

To our customers,

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

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

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The Renesas logo, featuring a stylized 'R' followed by the word 'RENESAS' in a bold, sans-serif font.

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HAT2050T

Silicon N Channel Power MOS FET
High Speed Power Switching

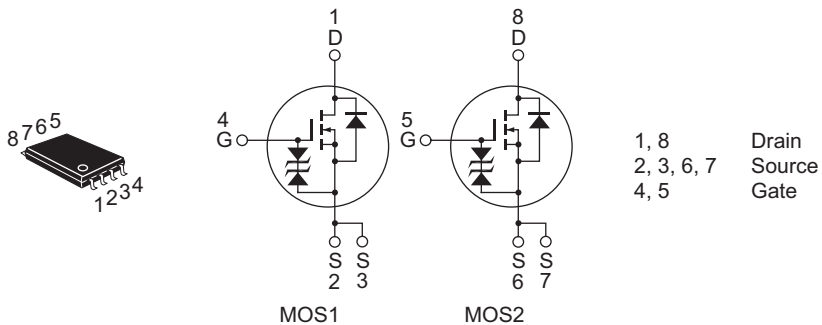
REJ03G1171-0300
(Previous: ADE-208-660A)
Rev.3.00
Sep 07, 2005

Features

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

Outline

RENESAS Package code: PTSP0008JB-A
(Package name: TSSOP-8 <TTP-8D>)



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V _{DSS}	100	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	1	A
Drain peak current	I _{D (pulse)} ^{Note 1}	4	A
Body-drain diode reverse drain current	I _{DR}	1	A
Channel dissipation	P _{ch} ^{Note 2}	1.0	W
Channel dissipation	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 × 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

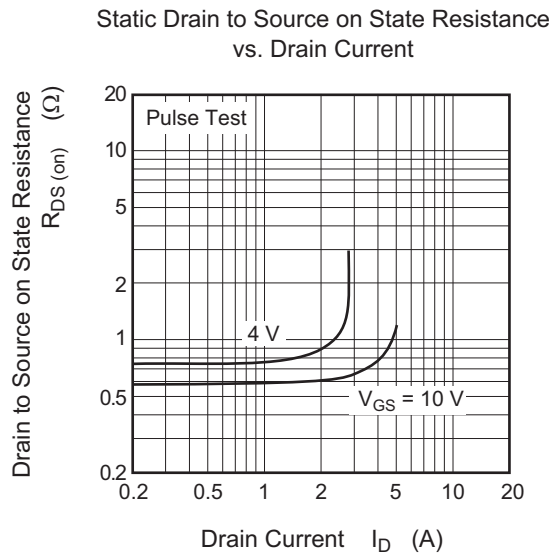
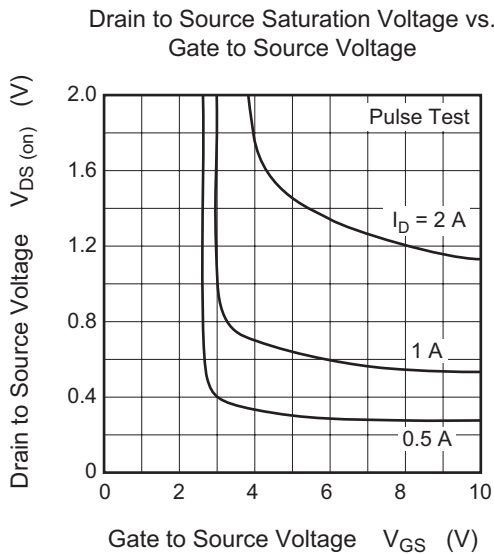
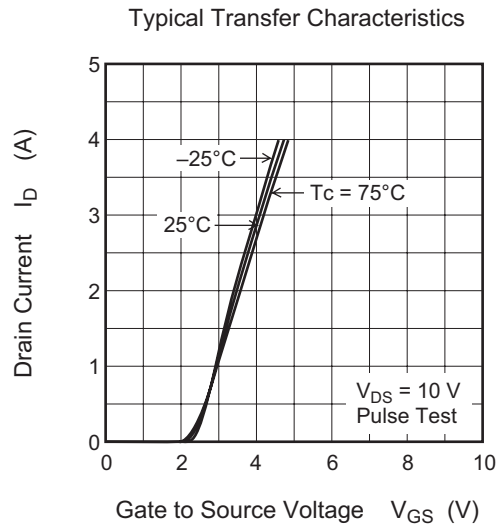
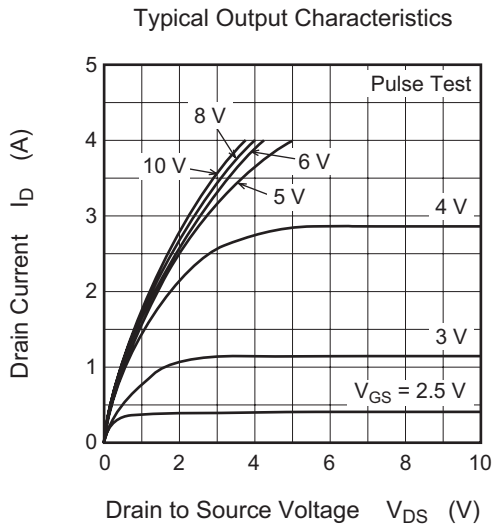
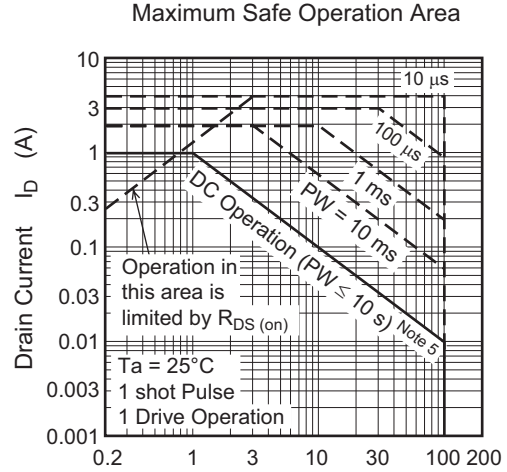
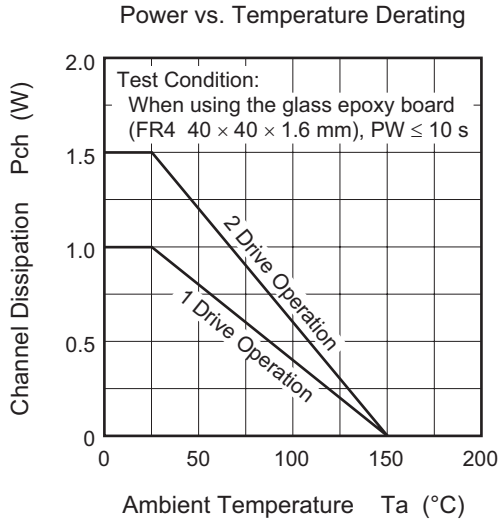
Electrical Characteristics

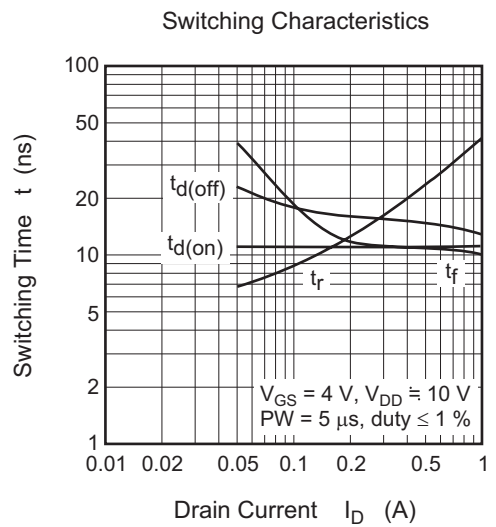
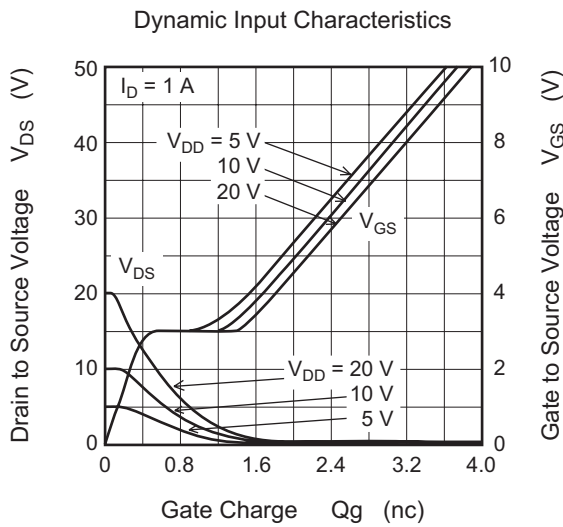
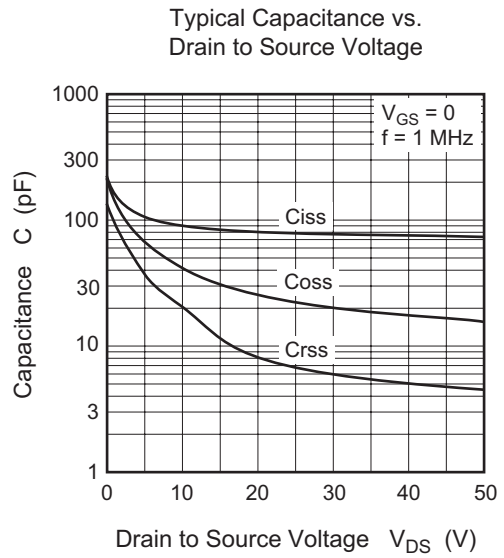
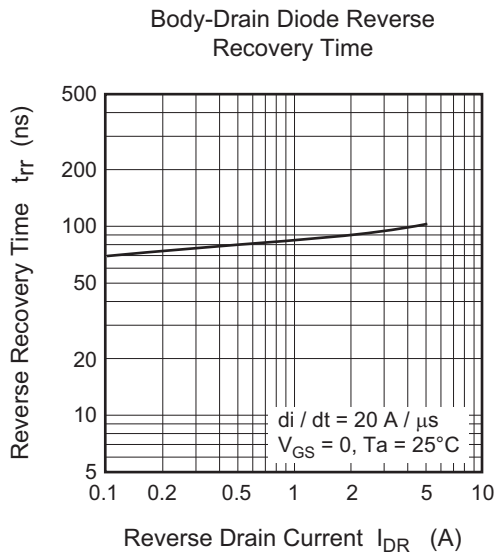
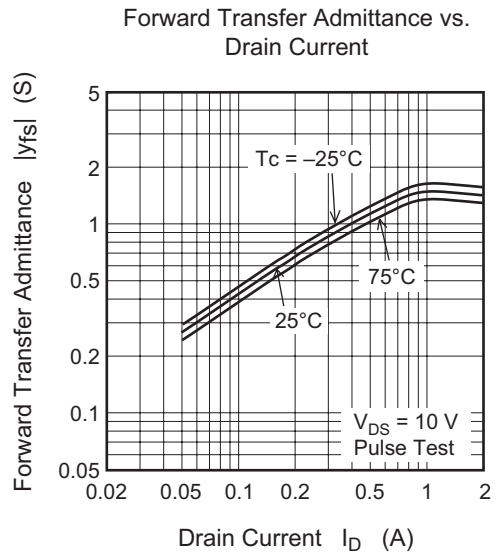
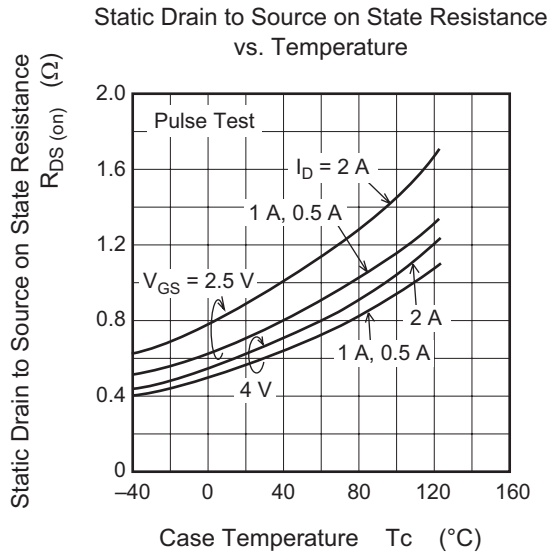
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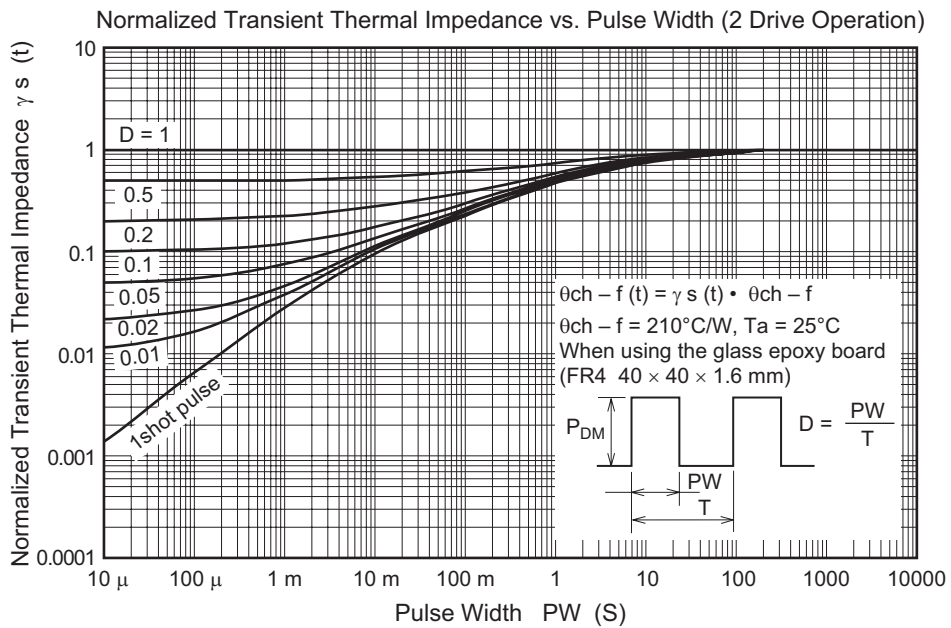
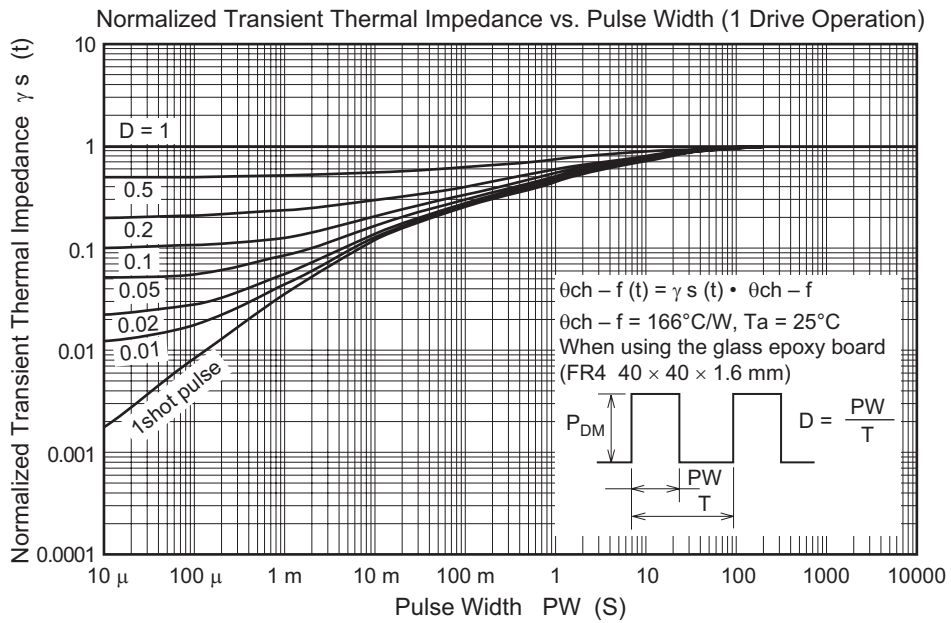
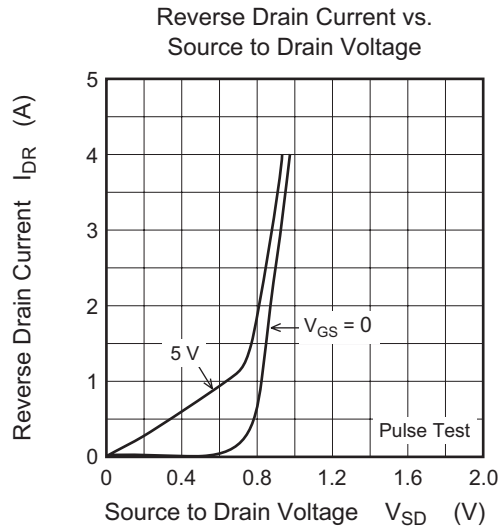
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	100	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR) GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} = 100 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS (off)}	1.3	—	2.3	V	V _{DS} = 10 V, I _D = 1 mA
Static drain to source on state resistance	R _{DS (on)}	—	0.56	0.75	Ω	I _D = 0.5 A, V _{GS} = 10 V ^{Note 4}
	R _{DS (on)}	—	0.72	1.0	Ω	I _D = 0.5 A, V _{GS} = 4 V ^{Note 4}
Forward transfer admittance	y _{fs}	0.7	1.1	—	S	I _D = 0.5 A, V _{DS} = 10 V ^{Note 4}
Input capacitance	C _{iss}	—	90	—	pF	V _{DS} = 10 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	42	—	pF	
Reverse transfer capacitance	C _{rss}	—	20	—	pF	
Turn-on delay time	t _{d (on)}	—	11	—	ns	
Rise time	t _r	—	24	—	ns	V _{DD} ≅ 10 V
Turn-off delay time	t _{d (off)}	—	14	—	ns	
Fall time	t _f	—	11	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.84	1.1	V	I _F = 1 A, V _{GS} = 0 ^{Note 4}
Body-drain diode reverse recovery time	t _{rr}	—	85	—	ns	I _F = 1 A, V _{GS} = 0 di _F /dt = 20 A/μs

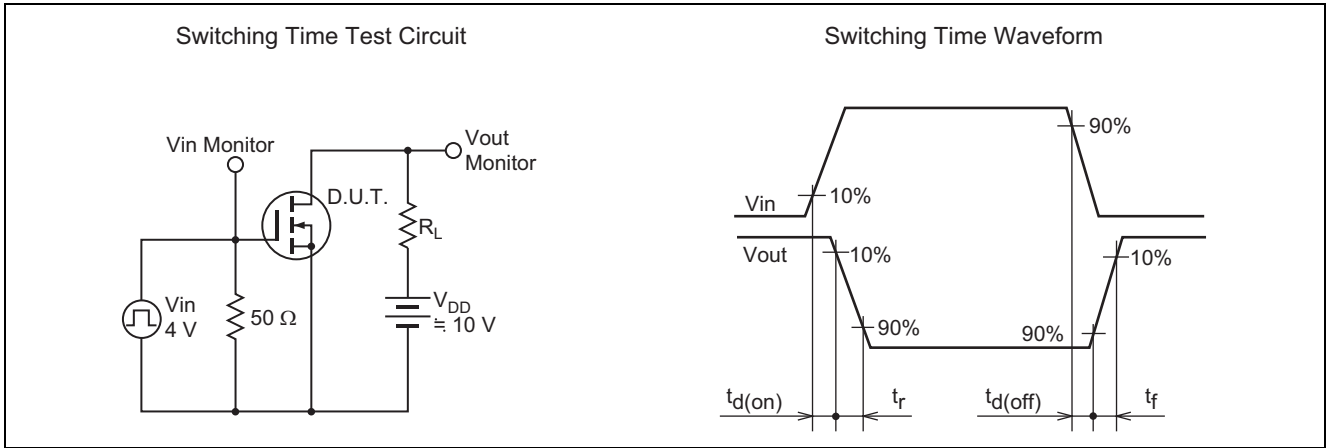
Note: 4. Pulse test

Main Characteristics

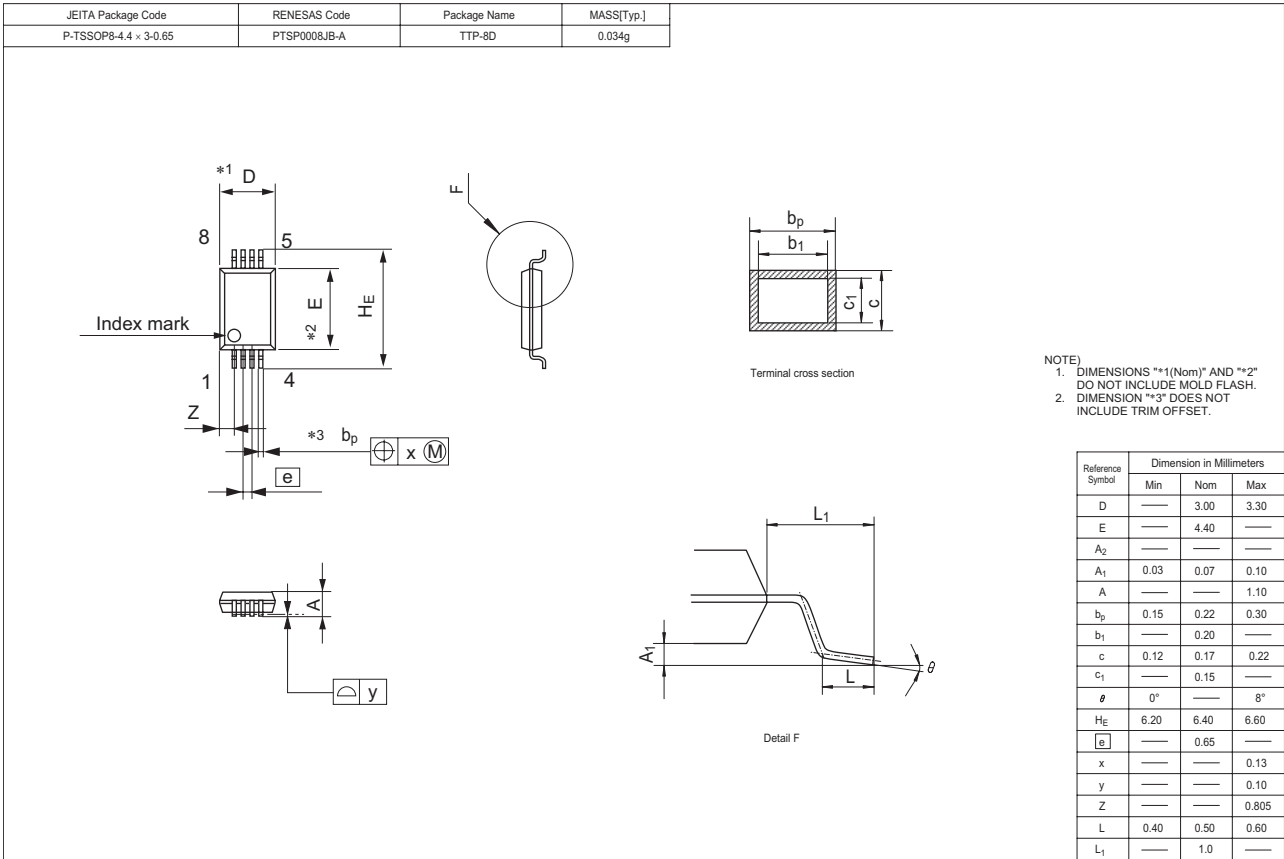








Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2050T-EL-E	3000 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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