

# RJK0354DSP

Silicon N Channel Power MOS FET Power Switching

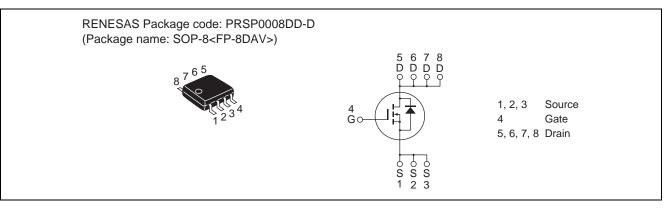
## REJ03G1661-0200 Rev.2.00 Apr 05, 2010

Datasheet

# Features

- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
- $R_{DS(on)} = 5.4 \text{ m}\Omega \text{ typ.} (at V_{GS} = 10 \text{ V})$
- 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 <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	16	A
Drain peak current	Note1 I <sub>D(pulse)</sub>	128	A
Body-drain diode reverse drain current	I <sub>DR</sub>	16	A
Avalanche current	I <sub>AP</sub> Note 2	15	A
Avalanche energy	E <sub>AR</sub> Note 2	22.5	mJ
Channel dissipation	Pch Note3	2.0	W
Channel to ambient thermal impedance	θch-a <sup>Note3</sup>	62.5	°C/W
Channel temperature	Tch	150	٥C
Storage temperature	Tstg	-55 to +150	٥C

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



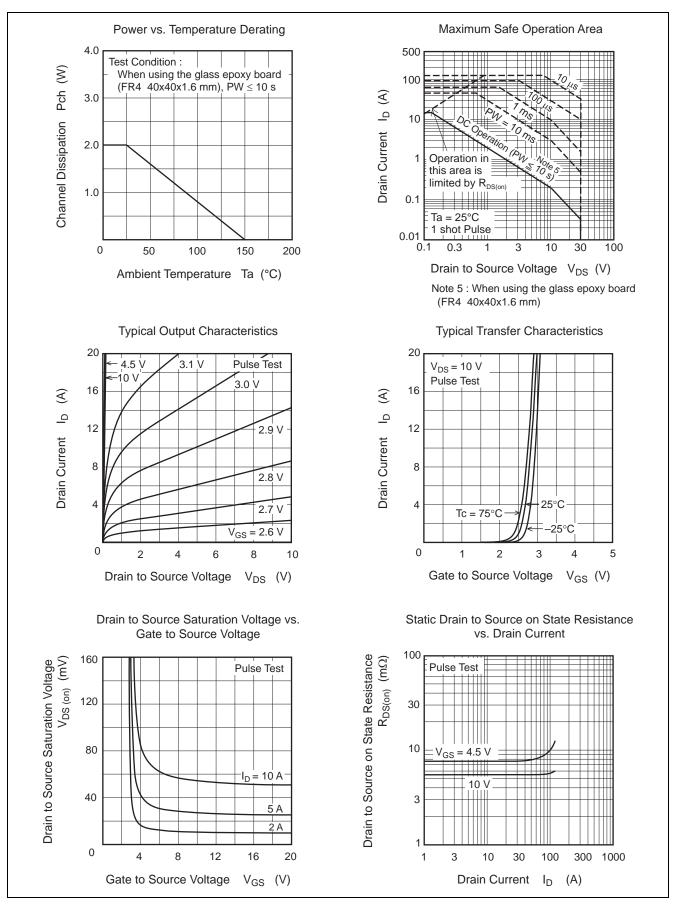
# **Electrical Characteristics**

						$(Ta = 25^{\circ}C)$
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	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	$V_{DS} = 30 V, V_{GS} = 0$
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.2	—	2.5	V	$V_{DS} = 10 \text{ V}, \text{ I}_{D} = 1 \text{ mA}$
Static drain to source on state	R <sub>DS(on)</sub>	_	5.4	7.0	mΩ	$I_D = 8 \text{ A}, V_{GS} = 10 \text{ V}^{Note4}$
resistance	R <sub>DS(on)</sub>	_	7.5	10.5	mΩ	$I_D = 8 \text{ A}, V_{GS} = 4.5 \text{ V}^{\text{Note4}}$
Forward transfer admittance	y <sub>fs</sub>	_	40	_	S	$I_D = 8 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$
Input capacitance	Ciss	_	1740	—	pF	V <sub>DS</sub> = 10 V
Output capacitance	Coss	_	335	—	pF	V <sub>GS</sub> = 0 f = 1 MHz
Reverse transfer capacitance	Crss	_	110	—	pF	
Gate Resistance	Rg		4.4		Ω	
Total gate charge	Qg		12	_	nC	V <sub>DD</sub> = 10 V
Gate to source charge	Qgs		4.3	_	nC	V <sub>GS</sub> = 4.5 V I <sub>D</sub> = 16 A
Gate to drain charge	Qgd	_	2.5		nC	
Turn-on delay time	t <sub>d(on)</sub>		7.4		ns	$V_{GS} = 10 \text{ V}, \text{ I}_{D} = 8 \text{ A}$
Rise time	tr		3.6	_	ns	V <sub>DD</sub> ≅ 10 V R <sub>L</sub> = 1.25 Ω Rg = 4.7 Ω
Turn-off delay time	t <sub>d(off)</sub>	_	56.4	_	ns	
Fall time	t <sub>f</sub>	_	5.5	—	ns	
Body–drain diode forward voltage	V <sub>DF</sub>	_	0.81	1.06	V	$I_F = 16 \text{ A}, V_{GS} = 0^{Note4}$
Body-drain diode reverse recovery	t <sub>rr</sub>	_	20	—	ns	$I_F = 16 \text{ A}, V_{GS} = 0$
time						di <sub>F</sub> / dt = 100 A/ μs

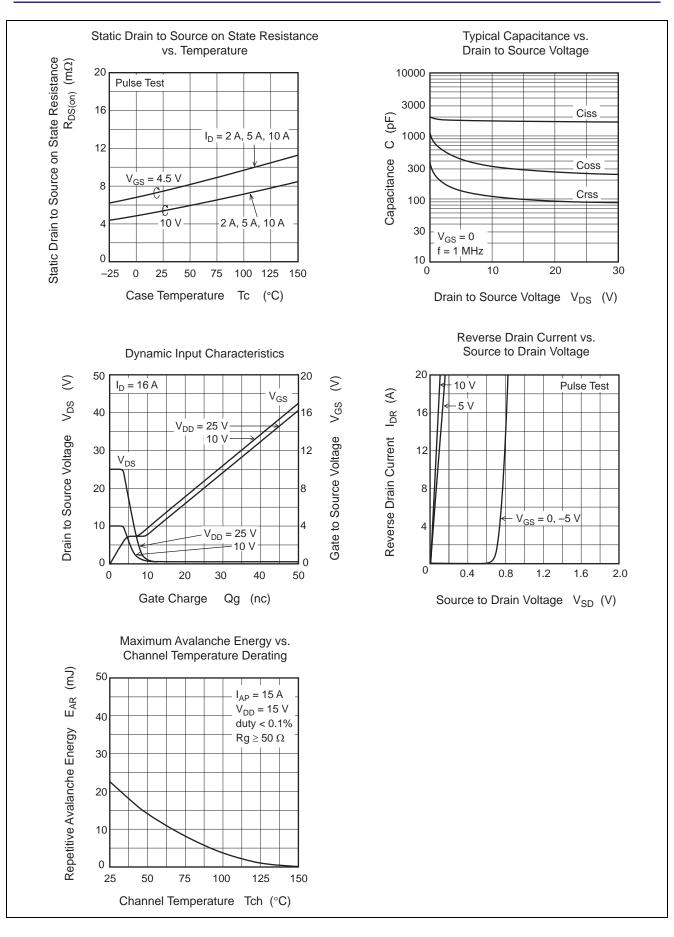
Notes: 4. Pulse test



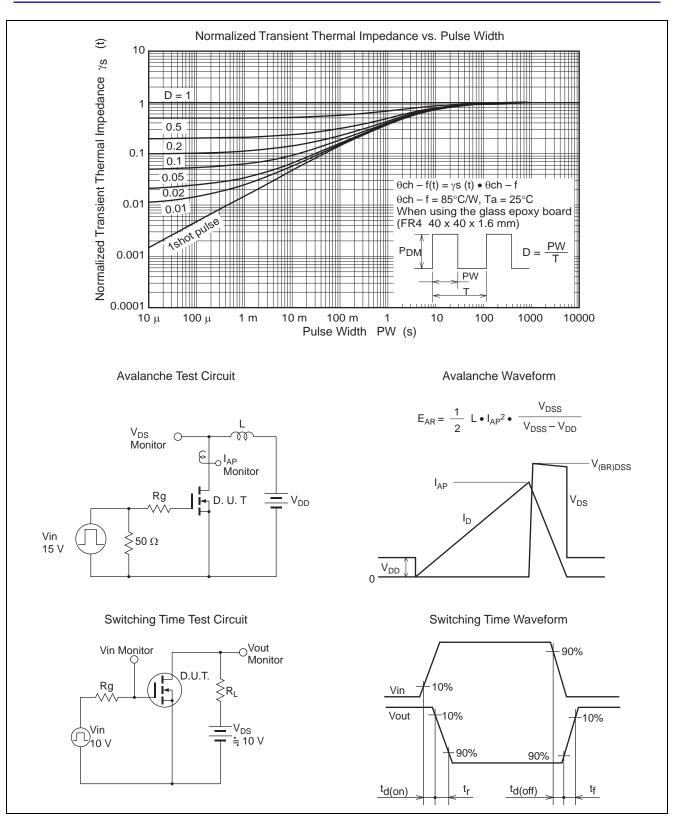
## **Main Characteristics**





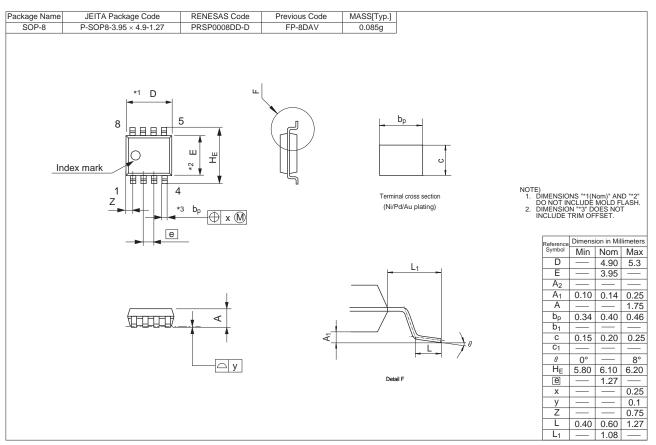








# **Package Dimensions**



# **Ordering Information**

Part No.	Quantity	Shipping Container
RJK0354DSP-00-J0	2500 pcs	Taping



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