RJK0354DSP

Silicon N Channel Power MOS FET
Power Switching

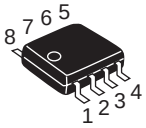
REJ03G1661-0101
Rev.1.01
Apr 24, 2008

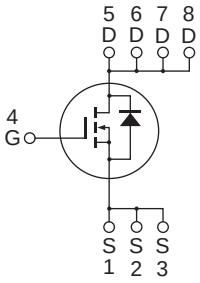
Features

- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
  $R_{DS(on)}$ = 5.4 mΩ typ. (at V_{GS} = 10 V)
- Pb-free

Outline

RENESAS Package code: PRSP0008DD-D
(Package name: SOP-8<FP-8DAV>)





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

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	16	A
Drain peak current	$I_{D(pulse)}$ Note1	128	A
Body-drain diode reverse drain current	I_{DR}	16	A
Avalanche current	I_{AP} Note 2	15	A
Avalanche energy	E_{AR} Note 2	22.5	mJ
Channel dissipation	Pch Note3	2.0	W
Channel to ambient thermal impedance	θch-a Note3	62.5	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value at Tch = 25°C, Rg ≥ 50 Ω
3. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10s

Electrical Characteristics

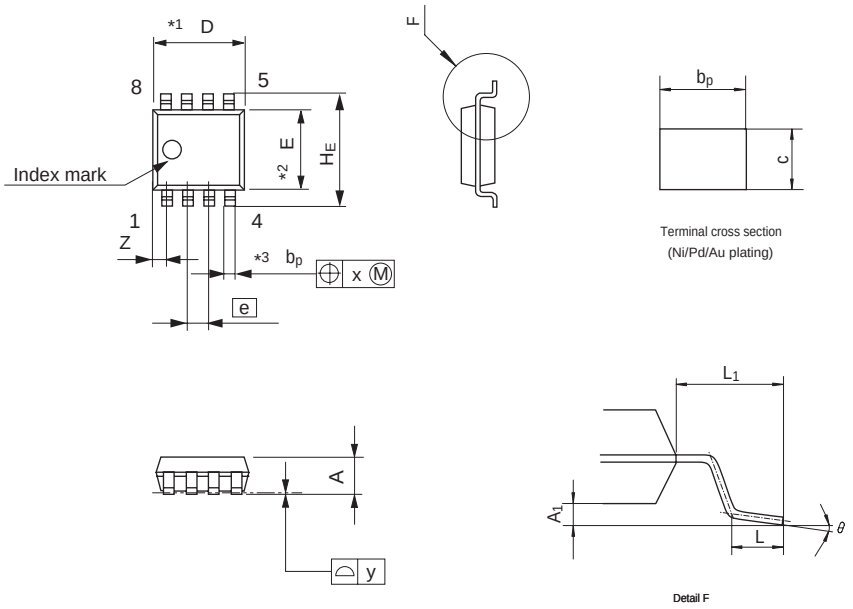
(Ta = 25°C)

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	$R_{DS(on)}$	—	5.4	7.0	mΩ	I_D = 8 A, V_{GS} = 10 V Note4
	$R_{DS(on)}$	—	7.5	10.5	mΩ	I_D = 8 A, V_{GS} = 4.5 V Note4
Forward transfer admittance	$\|y_{fs}\|$	—	40	—	S	I_D = 8 A, V_{DS} = 10 V Note4
Input capacitance	Ciss	—	1740	—	pF	V_{DS} = 10 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	335	—	pF	
Reverse transfer capacitance	Crss	—	110	—	pF	
Gate Resistance	Rg	—	4.4	—	Ω	
Total gate charge	Qg	—	12	—	nC	V_{DD} = 10 V V_{GS} = 4.5 V I_D = 8 A
Gate to source charge	Qgs	—	4.3	—	nC	
Gate to drain charge	Qgd	—	2.5	—	nC	
Turn-on delay time	$t_{d(on)}$	—	7.4	—	ns	V_{GS} = 10 V, I_D = 8 A V_{DD} ≅ 10 V R_L = 1.25 Ω Rg = 4.7 Ω
Rise time	t_r	—	3.6	—	ns	
Turn-off delay time	$t_{d(off)}$	—	56.4	—	ns	
Fall time	t_f	—	5.5	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.81	1.06	V	I_F = 16 A, V_{GS} = 0 Note4
Body–drain diode reverse recovery time	t_{rr}	—	20	—	ns	I_F = 16 A, V_{GS} = 0 di_F/ dt = 100 A/ µs

Notes: 4. Pulse test

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
SOP-8	P-SOP8-3.95 × 4.9-1.27	PRSP0008DD-D	FP-8DAV	0.085g



NOTE)
1. DIMENSIONS "*1(Nom)" AND "*2" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION "*3" DOES NOT INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	4.90	5.3
E	—	3.95	—
A_2	—	—	—
A_1	0.10	0.14	0.25
A	—	—	1.75
b_p	0.34	0.40	0.46
b_1	—	—	—
c	0.15	0.20	0.25
c_1	—	—	—
θ	0°	—	8°
H_E	5.80	6.10	6.20
e	—	1.27	—
x	—	—	0.25
y	—	—	0.1
Z	—	—	0.75
L	0.40	0.60	1.27
L_1	—	1.08	—

Ordering Information

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

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RENESAS SALES OFFICES

http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

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