

# RJK0349DSP

# Silicon N Channel Power MOS FET Power Switching

REJ03G1659-0300 Rev.3.00 Jul 10, 2008

### **Features**

- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance  $R_{DS(on)} = 2.9 \ m\Omega \ typ. \ (at \ V_{GS} = 10 \ V)$
- Pb-free

### **Outline**

# **Absolute Maximum Ratings**

 $(Ta = 25^{\circ}C)$ 

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	30	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	I <sub>D</sub>	20	А
Drain peak current	I <sub>D(pulse)</sub> Note1	160	А
Body-drain diode reverse drain current	I <sub>DR</sub>	20	А
Avalanche current	I <sub>AP</sub> Note 2	20	А
Avalanche energy	E <sub>AR</sub> Note 2	40	mJ
Channel dissipation	Pch Note3	2.5	W
Channel to ambient thermal impedance	θch-a Note3	50	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. PW  $\leq$  10  $\mu$ s, duty cycle  $\leq$  1%

- 2. Value at Tch = 25°C, Rg  $\geq$  50  $\Omega$
- 3. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW  $\leq$  10s

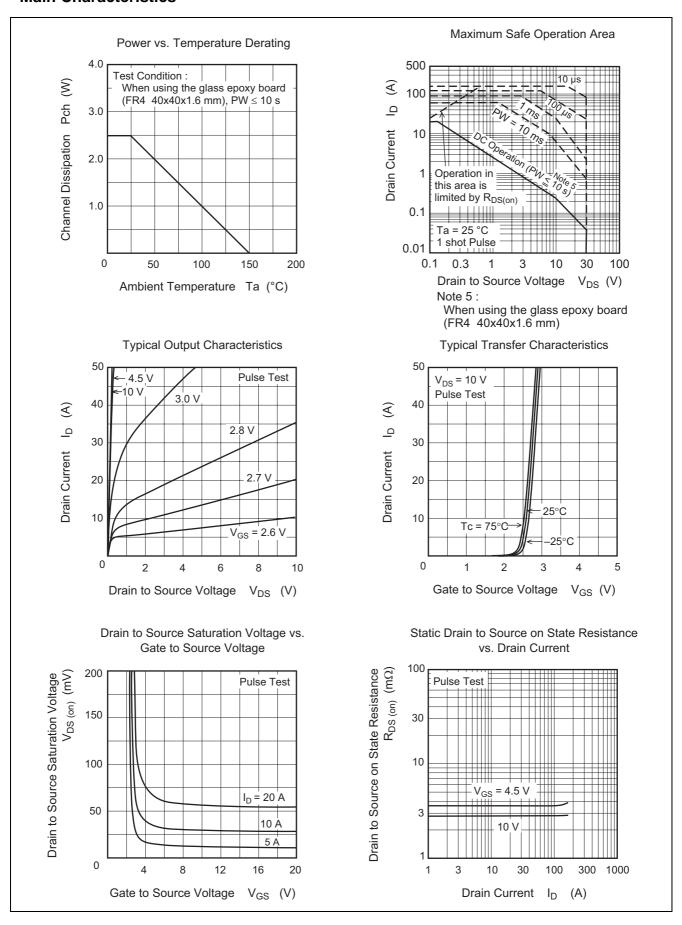
# **Electrical Characteristics**

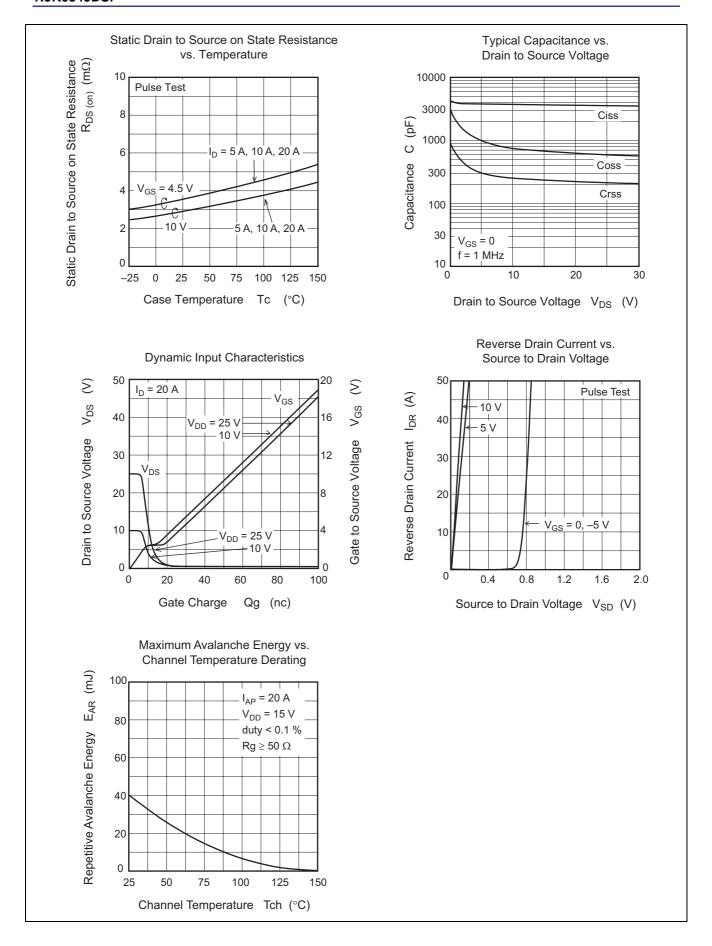
 $(Ta = 25^{\circ}C)$ 

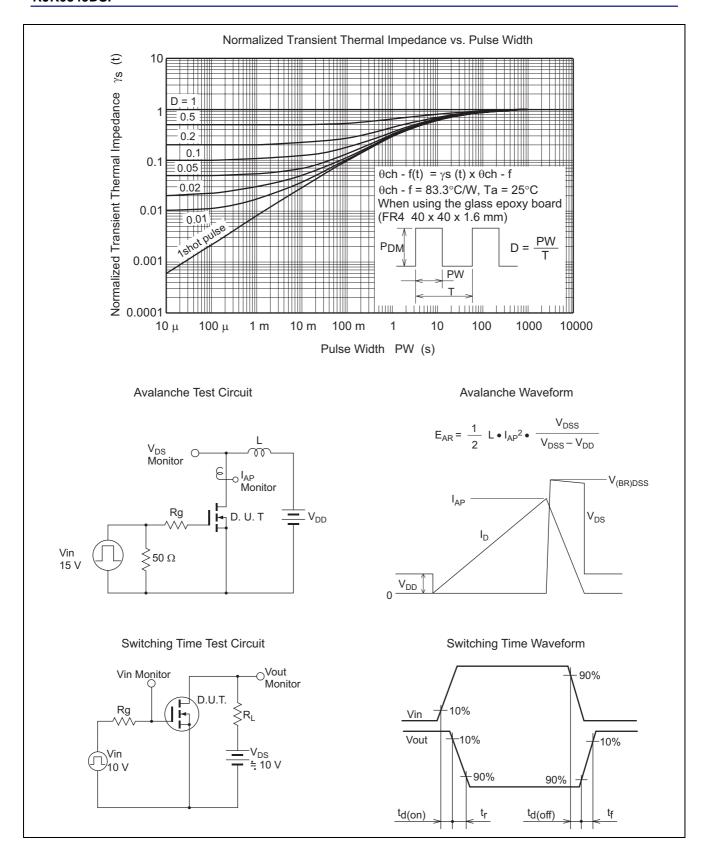
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	_	_	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source leak current	I <sub>GSS</sub>	_	_	±0.1	μΑ	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I <sub>DSS</sub>	_	_	1	μΑ	$V_{DS} = 30 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.2	_	2.5	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
Static drain to source on state	R <sub>DS(on)</sub>	_	2.9	3.8	mΩ	$I_D = 10 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note4}}$
resistance	R <sub>DS(on)</sub>		3.6	5.0	mΩ	$I_D = 10 \text{ A}, V_{GS} = 4.5 \text{ V}^{\text{Note4}}$
Forward transfer admittance	y <sub>fs</sub>		55	_	S	$I_D = 10 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$
Input capacitance	Ciss	_	3850	_	pF	V <sub>DS</sub> = 10 V
Output capacitance	Coss	_	740	_	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss		240	_	pF	f = 1 MHz
Gate Resistance	Rg		1.5	_	Ω	
Total gate charge	Qg		25	_	nC	$V_{DD} = 10 \text{ V}$
Gate to source charge	Qgs		9.5	_	nC	$V_{GS} = 4.5 \text{ V}$
Gate to drain charge	Qgd		5.3	_	nC	I <sub>D</sub> = 20 A
Turn-on delay time	t <sub>d(on)</sub>		11	_	ns	$V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$
Rise time	t <sub>r</sub>		4.7	_	ns	$V_{DD} \cong 10 \text{ V}$
Turn-off delay time	t <sub>d(off)</sub>		58.5	_	ns	$R_L = 1.00 \Omega$
Fall time	t <sub>f</sub>		9.8	_	ns	$Rg = 4.7 \Omega$
Body-drain diode forward voltage	$V_{DF}$		0.78	1.02	V	$I_F = 20 \text{ A}, V_{GS} = 0^{\text{Note4}}$
Body-drain diode reverse recovery	t <sub>rr</sub>	_	30	_	ns	$I_F = 20 \text{ A}, V_{GS} = 0$
time						di <sub>F</sub> / dt = 100 A/ μs

Notes: 4. Pulse test

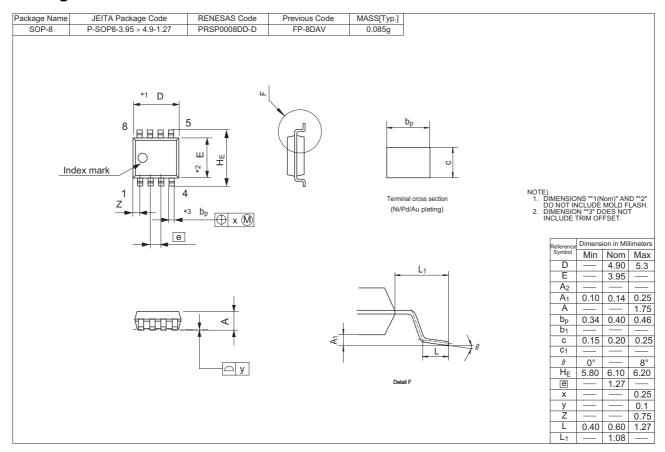
# **Main Characteristics**







# **Package Dimensions**



# **Ordering Information**

Part No.	Quantity	Shipping Container		
RJK0349DSP-00-J0	2500 pcs	Taping		

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