H5N2510DL, H5N2510DS

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

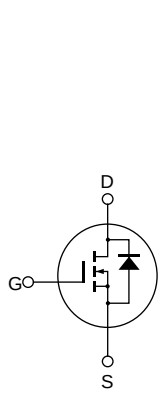
ADE-208-1379 (Z)
Target Specification 1st. Edition
Mar. 2001

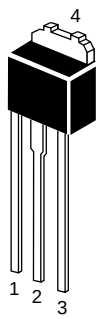
Features

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

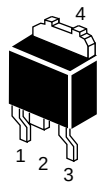
Outline

DPAK-2





H5N2510DL



H5N2510DS

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

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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	250	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	(5)	A
Drain peak current	$I_{D\ (pulse)}$ Note1	(20)	A
Body-drain diode reverse drain current	I_{DR}	(5)	A
Body-drain diode reverse drain peak current	$I_{DR\ (pulse)}$ Note1	(20)	A
Channel dissipation	Pch Note2	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)

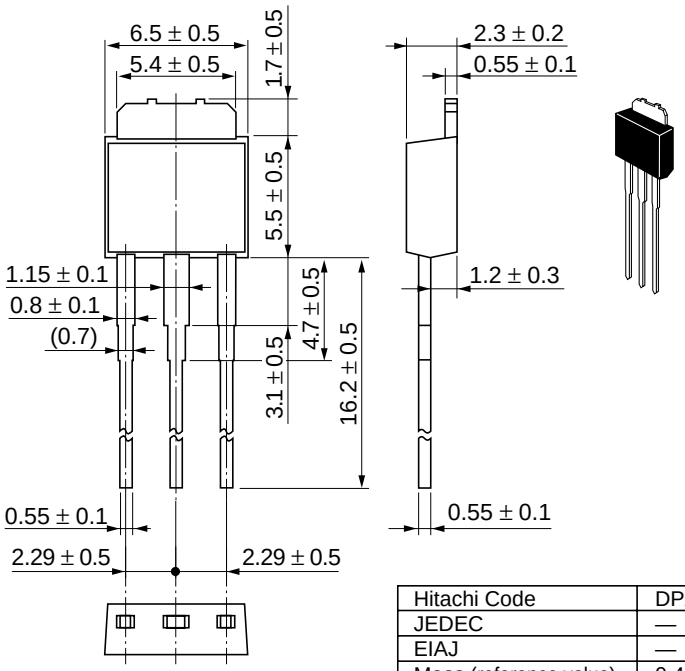
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	250	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±20 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 250 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	(1.0)	—	(2.5)	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	(0.68)	(0.89)		I_D = 2.5 A, V_{GS} = 10 V [Note4]
	$R_{DS(on)}$	—	(0.72)	(0.97)		I_D = 2.5 A, V_{GS} = 10 V [Note4]
Forward transfer admittance	$\|y_{fs}\|$	(3.2)	(5.3)	—	S	I_D = 2.5 A, V_{DS} = 4 V [Note4]
Input capacitance	Ciss	—	(390)	—	pF	V_{DS} = 25 V
Output capacitance	Coss	—	(45)	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	(13)	—	pF	f = 1 MHz
Total gate charge	Qg	—	(15.2)	—	nC	V_{DD} = 200 V
Gate to source charge	Qgs	—	(1.3)	—	nC	V_{GS} = 10 V
Gate to drain charge	Qgd	—	(5.1)	—	nC	I_D = 5 A
Turn-on delay time	td(on)	—	(12)	—	ns	I_D = 2.5 A
Rise time	tr	—	(14)	—	ns	V_{GS} = 10 V
Turn-off delay time	td(off)	—	(66)	—	ns	R_L = 50
Fall time	tf	—	(11)	—	ns	Rg = 10
Body-drain diode forward voltage	V_{DF}	—	(1.0)	(1.5)	V	I_F = 5 A, V_{GS} = 0
Body-drain diode reverse recovery time	trr	—	(100)	—	ns	I_F = 5 A, V_{GS} = 0
Body-drain diode reverse recovery charge	Qrr	—	(320)	—	nC	diF/dt = 100 A/µs

Note: 4. Pulse test

Package Dimensions

As of January, 2001

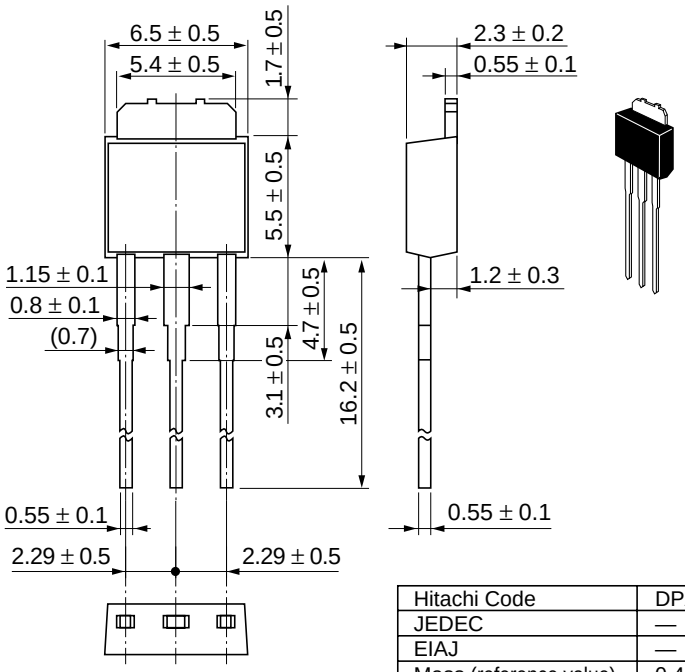
Unit: mm



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

As of January, 2001

Unit: mm



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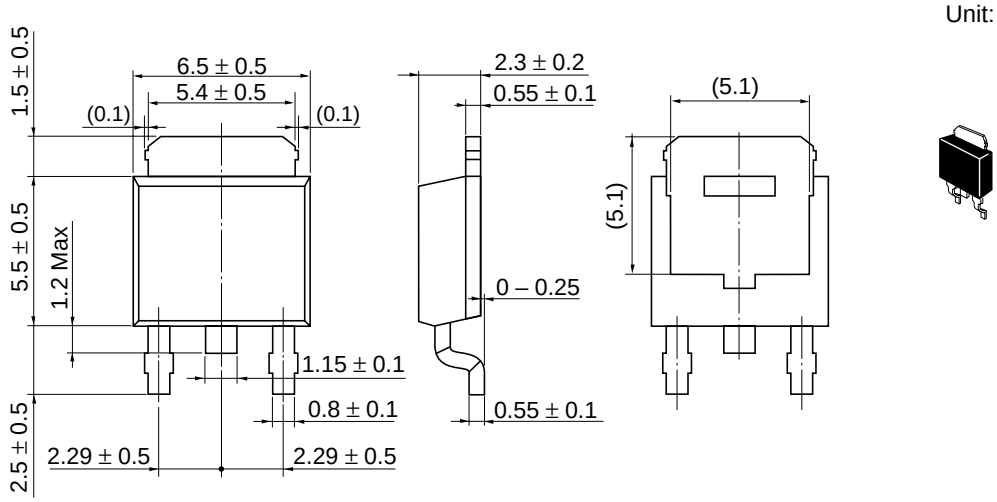

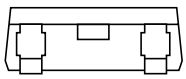

Hitachi Code	DPAK (S)-(3)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

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