

HAT2024R

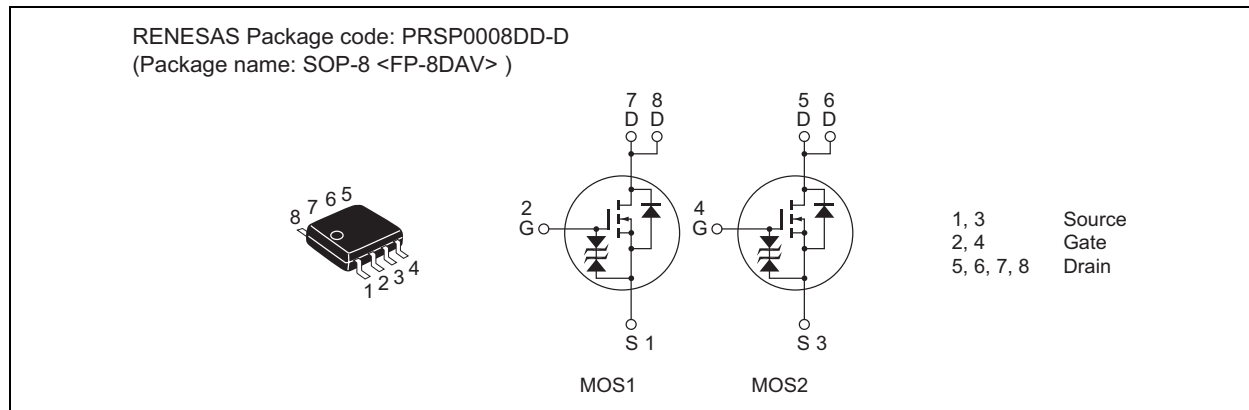
Silicon N Channel Power MOS FET
High Speed Power Switching

REJ03G1159-0500
(Previous: ADE-208-494C)
Rev.5.00
Sep 07, 2005

Features

- Low on-resistance
- Capable of 4 V gate drive
- Low drive current
- High density mounting

Outline



Absolute Maximum Ratings

(T_a = 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	5.5	A
Drain peak current	I _{D (pulse)} ^{Note 1}	44	A
Body-drain diode reverse drain current	I _{DR}	5.5	A
Channel dissipation	P _{ch} ^{Note 2}	2	W
Channel dissipation	P _{ch} ^{Note 3}	3	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. 1 Drive operation: When using the glass epoxy board (FR4 40 × 40 × 1.6 mm), PW ≤ 10 s

3. 2 Drive operation: When using the glass epoxy board (FR4 40 × 40 × 1.6 mm), PW ≤ 10 s

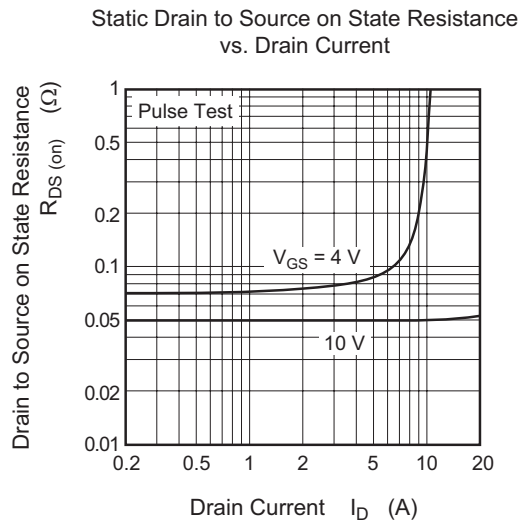
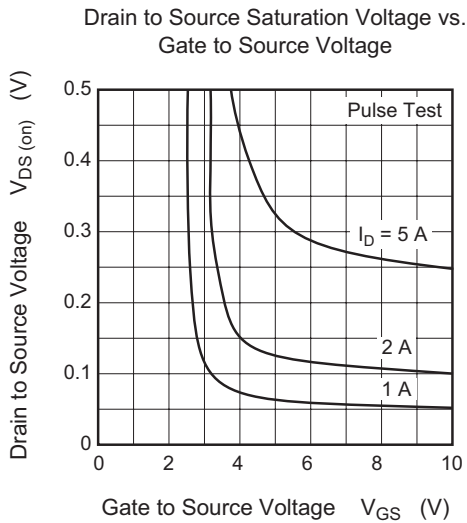
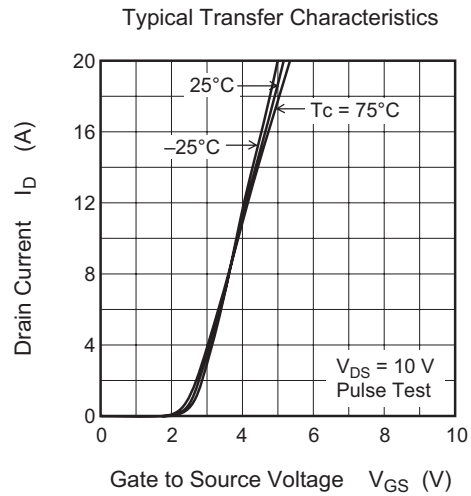
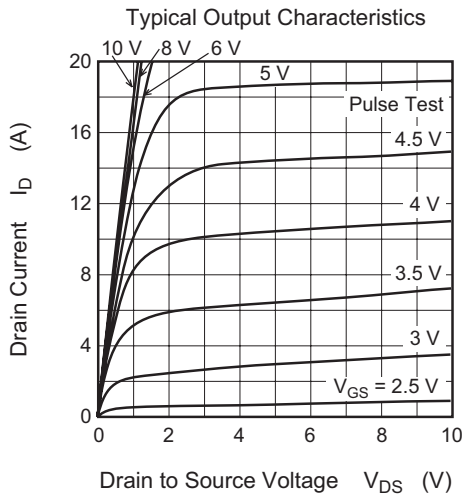
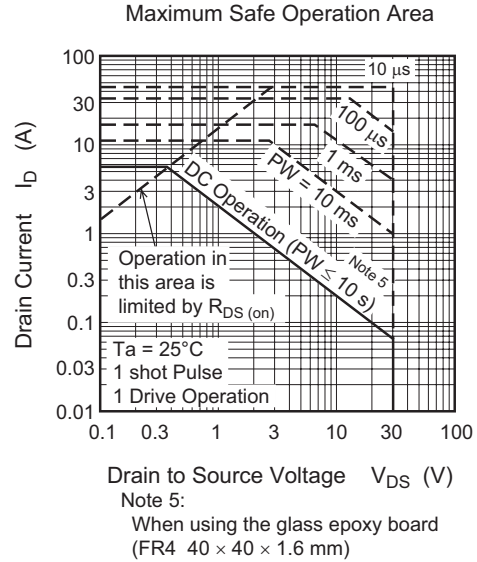
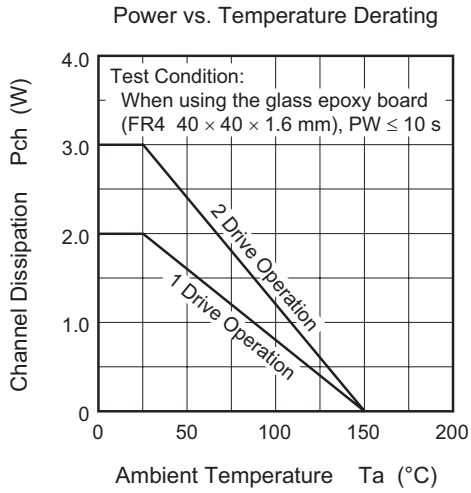
Electrical Characteristics

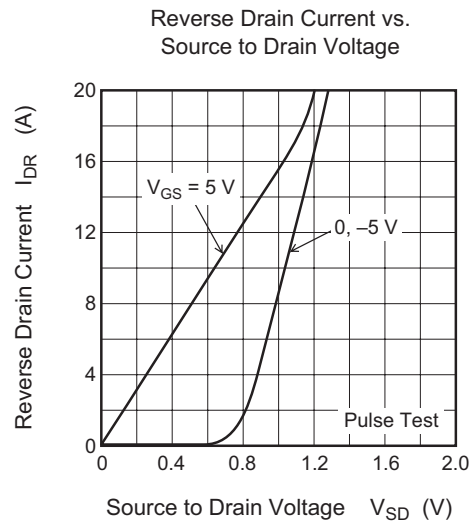
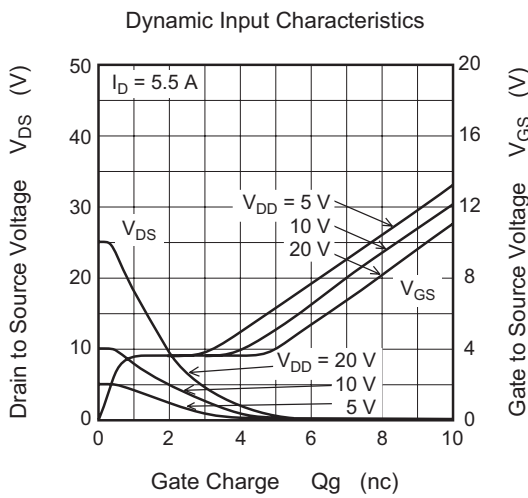
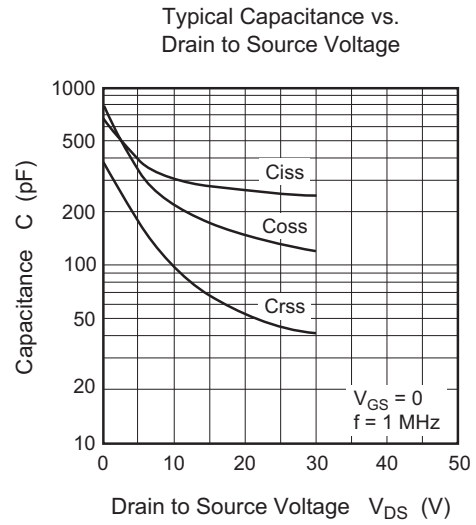
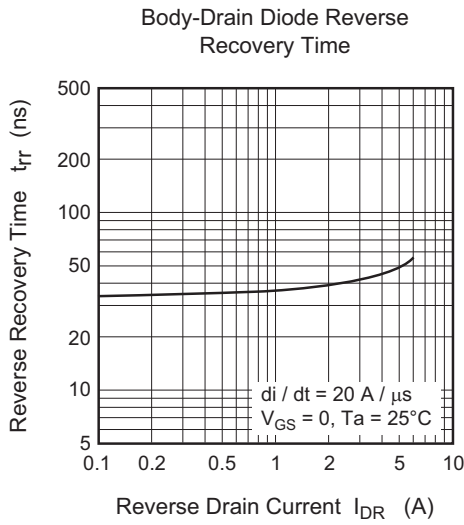
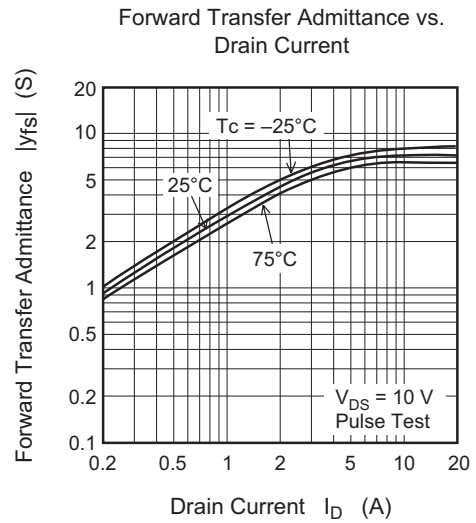
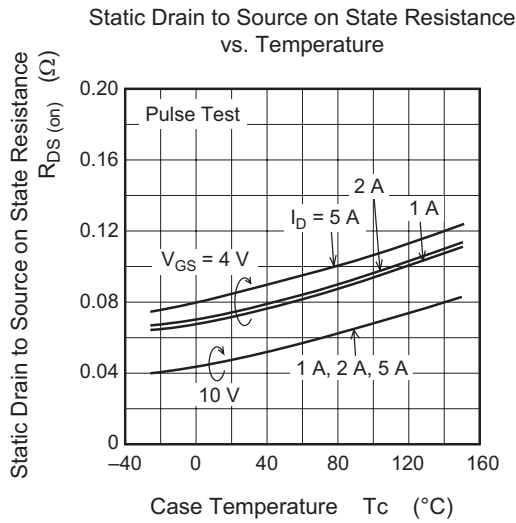
(T_a = 25°C)

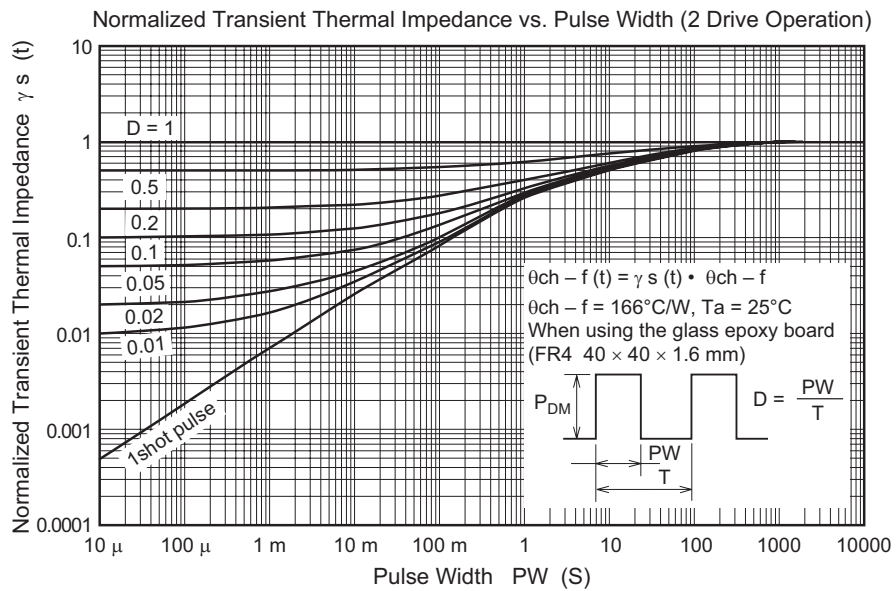
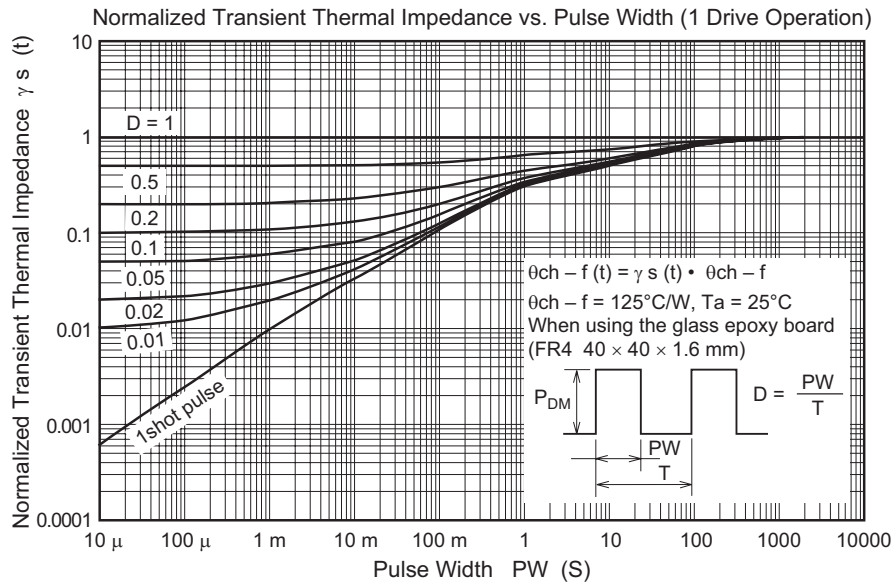
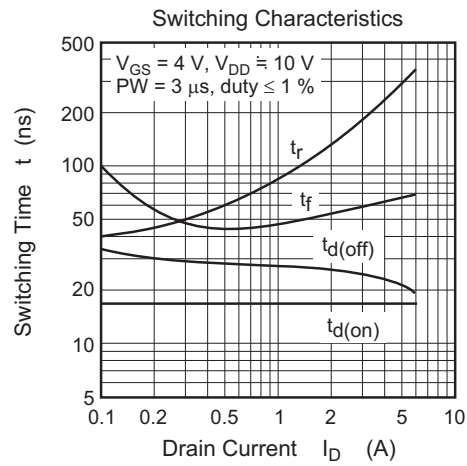
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	30	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR) GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 30 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS (off)}	1.0	—	2.0	V	V _{DS} = 10 V, I _D = 1 mA
Static drain to source on state resistance	R _{DS (on)}	—	0.05	0.065	Ω	I _D = 3 A, V _{GS} = 10 V ^{Note 4}
	R _{DS (on)}	—	0.078	0.11	Ω	I _D = 3 A, V _{GS} = 4 V ^{Note 4}
Forward transfer admittance	y _{fs}	3.5	5.5	—	S	I _D = 3 A, V _{DS} = 10 V ^{Note 4}
Input capacitance	C _{iss}	—	310	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	220	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	100	—	pF	f = 1 MHz
Turn-on delay time	t _{d (on)}	—	17	—	ns	V _{GS} = 4 V, I _D = 3 A,
Rise time	t _r	—	190	—	ns	V _{DD} ≅ 10 V
Turn-off delay time	t _{d (off)}	—	25	—	ns	
Fall time	t _f	—	60	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.9	1.4	V	I _F = 5.5 A, V _{GS} = 0 ^{Note 4}
Body-drain diode reverse recovery time	t _{rr}	—	50	—	ns	I _F = 5.5 A, V _{GS} = 0 di _F /dt = 20 A/μs

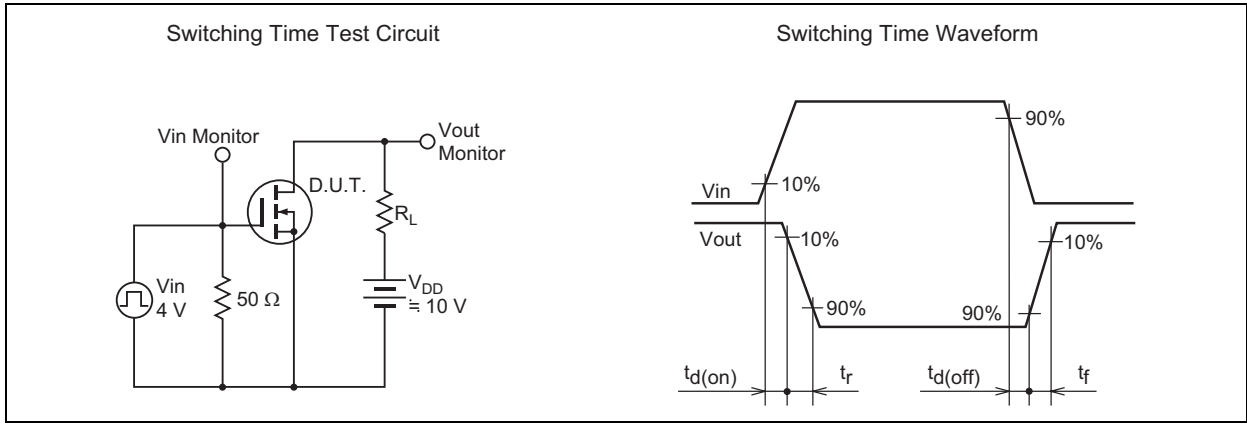
Note: 4. Pulse test

Main Characteristics

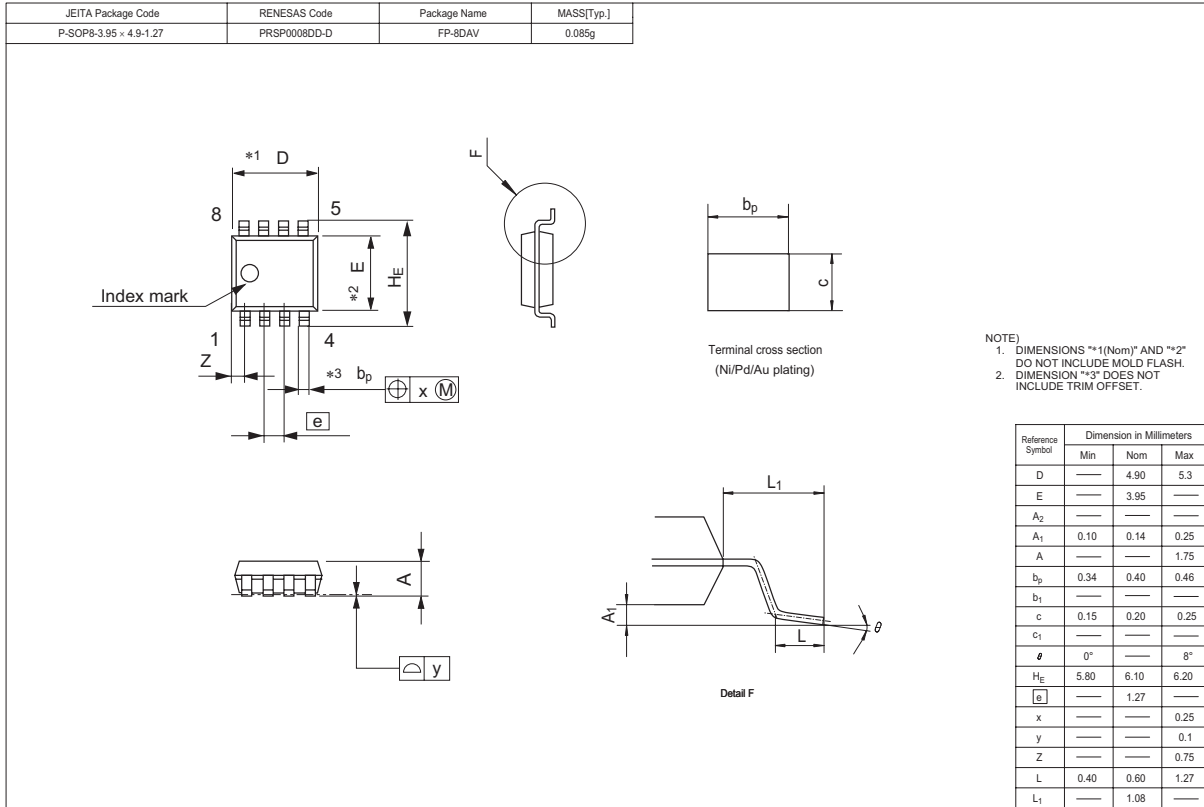








Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2024R-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 Technology Taiwan Co., Ltd.

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RENESAS Technology Singapore Pte. Ltd.

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RENESAS Technology Malaysia Sdn. Bhd.

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