H5N2005DL, H5N2005DS

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

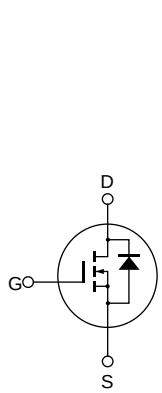
ADE-208-1373 (Z)
Target Specification 1st. Edition
Mar. 2001

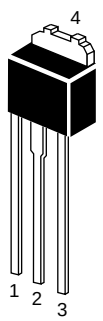
Features

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

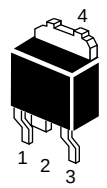
Outline

DPAK-2





H5N2005DL



H5N2005DS

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

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	200	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	(6)	A
Drain peak current	$I_{D\ (pulse)}$ Note 1	(24)	A
Body-drain diode reverse drain current	I_{DR}	(6)	A
Body-drain diode reverse drain peak current	$I_{DR\ (pulse)}$ Note 1	(24)	A
Channel dissipation	Pch Note 2	25	W
Channel to case thermal impedance	θ ch-c	5	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW 10 µs, duty cycle 1%
2. Value at Tc = 25°C

Electrical Characteristics (Ta = 25°C)

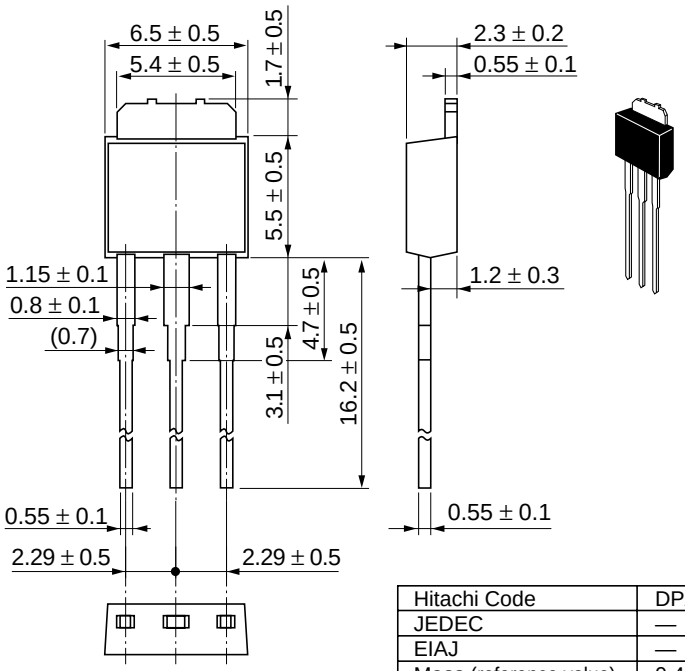
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	200	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±30 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 200 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	(3.0)	—	(4.5)	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	(0.52)	(0.65)		I_D = 3 A, V_{GS} = 10 V [Note 4]
Forward transfer admittance	$\|y_{fs}\|$	(2.0)	(3.4)	—	S	I_D = 3 A, V_{DS} = 10 V [Note 4]
Input capacitance	Ciss	—	(300)	—	pF	V_{DS} = 25 V
Output capacitance	Coss	—	(50)	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	(14)	—	pF	f = 1 MHz
Total Gate charge	Qg	—	(9.5)	—	nC	V_{DD} = 160 V
Gate to source charge	Qgs	—	(1.8)	—	nC	V_{GS} = 10 V
Gateto drain charge	Qgd	—	(5.2)	—	nC	I_D = 6 A
Turn-on delay time	td(on)	—	(19)	—	ns	I_D = 3 A
Rise time	tr	—	(16)	—	ns	V_{GS} = 10 V
Turn-off delay time	td(off)	—	(44)	—	ns	R_L = 33.3
Fall time	tf	—	(12)	—	ns	Rg = 10
Body-drain diode forward voltage	V_{DF}	—	(1.0)	(1.5)	V	I_F = 6 A, V_{GS} = 0
Body-drain diode reverse recovery time	trr	—	(90)	—	ns	I_F = 6 A, V_{GS} = 0
Body-drain diode reverse recovery charge	Qrr	—	(300)	—	nC	diF/dt = 100 A/us

Note: 4. Pulse test

Package Dimensions

As of January, 2001

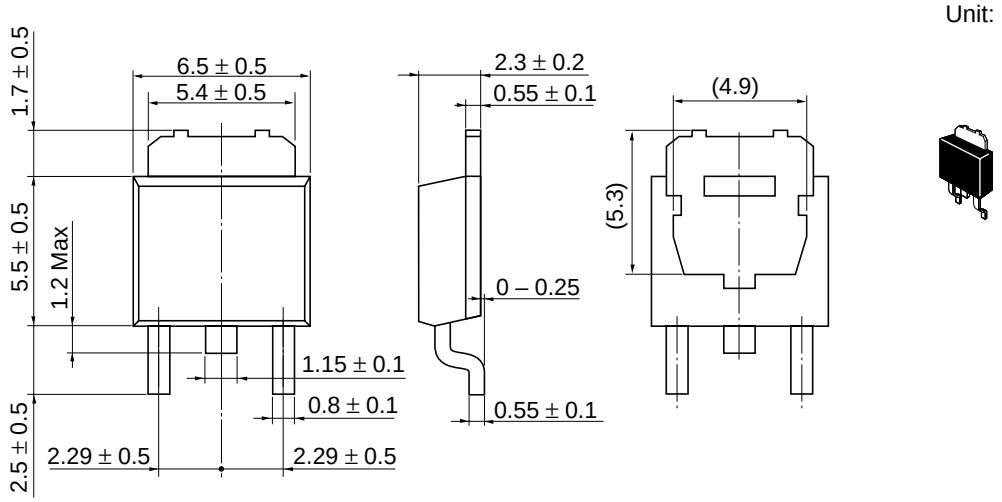
Unit: mm

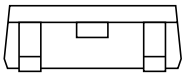


Hitachi Code	DPAK (L)-(2)
JEDEC	—
EIAJ	—
Mass (reference value)	0.42 g

As of January, 2001

Unit: mm

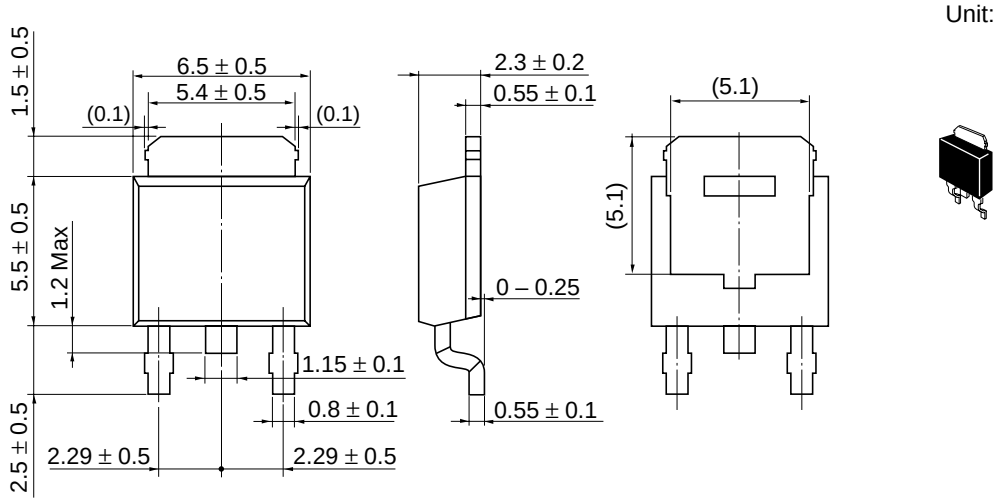


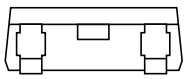


Hitachi Code	DPAK (S)-(1),(2)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

As of January, 2001

Unit: mm





Hitachi Code	DPAK (S)-(3)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

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