

HAT1054R

Silicon P Channel Power MOS FET
High Speed Power Switching

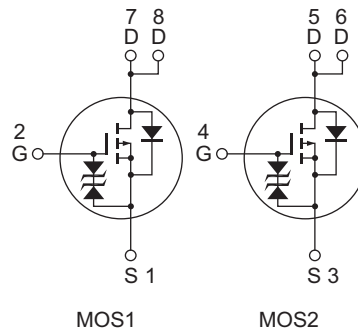
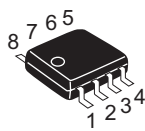
REJ03G1154-0300
(Previous: ADE-208-1224A)
Rev.3.00
Sep 07, 2005

Features

- Low on-resistance
- Capable of 2.5 V gate drive
- Low drive current
- High density mounting

Outline

RENESAS Package code: PRSP0008DD-D
(Package name: SOP-8 <FP-8DAV>)



1, 3 Source
2, 4 Gate
5, 6, 7, 8 Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V _{DSS}	-20	V
Gate to source voltage	V _{GSS}	±12	V
Drain current	I _D	-6	A
Drain peak current	I _{D (pulse)} ^{Note 1}	-48	A
Body-drain diode reverse drain current	I _{DR}	-6	A
Channel dissipation	P _{ch} ^{Note 2}	2	W
Channel dissipation	P _{ch} ^{Note 3}	3	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

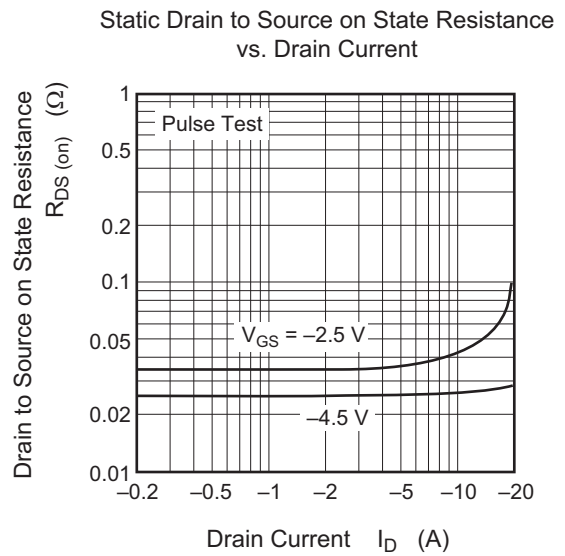
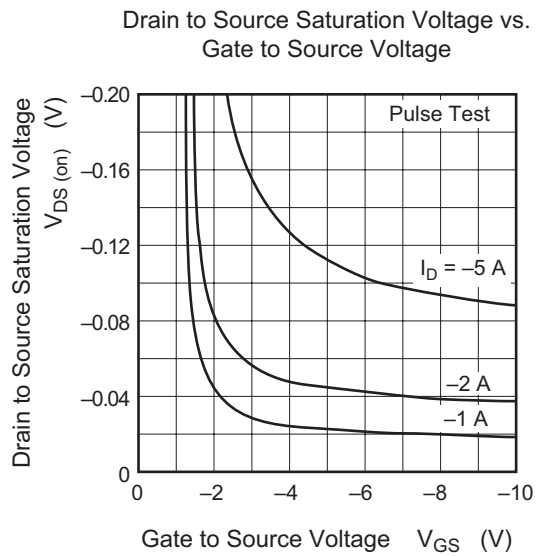
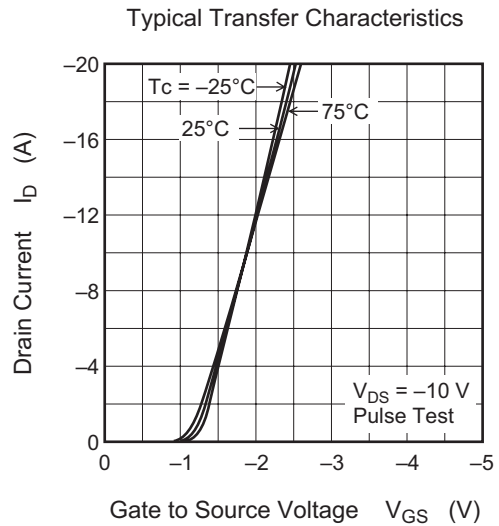
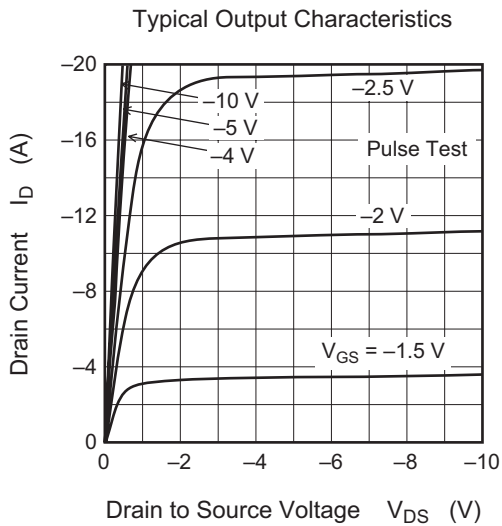
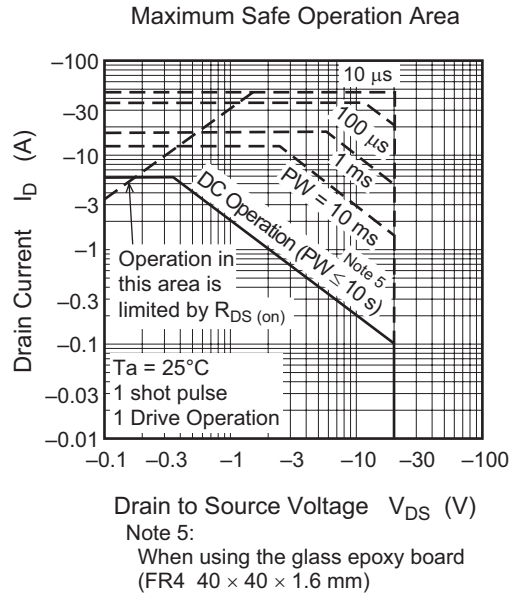
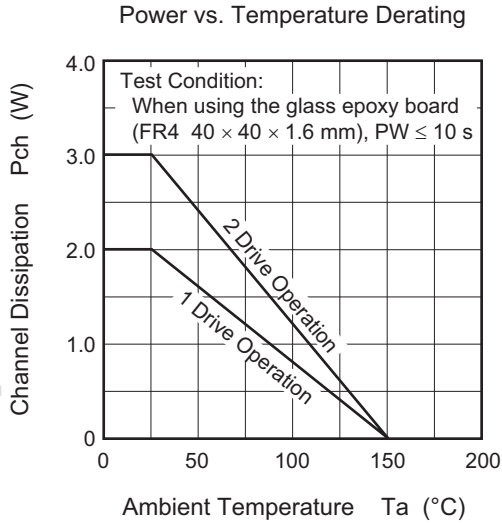
Electrical Characteristics

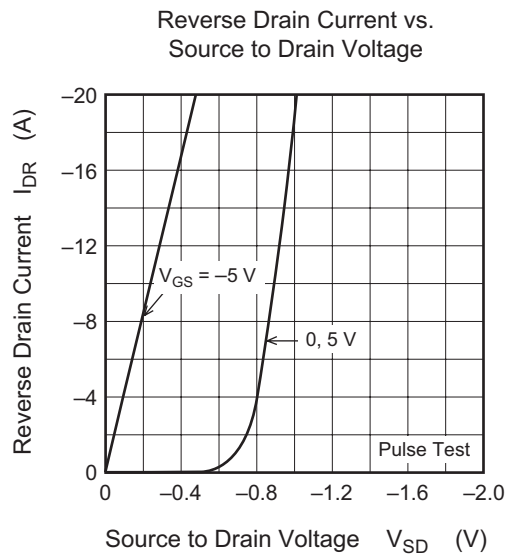
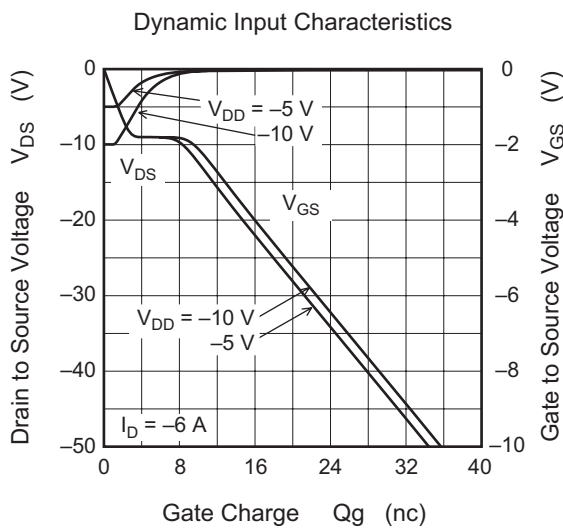
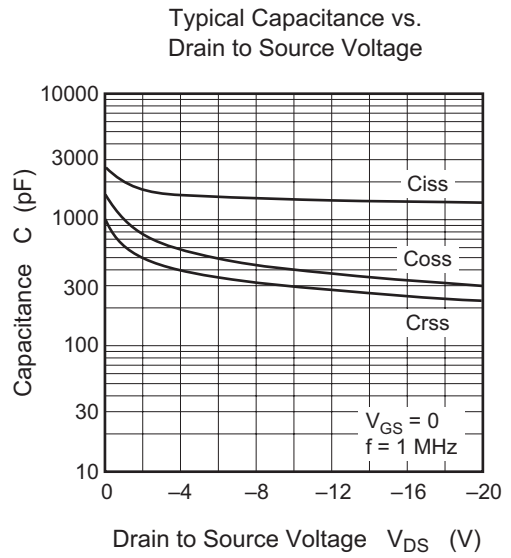
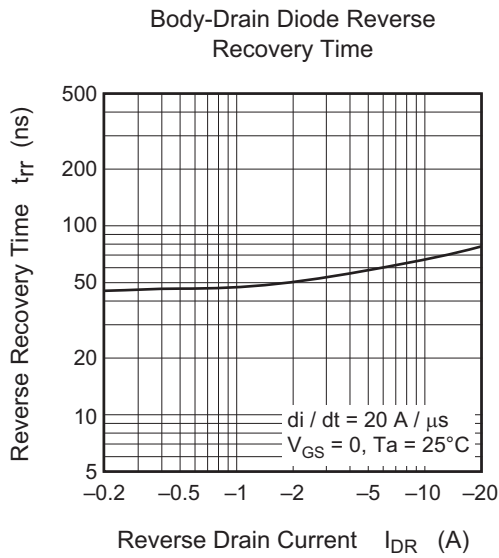
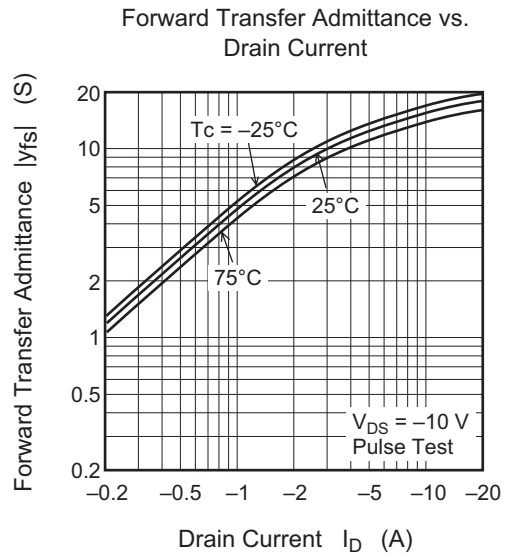
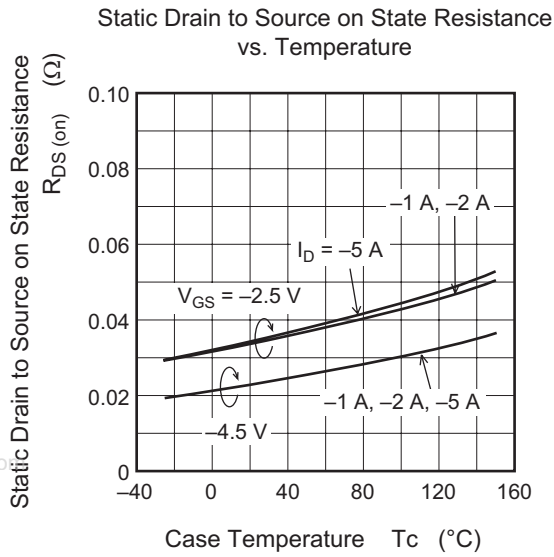
(Ta = 25°C)

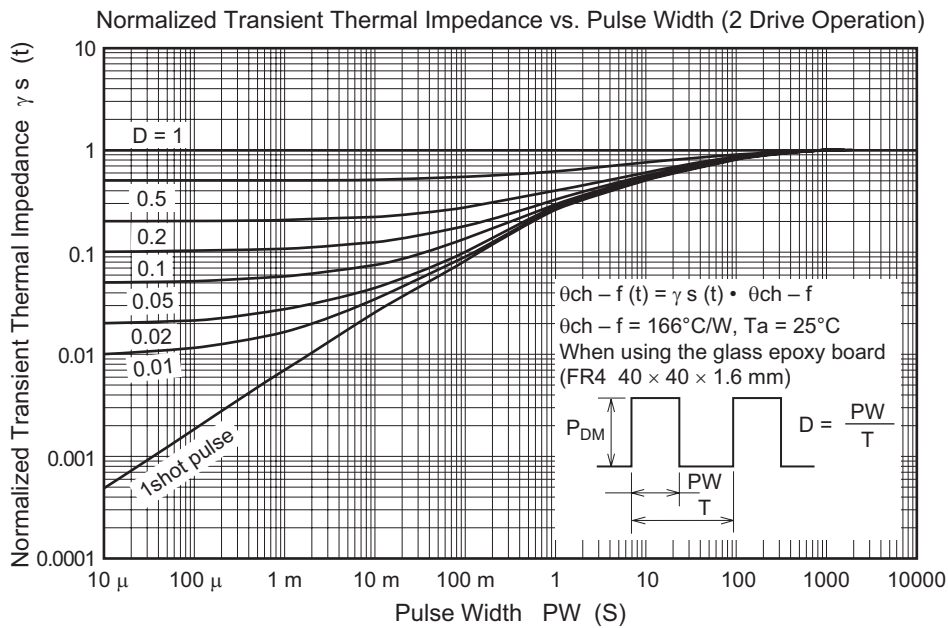
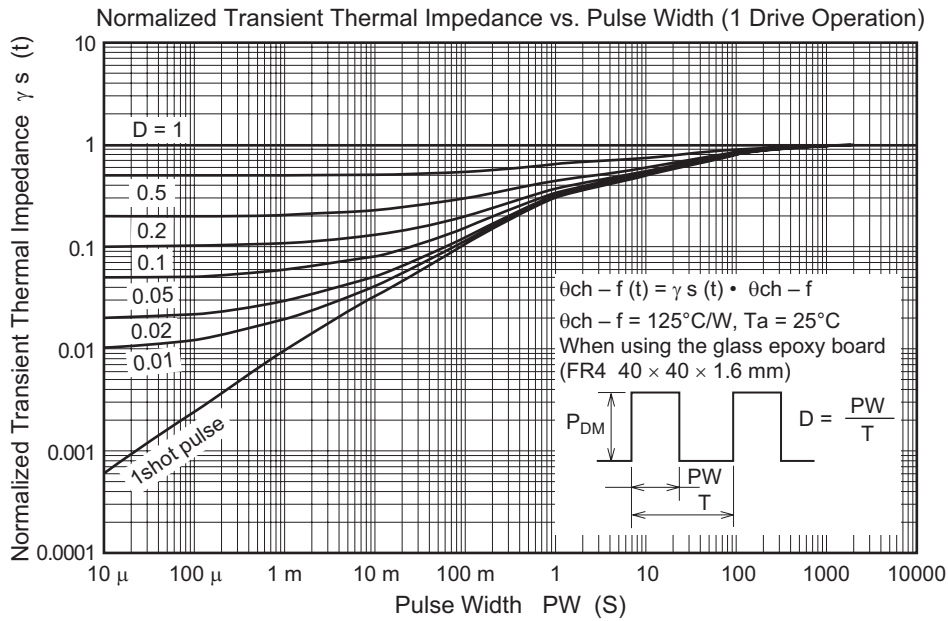
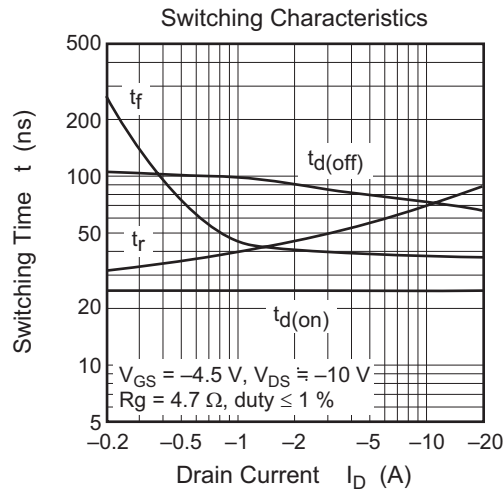
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	-20	—	—	V	I _D = -10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR) GSS}	±12	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±10 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	-1	μA	V _{DS} = -20 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS (off)}	-0.4	—	-1.4	V	V _{DS} = -10 V, I _D = -1 mA
Static drain to source on state resistance	R _{DS (on)}	—	24	30	mΩ	I _D = -3 A, V _{GS} = -4.5 V ^{Note 4}
	R _{DS (on)}	—	35	50	mΩ	I _D = -3 A, V _{GS} = -2.5 V ^{Note 4}
Forward transfer admittance	y _{fs}	6	10	—	S	I _D = -3 A, V _{DS} = -10 V ^{Note 4}
Input capacitance	C _{iss}	—	1550	—	pF	V _{DS} = -10 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	400	—	pF	
Reverse transfer capacitance	C _{rss}	—	300	—	pF	
Total gate charge	Q _g	—	18	—	nC	V _{DD} = -10 V
Gate to source charge	Q _{gs}	—	3	—	nC	V _{GS} = -4.5 V
Gate to drain charge	Q _{gd}	—	6.5	—	nC	I _D = -6 A
Turn-on delay time	t _{d (on)}	—	25	—	ns	V _{GS} = -4.5 V, I _D = -3 A, V _{DD} ≅ -10 V R _L = 3.3 Ω R _g = 4.7 Ω
Rise time	t _r	—	50	—	ns	
Turn-off delay time	t _{d (off)}	—	85	—	ns	
Fall time	t _f	—	40	—	ns	
Body-drain diode forward voltage	V _{DF}	—	-0.85	-1.10	V	I _F = -6 A, V _{GS} = 0 ^{Note 4}
Body-drain diode reverse recovery time	t _{rr}	—	60	—	ns	I _F = -6 A, V _{GS} = 0 di _F /dt = 20 A/μs

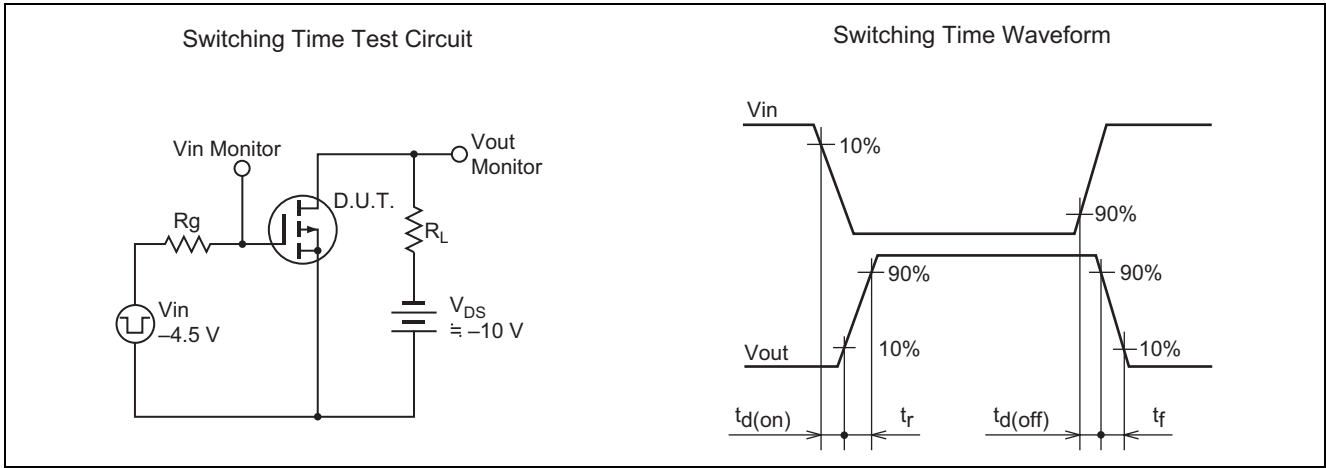
Note: 4. Pulse test

Main Characteristics



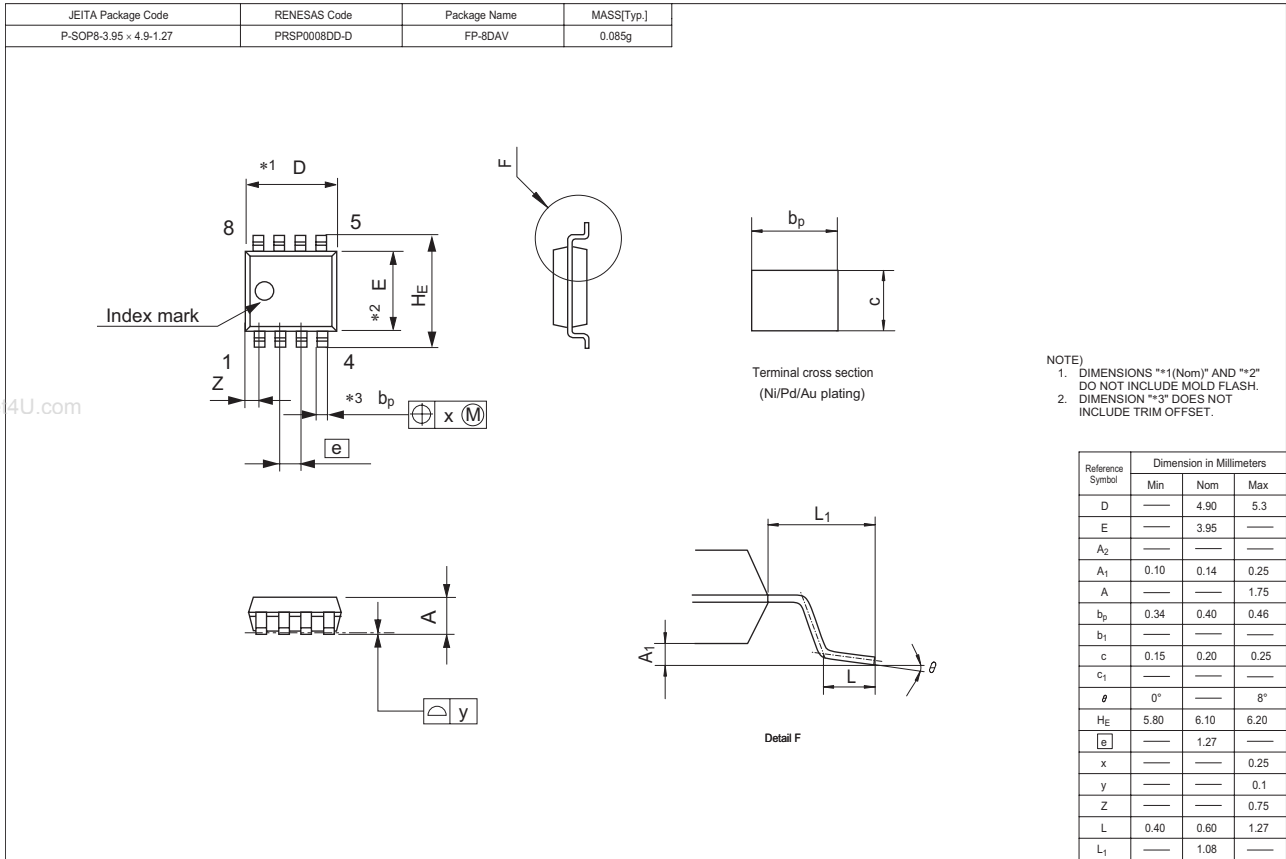






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Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT1054R-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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