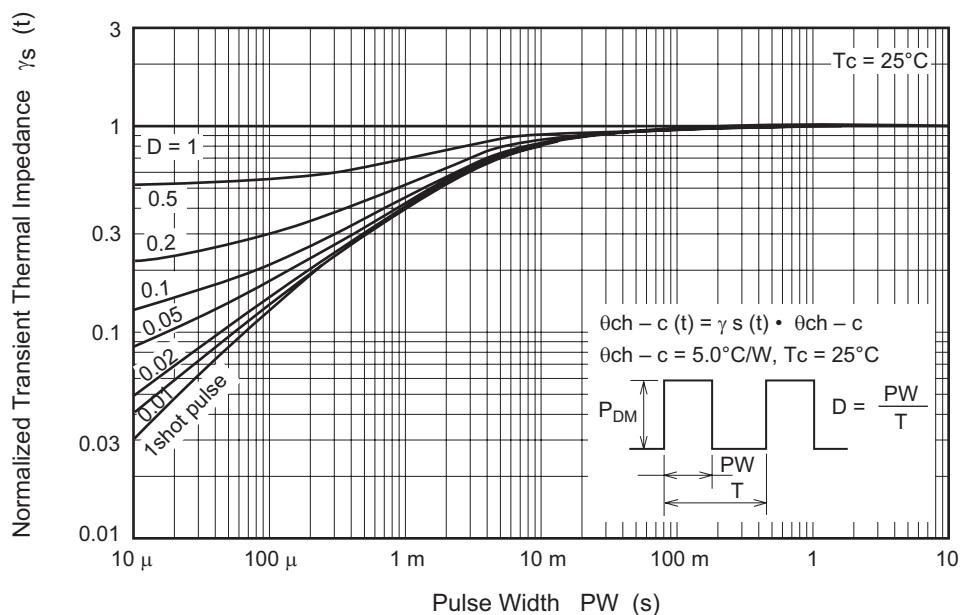
Notes: 4. Pulse test

Main Characteristics

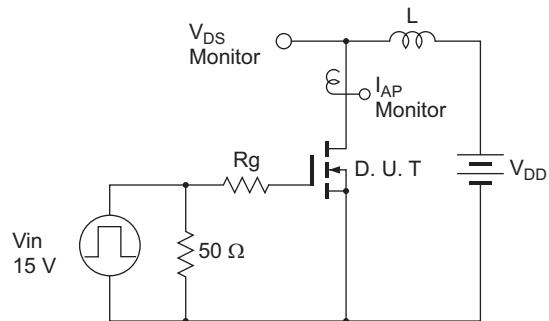




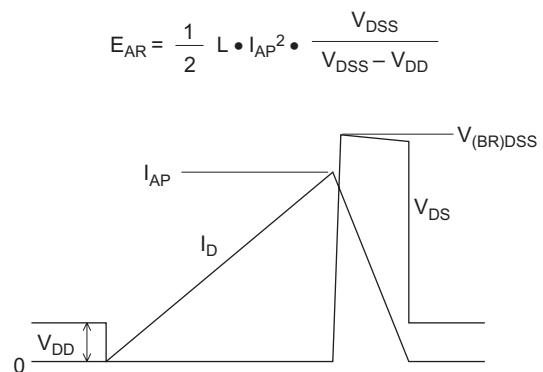
Normalized Transient Thermal Impedance vs. Pulse Width



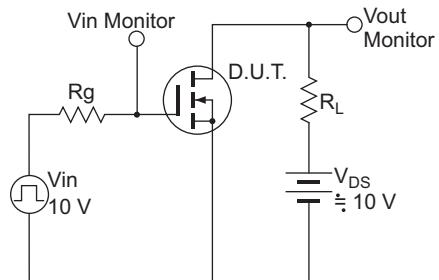
Avalanche Test Circuit



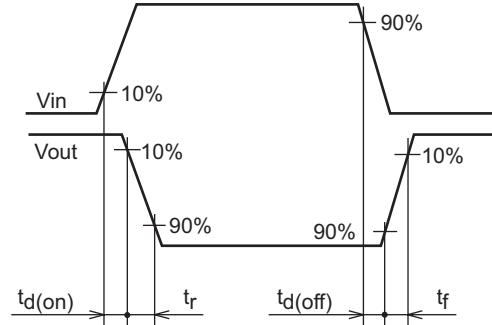
Avalanche Waveform



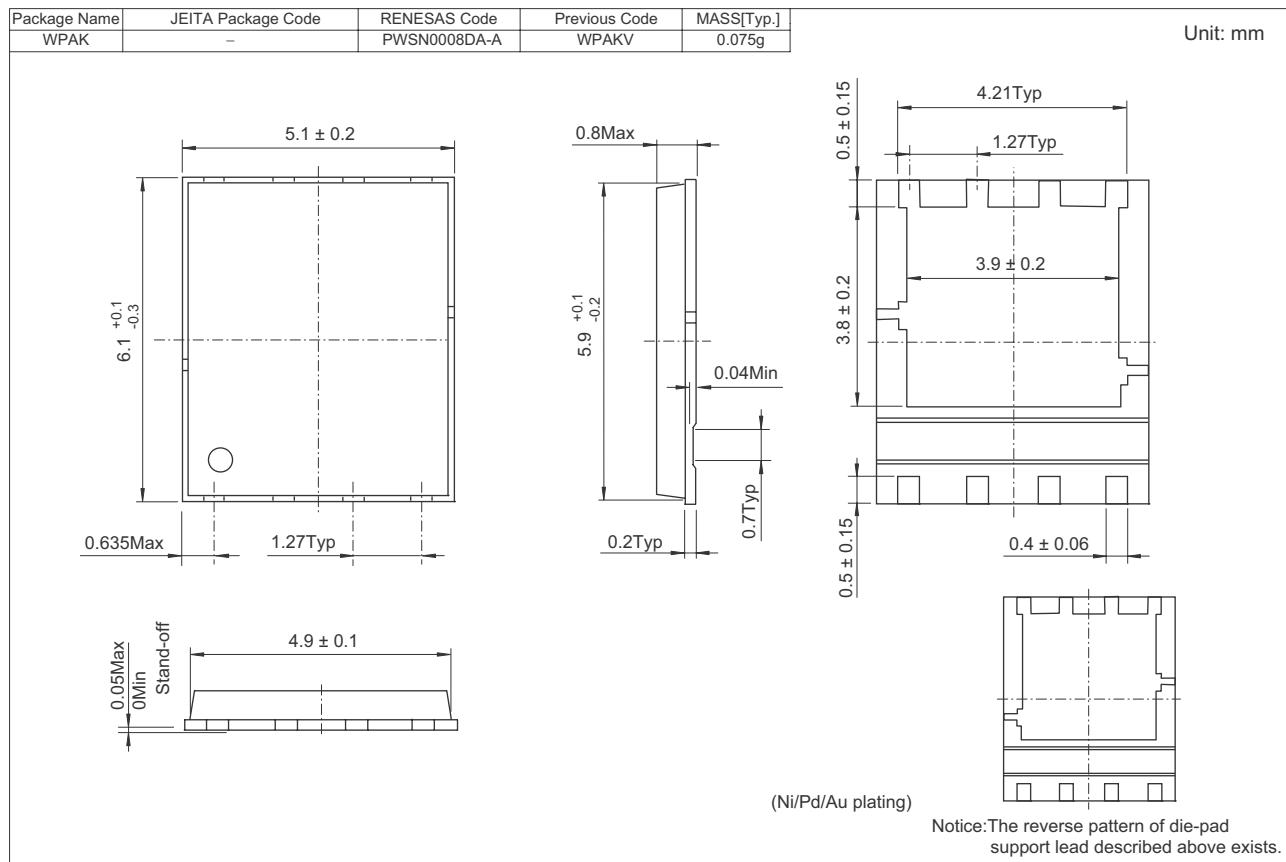
Switching Time Test Circuit



Switching Time Waveform



Package Dimensions



Ordering Information

Part No.	Quantity	Shipping Container
RJK0355DPA-00-J0	2500 pcs	Taping

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