



HAT2077R

Silicon N Channel MOS FET
High Speed Power Switching

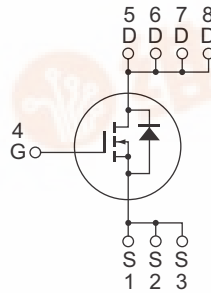
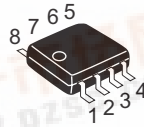
REJ03G1179-0200
(Previous: ADE-208-1228)
Rev.2.00
Sep 07, 2005

Features

- Low on-resistance
- Low drive current
- High density mounting

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}	200	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	3	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	24	A
Body-drain diode reverse drain current	I_{DR}	3	A
Channel dissipation	P_{ch} ^{Note 2}	2.5	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$ 2. When using the glass epoxy board (FR4 40 × 40 × 1.6 mm), $PW \leq 10 s$

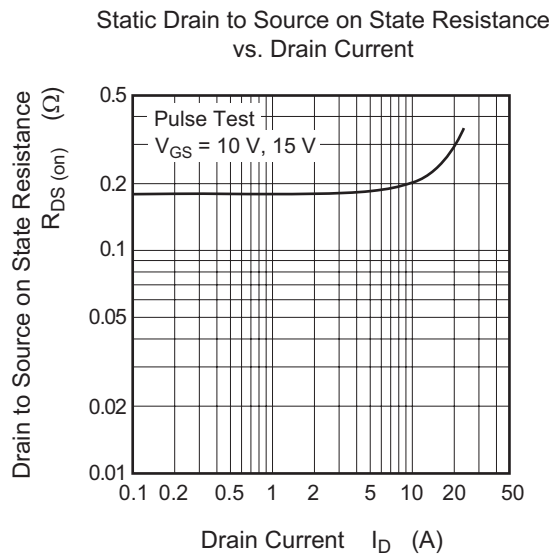
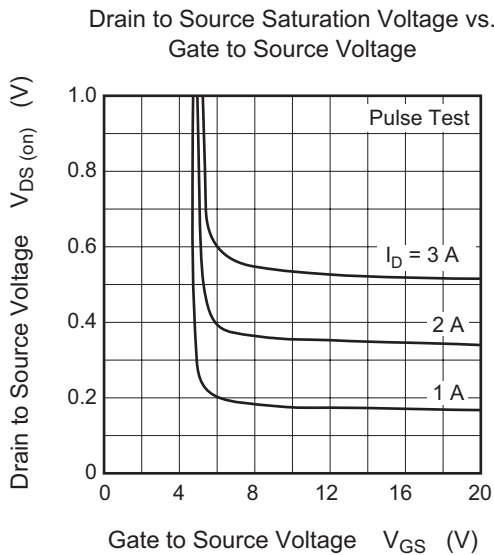
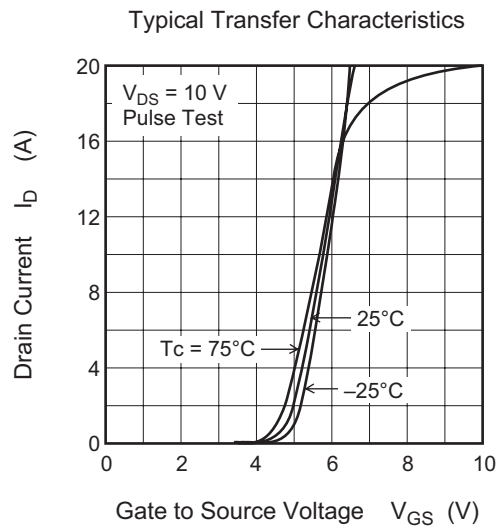
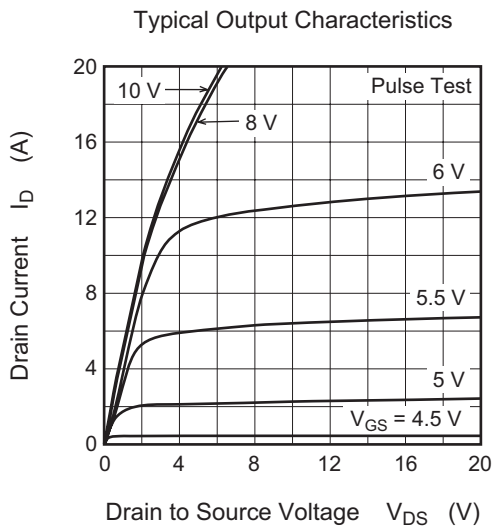
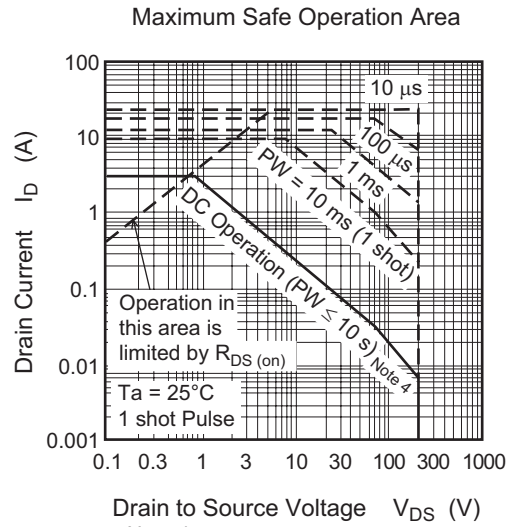
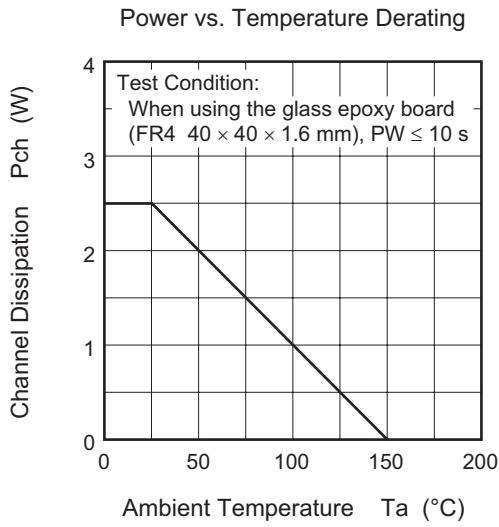
Electrical Characteristics

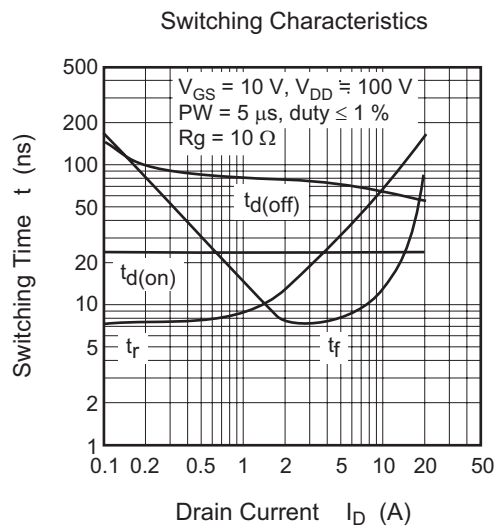
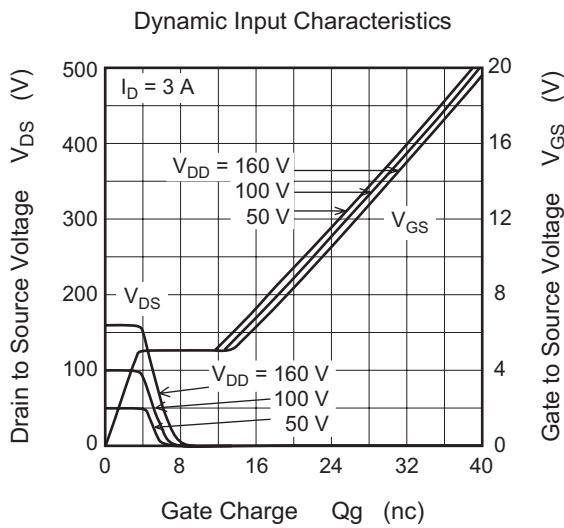
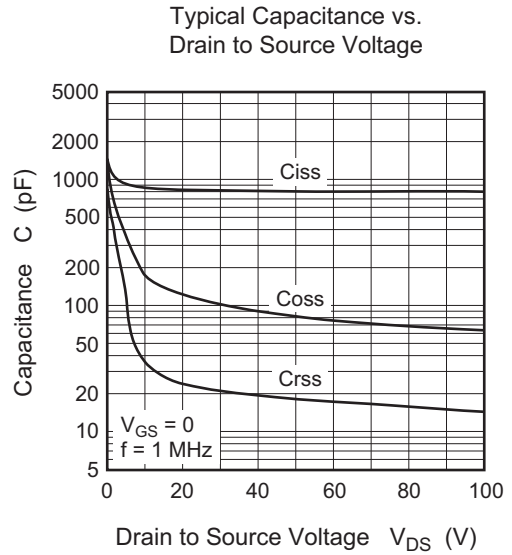
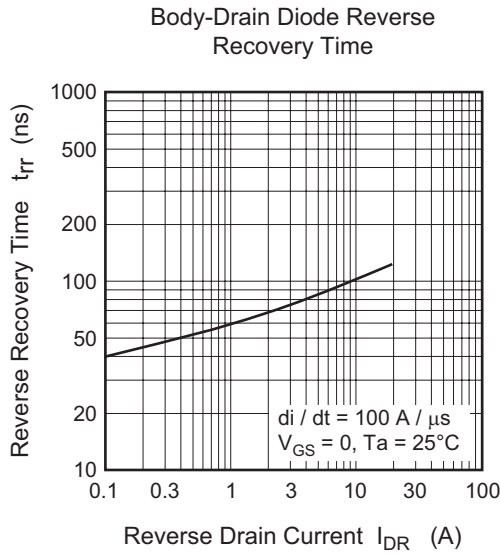
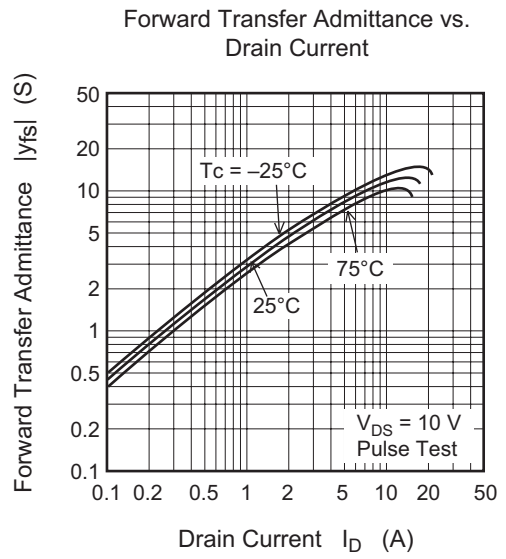
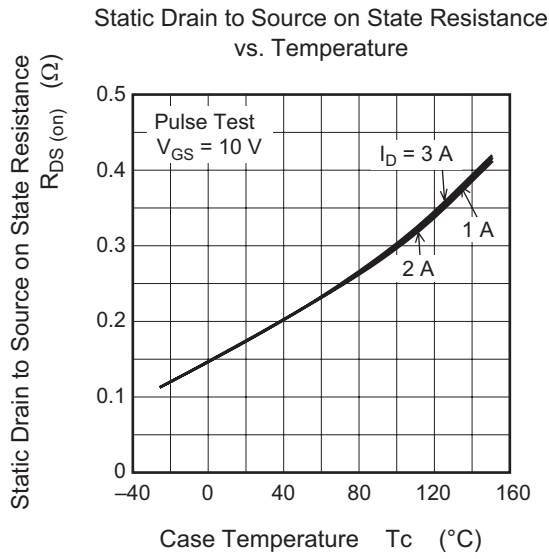
(Ta = 25°C)

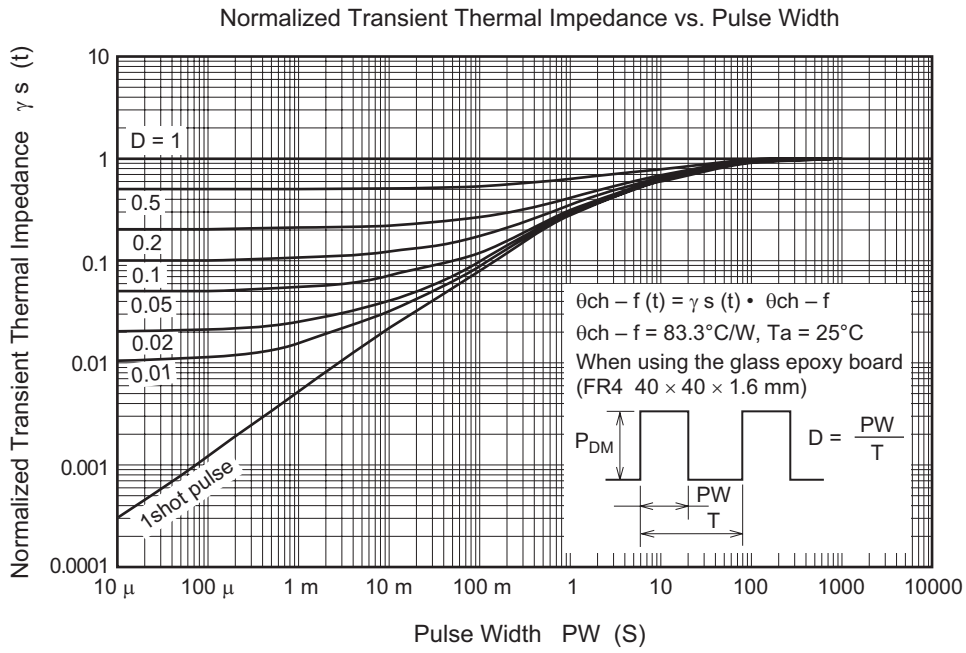
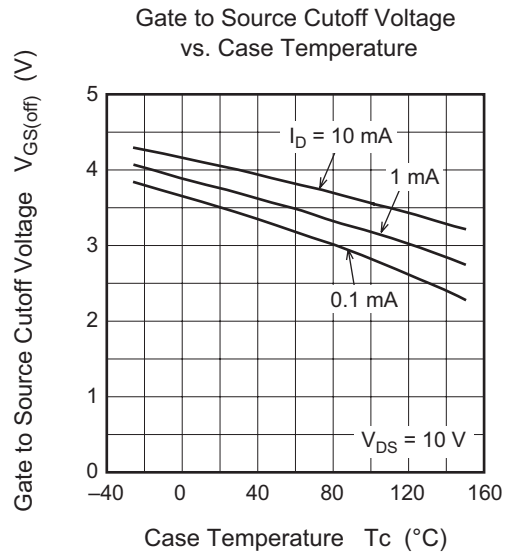
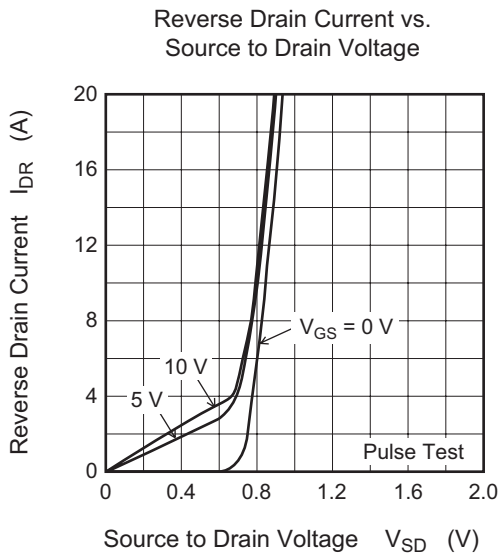
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	200	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.18	0.235	Ω	$I_D = 1.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note 3}
Forward transfer admittance	$ y_{fs} $	2.3	3.8	—	S	$I_D = 1.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note 3}
Input capacitance	C_{iss}	—	830	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	115	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	23	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	23	—	ns	$V_{DD} \cong 100 \text{ V}$, $I_D = 1.5 \text{ A}$
Rise time	t_r	—	10	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	70	—	ns	$R_L = 66.7 \Omega$
Fall time	t_f	—	10	—	ns	$R_g = 10 \Omega$
Total gate charge	Q_g	—	23	—	nC	$V_{DD} = 160 \text{ V}$
Gate to source charge	Q_{gs}	—	3.5	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Q_{gd}	—	10	—	nC	$I_D = 3 \text{ A}$
Body-drain diode forward voltage	V_{DF}	—	0.75	1.15	V	$I_F = 3 \text{ A}$, $V_{GS} = 0$ ^{Note 3}
Body-drain diode reverse recovery time	t_{rr}	—	75	—	ns	$I_F = 3 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu s$

Note: 3. Pulse test

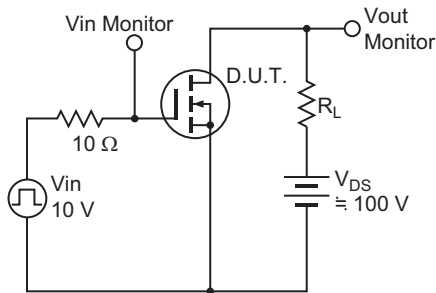
Main Characteristics



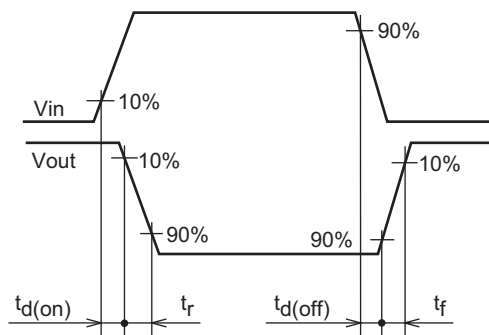




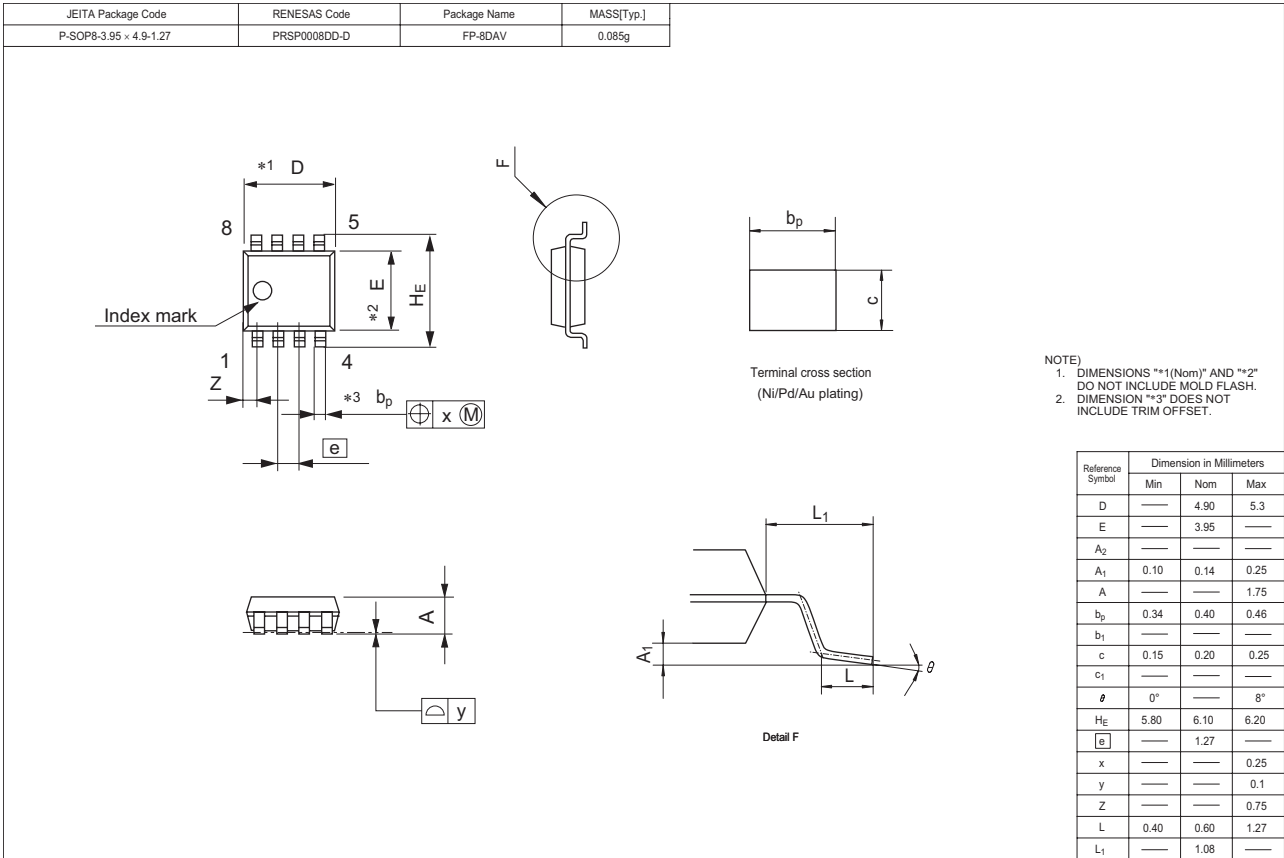
Switching Time Test Circuit



Switching Time Waveform



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2077R-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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