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April 1st, 2010 Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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HAT2134H

Silicon N Channel Power MOS FET Power Switching

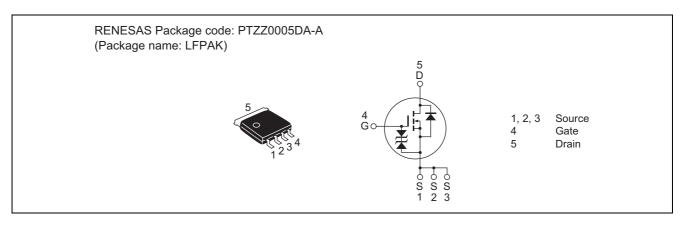
REJ03G1190-0300 (Previous: ADE-208-1578A)

> Rev.3.00 Sep 07, 2005

Features

- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance $R_{DS\;(on)} = 2.3\; m\Omega \; typ. \; (at\; V_{GS} = 10\; V) \label{eq:decomposition}$

Outline



Absolute Maximum Ratings

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

Item	Symbol	Value	Unit
Drain to source voltage	V _{DSS}	20	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	60	A
Drain peak current	I _{D (pulse)} Note 1	240	A
Body-drain diode reverse drain current	I _{DR}	60	A
Avalanche current	I _{AP} Note 3	20	A
Avalanche energy	E _{AR} Note 3	40	mJ
Channel dissipation	Pch Note 2	30	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. Tc = 25 °C

3. Value at Tch = 25°C, Rg \geq 50 Ω

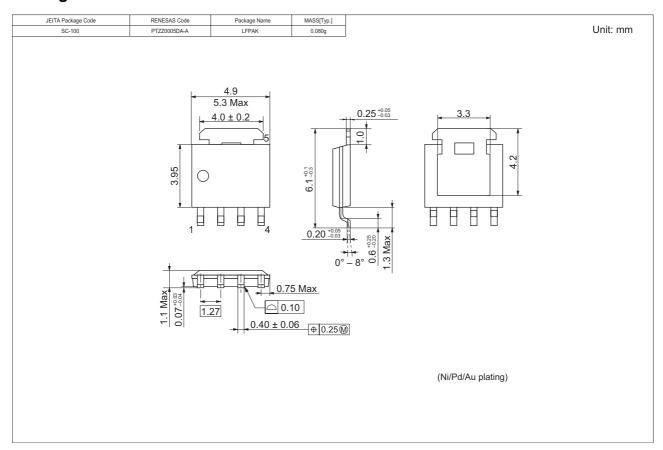
Electrical Characteristics

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

Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	20	_	_	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	V _{(BR) GSS}	±20	_	_	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
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}	_	_	1	μΑ	$V_{DS} = 20 \text{ V}, V_{GS} = 0$
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)}	_	2.3	2.9	mΩ	$I_D = 30 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note 4}}$
	R _{DS (on)}	_	4.0	5.8	mΩ	$I_D = 30 \text{ A}, V_{GS} = 4.5 \text{ V}^{\text{Note 4}}$
Forward transfer admittance	y _{fs}	51	85	_	S	$I_D = 30 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note 4}}$
Input capacitance	Ciss	_	4500	_	pF	V _{DS} = 10 V
Output capacitance	Coss	_	1200	_	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	_	560	_	pF	f = 1 MHz
Total gate charge	Qg	_	70	_	nC	V _{DD} = 10 V
Gate to source charge	Qgs	_	15	_	nC	V _{GS} = 10 V
Gate to drain charge	Qgd	_	11	_	nC	I _D = 60 A
Turn-on delay time	t _{d (on)}	_	20	_	ns	$V_{GS} = 10 \text{ V}, I_D = 30 \text{ A}$
Rise time	t _r	_	60	_	ns	V _{DD} ≅ 10 V
Turn-off delay time	t _{d (off)}	_	85	_	ns	$R_L = 0.33 \Omega$
Fall time	t _f	_	17	_	ns	$Rg = 4.7 \Omega$
Body-drain diode forward voltage	V_{DF}	_	0.85	1.10	V	$I_F = 60 \text{ A}, V_{GS} = 0$ Note 4
Body-drain diode reverse recovery time	t _{rr}	_	50	_	ns	$I_F = 60 \text{ A}, V_{GS} = 0$
						di _F /dt = 50 A/μs

Note: 4. Pulse test

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2134H-EL-E	2500 pcs	Taping

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