

HAT1020R

Silicon P Channel Power MOS FET High Speed Power Switching

REJ03G1143-1000

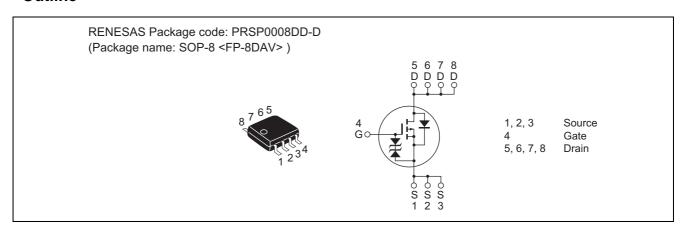
(Previous: ADE-208-435H)

Rev.10.00 Sep 07, 2005

Features

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

Outline



Absolute Maximum Ratings

 $(Ta = 25^{\circ}C)$

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	Α
Drain peak current	I _{D (pulse)} Note 1	-40	Α
Body-drain diode reverse drain current	I _{DR}	-5	Α
Channel dissipation	Pch Note 2	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. PW \leq 10 μ s, duty cycle \leq 1%

2. When using the glass epoxy board (FR4 $40\times40\times1.6$ mm), PW ≤10 s

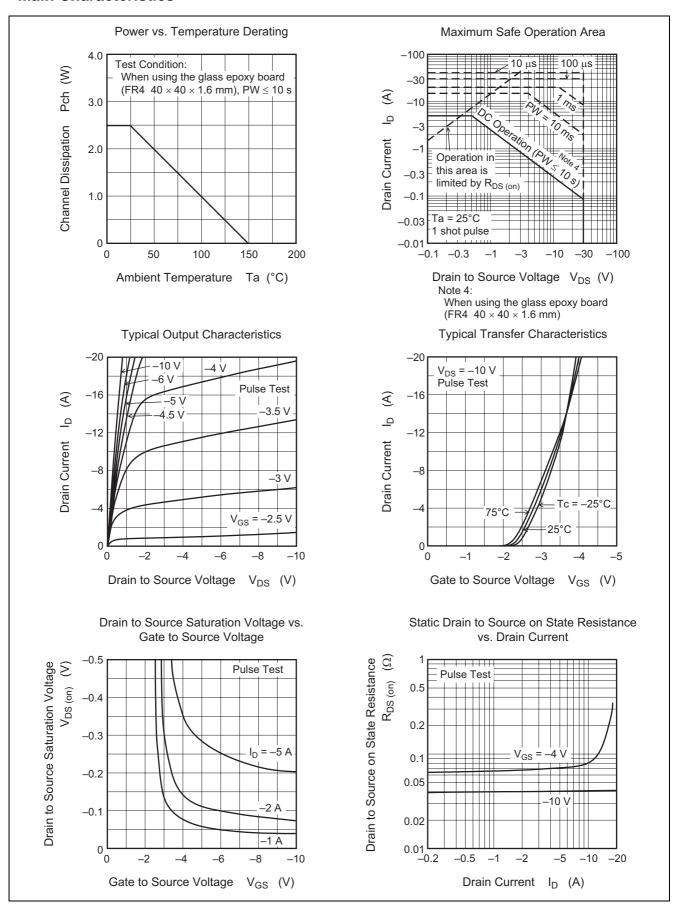
Electrical Characteristics

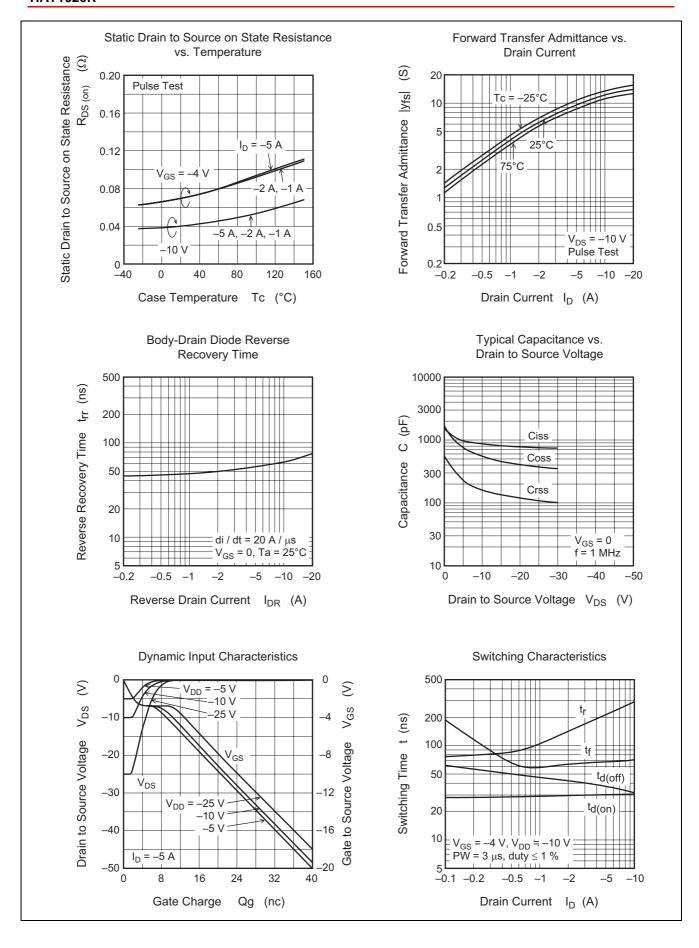
 $(Ta = 25^{\circ}C)$

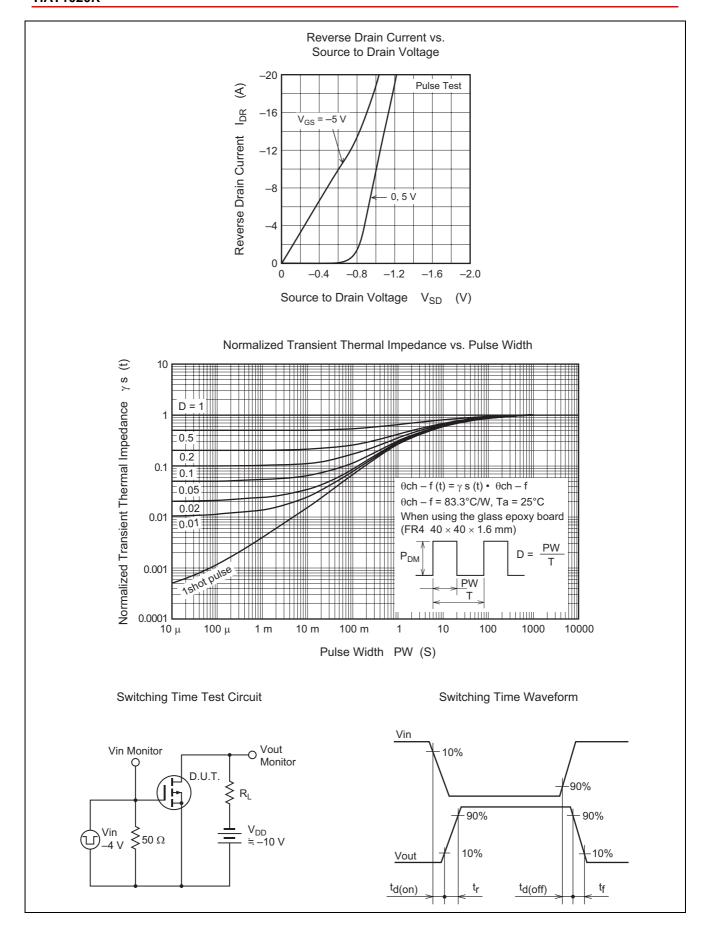
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	-30	_	_	V	$I_D = -10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	V _{(BR) GSS}	±20	_	_	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak current	I _{GSS}	_	_	±10	μΑ	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I _{DSS}	_	_	-10	μΑ	$V_{DS} = -30 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	V _{GS (off)}	-1.0	_	-2.5	V	$V_{DS} = -10 \text{ V}, I_D = -1 \text{ mA}$
Static drain to source on state resistance	R _{DS (on)}	_	0.04	0.07	Ω	$I_D = -3 \text{ A}, V_{GS} = -10 \text{ V}^{\text{Note } 3}$
	R _{DS (on)}	_	0.07	0.13	Ω	$I_D = -3 \text{ A}, V_{GS} = -4 \text{ V}^{\text{Note 3}}$
Forward transfer admittance	y _{fs}	5.0	7.5	_	S	$I_D = -3 \text{ A}, V_{DS} = -10 \text{ V}^{\text{Note } 3}$
Input capacitance	Ciss	_	860	_	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	Coss	_	560	_	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	_	165	_	pF	f = 1 MHz
Turn-on delay time	t _{d (on)}	_	30	_	ns	$V_{GS} = -4 \text{ V}, I_D = -3 \text{ A},$
Rise time	t _r	_	170	_	ns	$V_{DD} \cong -10 \text{ V}$
Turn-off delay time	t _{d (off)}	_	40	_	ns	
Fall time	t _f	_	65	_	ns	
Body-drain diode forward voltage	V_{DF}	_	-0.9	-1.4	V	$I_F = -5 \text{ A}, V_{GS} = 0^{\text{Note 3}}$
Body-drain diode reverse recovery time	t _{rr}	_	55	_	ns	$I_F = -5 \text{ A}, V_{GS} = 0$
						$di_F/dt = 20 A/\mu s$

Note: 3. Pulse test

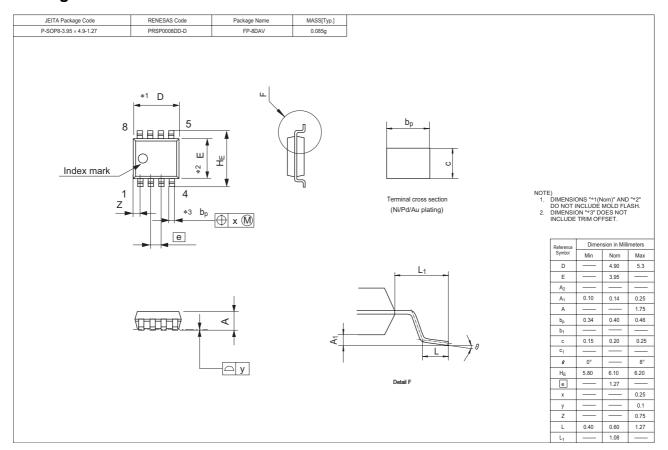
Main Characteristics







Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT1020R-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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