HAT2036R

Silicon N Channel Power MOS FET
Power Switching

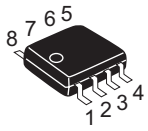
REJ03G1166-0600
(Previous: ADE-208-665D)
Rev.6.00
Sep 07, 2005

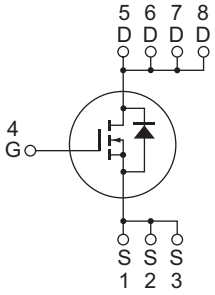
Features

- Low on-resistance
  $R_{DS\ (on)}$ = 12 mΩ typ
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- High speed switching
  t_f = 60 ns typ.

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	Value	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	12	A
Drain peak current	$I_{D\ (pulse)}$ Note 1	96	A
Body-drain diode reverse drain current	I_{DR}	12	A
Channel dissipation	Pch Note 2	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%

2. When using the glass epoxy board (FR4 40 × 40 × 1.6 mm), PW ≤ 10 s

Electrical Characteristics

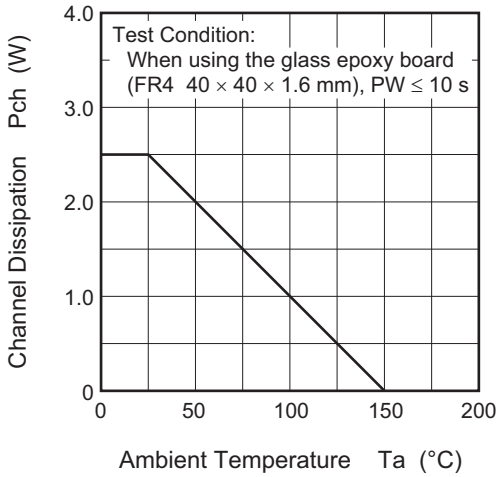
(Ta = 25°C)

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	$V_{GS\ (off)}$	1.5	—	3.0	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS\ (on)}$	—	12	15	mΩ	I_D = 6 A, V_{GS} = 10 V Note 3
	$R_{DS\ (on)}$	—	20	30	mΩ	I_D = 6 A, V_{GS} = 4.5 V Note 3
Forward transfer admittance	$\|y_{fs}\|$	12	20	—	S	I_D = 6 A, V_{DS} = 10 V Note 3
Input capacitance	Ciss	—	1200	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	380	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	200	—	pF	f = 1 MHz
Total gate charge	Qg	—	23	—	nC	V_{DD} = 10 V
Gate to source charge	Qgs	—	4.0	—	nC	V_{GS} = 10 V
Gate to drain charge	Qgd	—	6.0	—	nC	I_D = 12 A
Turn-on delay time	$t_{d\ (on)}$	—	40	—	ns	V_{GS} = 4.5 V, I_D = 6 A,
Rise time	t_r	—	300	—	ns	V_{DD} ≅ 10 V
Turn-off delay time	$t_{d\ (off)}$	—	35	—	ns	
Fall time	t_f	—	60	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.9	—	V	I_F = 12 A, V_{GS} = 0 Note 3
Body-drain diode reverse recovery time	t_{rr}	—	35	—	ns	I_F = 12 A, V_{GS} = 0 di_F/dt = 20 A/µs

Note: 3. Pulse test

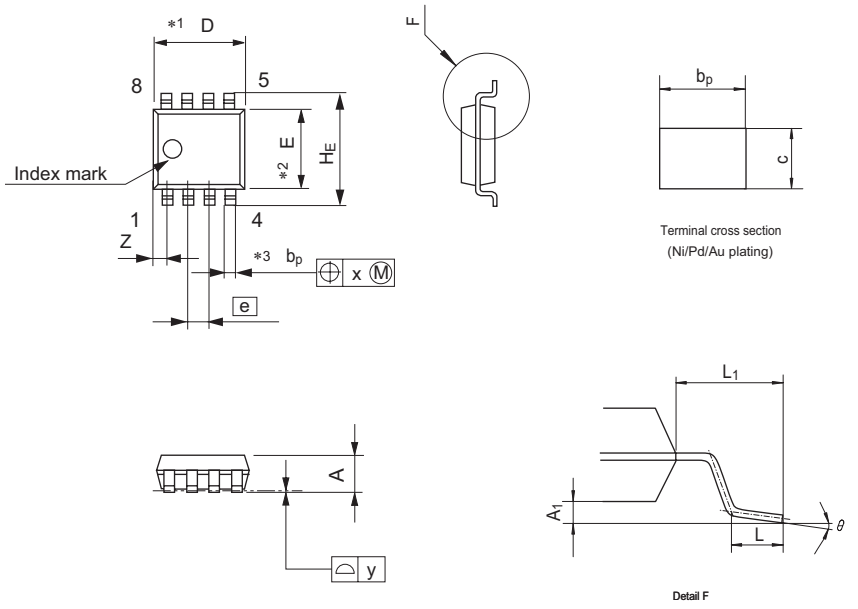
Main Characteristics

Power vs. Temperature Derating



Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
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 Name	Quantity	Shipping Container
HAT2036R-EL-E	2500 pcs	Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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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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