



HAT2105T

Silicon N Channel MOS FET
High Speed Power Switching

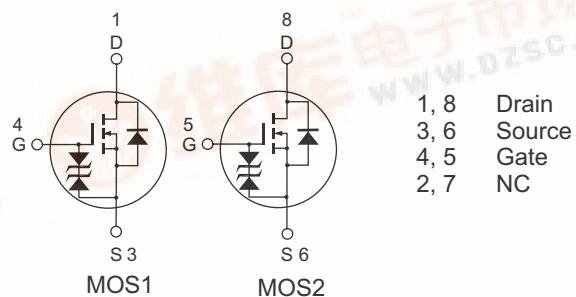
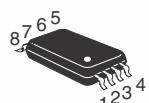
REJ03G0384-0200
Rev.2.00
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Features

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

Outline

RENESAS Package code: PTSP0008JB-B
(Package name: TSSOP-8 <TTP-8DV>)



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	200	V
Gate to source voltage	V _{GSS}	±15	V
Drain current	I _D	0.5	A
Drain peak current	I _D (pulse) ^{Note1}	2	A
Body-drain diode reverse drain current	I _{DR}	0.5	A
Channel dissipation	P _{ch} ^{Note 2}	1	W
	P _{ch} ^{Note 3}	1.5	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 x 40 x 1.6 mm), PW ≤ 10 s

3. 2 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 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}	200	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±15	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±12 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	5	μA	V _{DS} = 200 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.1	V	V _{DS} = 10 V, I _D = 1 mA
Static drain to source on state resistance	R _{DS(on)}	—	1.6	2.2	Ω	I _D = 0.5 A, V _{GS} = 10 V ^{Note4}
	R _{DS(on)}	—	1.9	2.7	Ω	I _D = 0.5 A, V _{GS} = 4 V ^{Note4}
	R _{DS(on)}	—	2.4	5.5	Ω	I _D = 2 A, V _{GS} = 5 V ^{Note4}
Forward transfer admittance	y _{fs}	0.56	0.86	—	S	I _D = 0.5 A, V _{DS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	120	—	pF	V _{DS} = 10 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	29	—	pF	
Reverse transfer capacitance	C _{rss}	—	10	—	pF	
Turn-on delay time	t _{d(on)}	—	10	—	ns	V _{GS} = 5 V, I _D = 0.5 A V _{DD} ≈ 30 V
Rise time	t _r	—	14	—	ns	
Turn-off delay time	t _{d(off)}	—	24	—	ns	
Fall time	t _f	—	9	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.9	1.4	V	I _F = 0.5 A, V _{GS} = 0 ^{Note4}

Notes: 4. Pulse test

HAT2105T

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TSSOP-8	P-TSSOP8-4.4 x 3-0.65	PTSP0008JB-B	TTP-8DV	0.034g

Terminal cross section
(Ni/Pd/Au plating)

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	—	3.00	3.30
E	—	4.40	—
A ₂	—	—	—
A ₁	0.03	0.07	0.10
A	—	—	1.10
b _p	0.15	0.20	0.25
b ₁	—	—	—
c	0.10	0.15	0.20
c ₁	—	—	—
θ	0°	—	8°
H _E	6.20	6.40	6.60
⊖	—	0.65	—
x	—	—	0.13
y	—	—	0.10
z	—	—	0.805
L	0.40	0.50	0.60
L ₁	—	1.0	—

Ordering Information

Part No.	Quantity	Shipping Container
HAT2105T-EL-E	3000 pcs	Taping

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