

H5N3005LD, H5N3005LS, H5N3005LM

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1315-0400

Rev.4.00

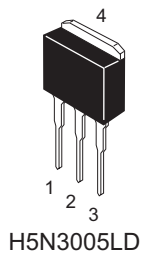
Nov 08, 2005

Features

- Low on-resistance
- Low leakage current
- High speed switching

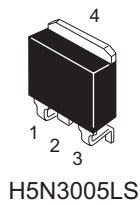
Outline

RENESAS Package code: PRSS0004AE-A
(Package name LDKPAK(L))



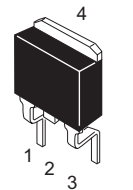
H5N3005LD

RENESAS Package code: PRSS0004AE-B
(Package name LDKPAK(S)-(1))

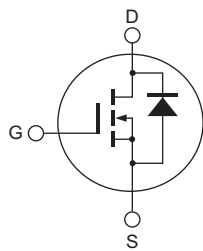


H5N3005LS

RENESAS Package code: PRSS0004AE-C
(Package name LDKPAK(S)-(2))



H5N3005LM



1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	300	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	15	A
Drain peak current	I _{D (pulse)} ^{Note1}	60	A
Body-drain diode reverse drain current	I _{DR}	15	A
Body-drain diode reverse drain peak current	I _{DR (pulse)} ^{Note1}	60	A
Avalanche current	I _{AP} ^{Note3}	15	A
Avalanche energy	E _{AR} ^{Note3}	13.5	mJ
Channel dissipation	P _{ch} ^{Note2}	75	W
Channel to case thermal impedance	θ _{ch-c}	1.67	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
 2. Value at Tc = 25°C
 3. STch = 25°C, Tch ≤ 150°C

Electrical Characteristics

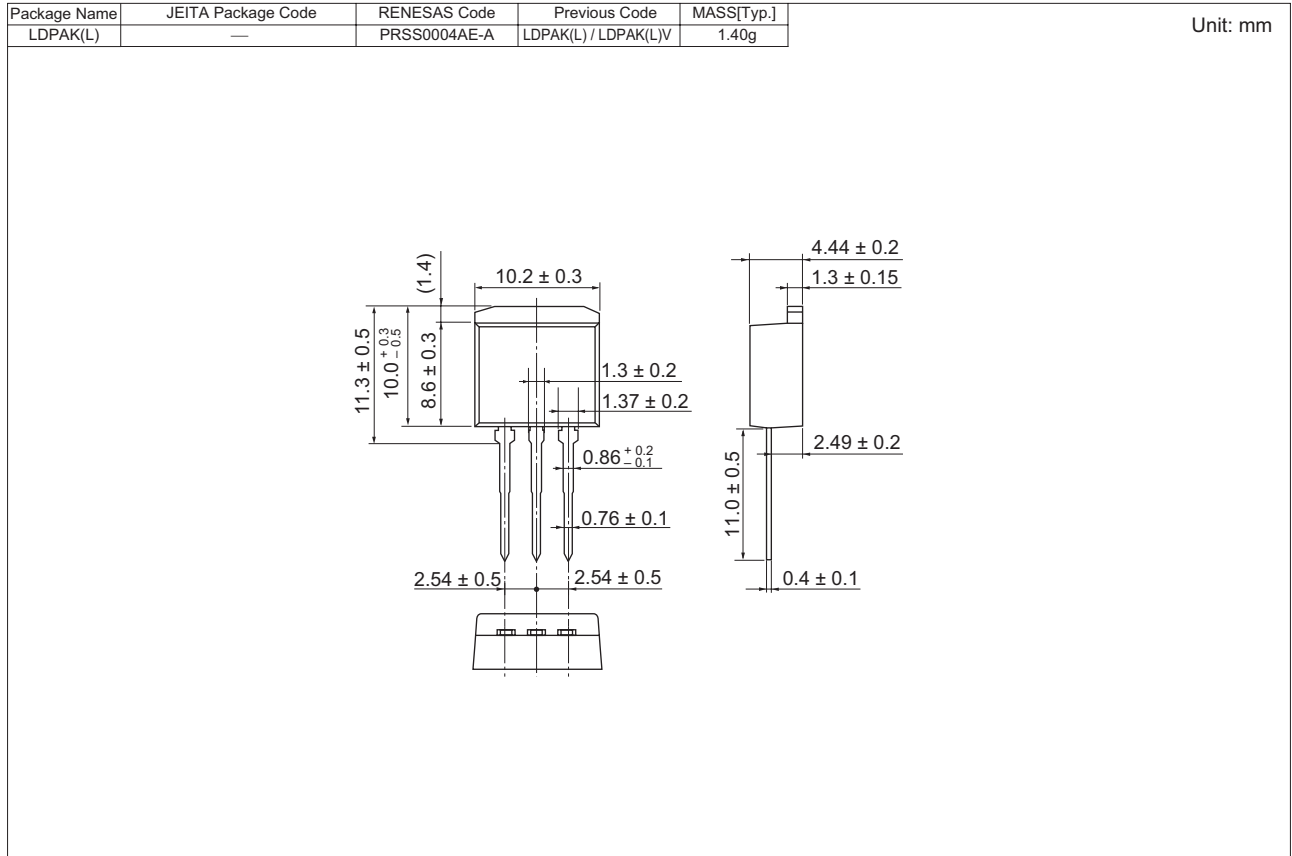
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V _{(BR)DSS}	300	—	—	V	I _D = 10 mA, V _{GS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} = 300 V, V _{GS} = 0
Gate to source leak current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±30 V, V _{DS} = 0
Gate to source cutoff voltage	V _{GS(off)}	3.0	—	4.5	V	V _{DS} = 10 V, I _D = 1 mA
Forward transfer admittance	y _{fs}	7	12	—	S	I _D = 7.5 A, V _{DS} = 10 V ^{Note4}
Static drain to source on state resistance	R _{DS(on)}	—	0.210	0.255	Ω	I _D = 7.5 A, V _{GS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	1300	—	pF	V _{DS} = 25 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	155	—	pF	
Reverse transfer capacitance	C _{rss}	—	50	—	pF	
Turn-on delay time	t _{d(on)}	—	30	—	ns	I _D = 7.5 A V _{GS} = 10 V R _L = 20 Ω R _g = 10 Ω
Rise time	t _r	—	30	—	ns	
Turn-off delay time	t _{d(off)}	—	90	—	ns	
Fall time	t _f	—	15	—	ns	
Total gate charge	Q _g	—	49	—	nC	V _{DD} = 240 V V _{GS} = 10 V I _D = 15 A
Gate to source charge	Q _{gs}	—	8	—	nC	
Gate to drain charge	Q _{gd}	—	25	—	nC	
Body-drain diode forward voltage	V _{DF}	—	0.86	1.30	V	I _F = 15 A, V _{GS} = 0 ^{Note4}
Body-drain diode reverse recovery time	t _{rr}	—	190	—	ns	I _F = 15 A, V _{GS} = 0 di _F /dt = 100 A/μs
Body-drain diode reverse recovery charge	Q _{rr}	—	1.3	—	μC	

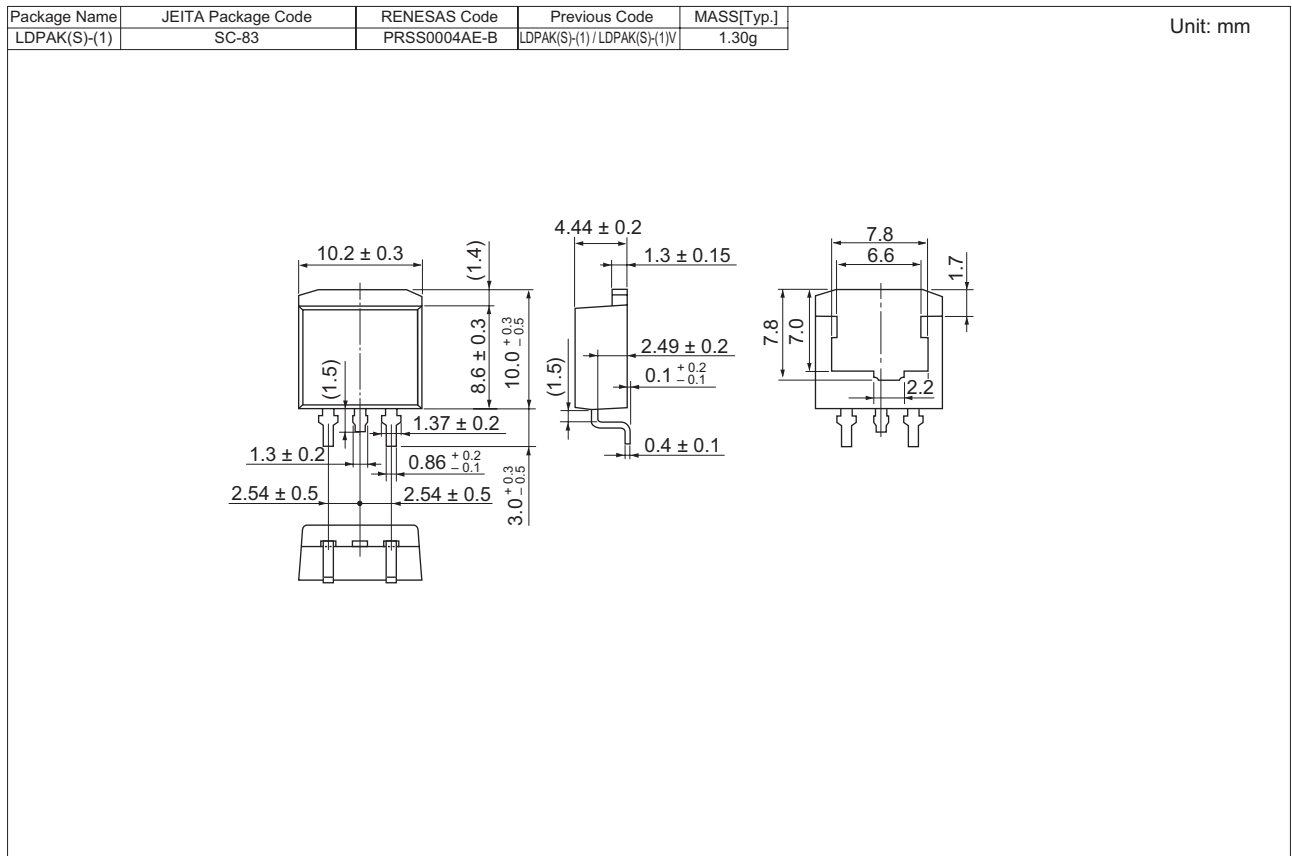
Notes: 4. Pulse test

Package Dimensions

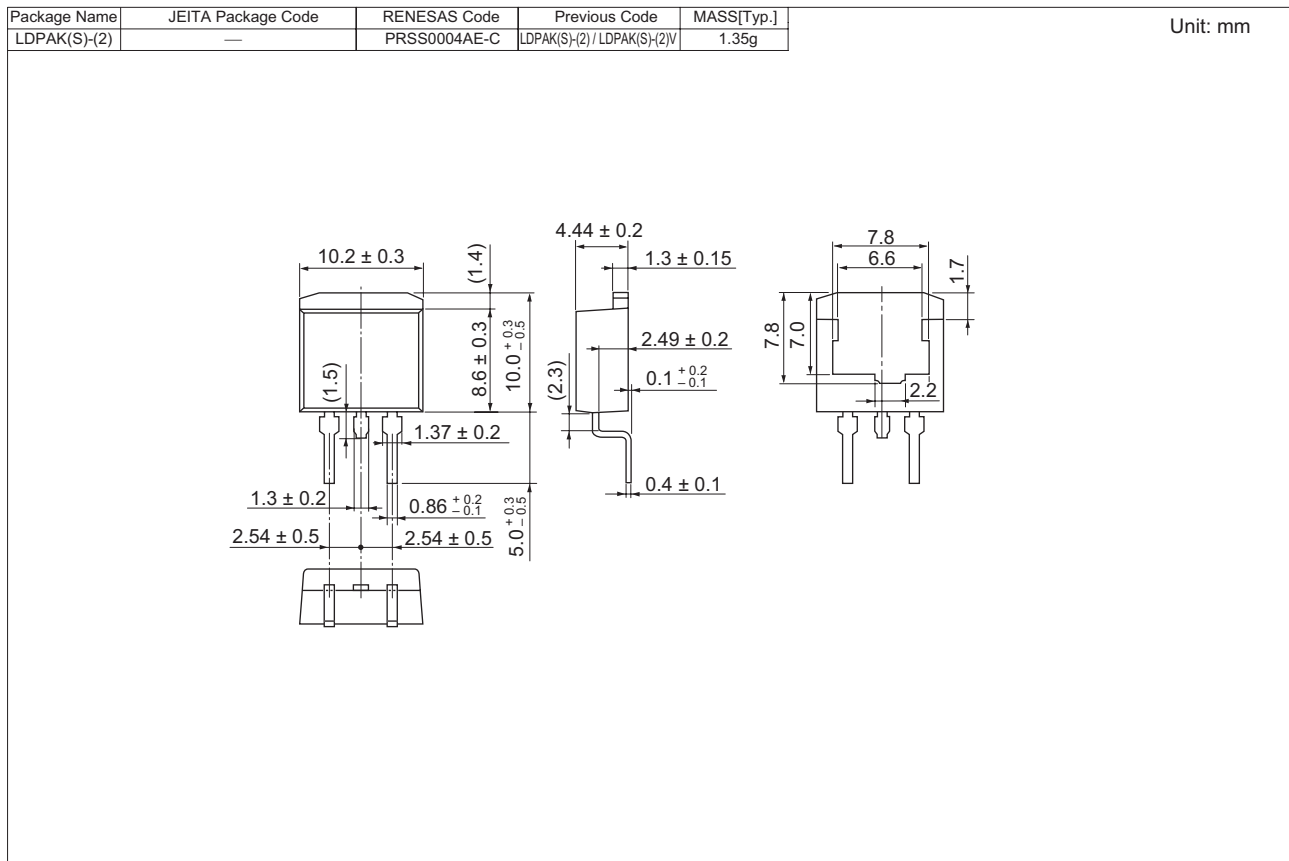
• H5N3005LD



• H5N3005LS



• H5N3005LM



Ordering Information

Part Name	Quantity	Shipping Container
H5N3005LSTL-E	1000 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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