

# 2SJ130(L), 2SJ130(S)

Silicon P-Channel MOS FET

# HITACHI

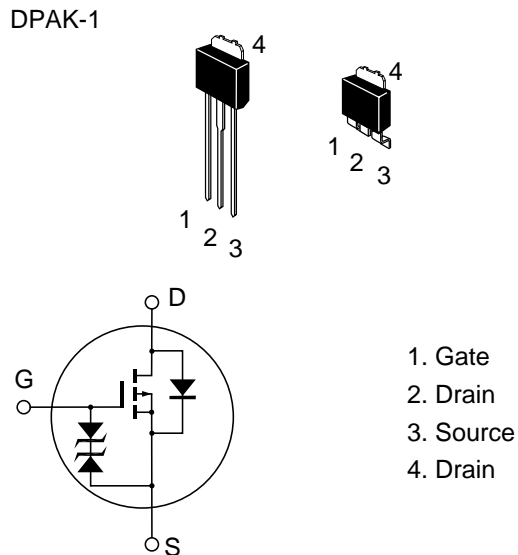
## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and ultrasonic power oscillators

## Outline



## 2SJ130(L), 2SJ130(S)

### Absolute Maximum Ratings (Ta = 25°C)

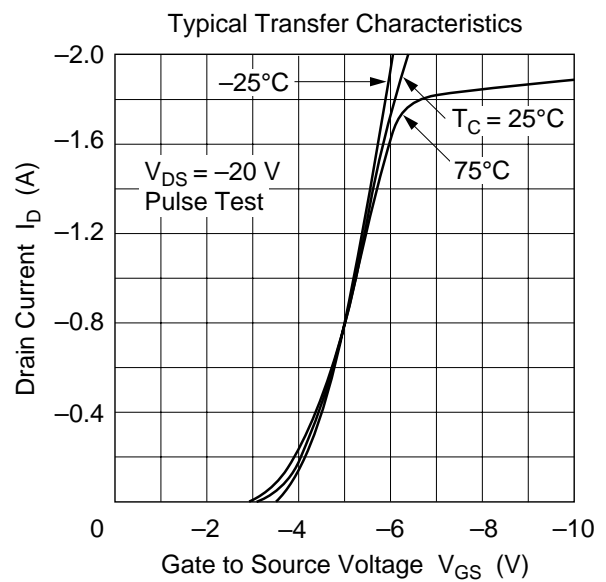
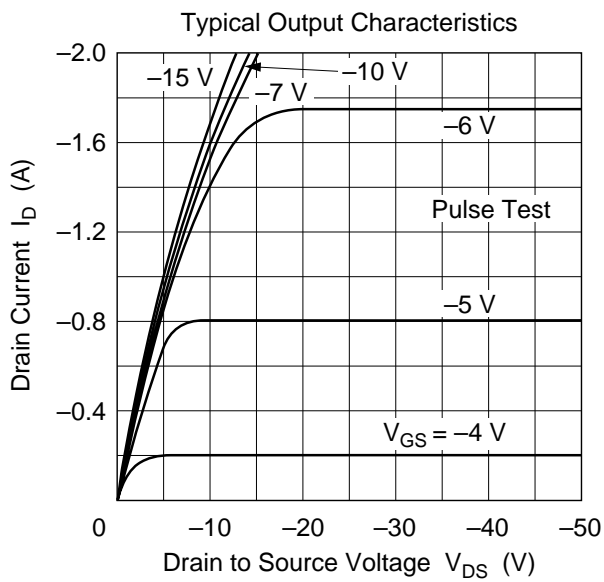
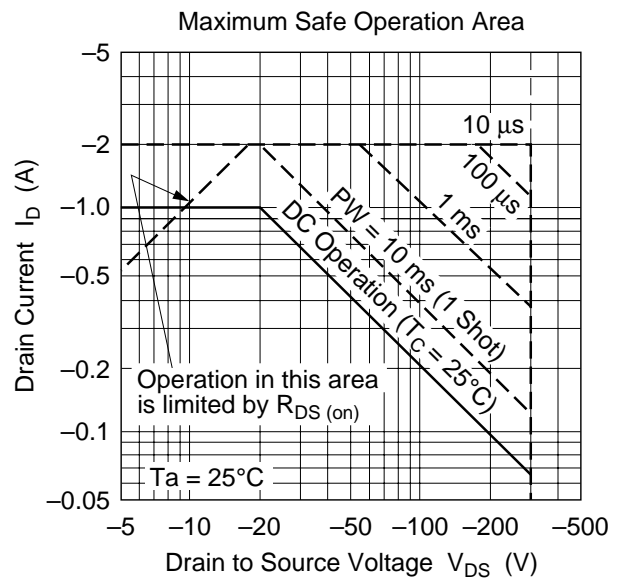
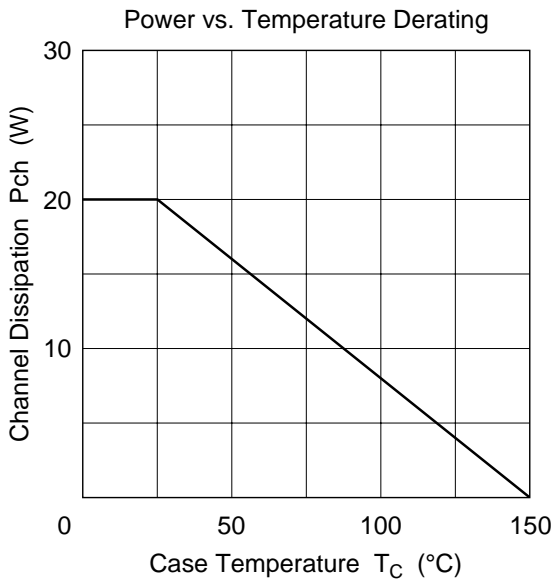
Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	-300	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	-1	A
Drain peak current	$I_{D(pulse)}$	-2	A
Body to drain diode reverse drain current	$I_{DR}$	-1	A
Channel dissipation	$Pch^{*1}$	20	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

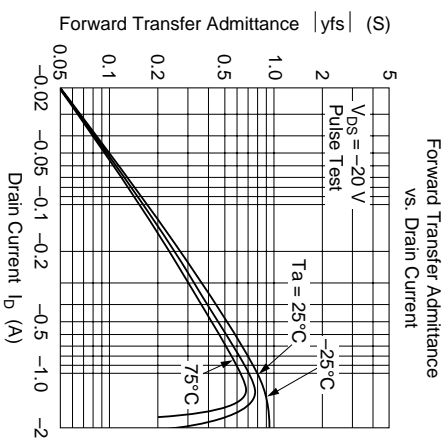
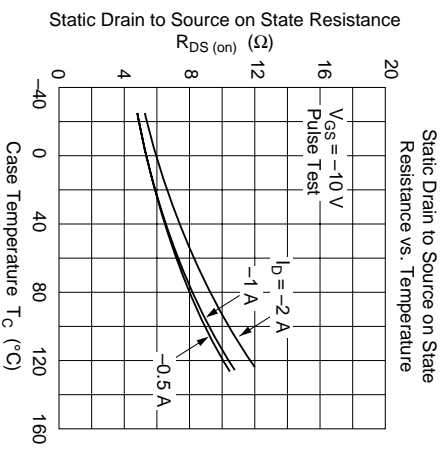
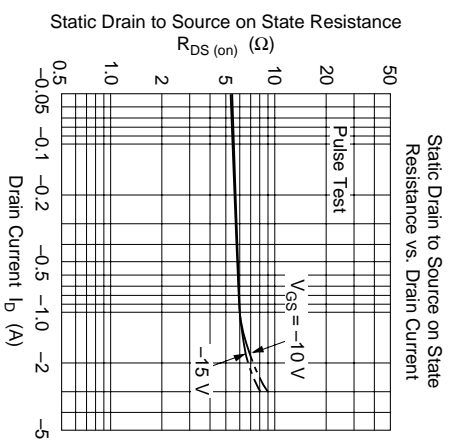
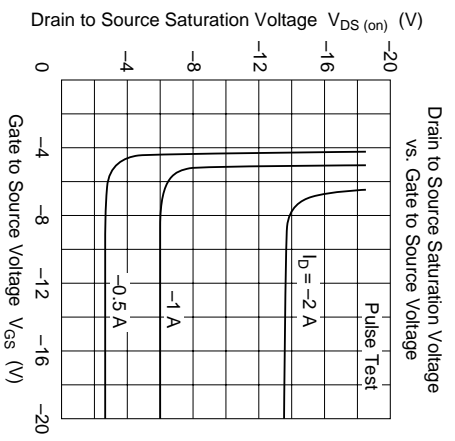
Note: 1. Value at  $T_c = 25^\circ\text{C}$

### Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-300	—	—	V	$I_D = -10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\ \mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 16\text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-100	μA	$V_{DS} = -240\text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-2.0	—	-4.0	V	$I_D = -1\text{ mA}$ , $V_{DS} = -10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.0	8.5	Ω	$I_D = -0.5\text{ A}$ , $V_{GS} = -10\text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.25	0.4	—	S	$I_D = -0.5\text{ A}$ , $V_{DS} = -20\text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	235	—	pF	$V_{DS} = -10\text{ V}$ , $V_{GS} = 0$ ,
Output capacitance	$C_{oss}$	—	65	—	pF	$f = 1\text{ MHz}$
Reverse transfer capacitance	$C_{rss}$	—	16	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = -0.5\text{ A}$ , $V_{GS} = -10\text{ V}$ ,
Rise time	$t_r$	—	25	—	ns	$R_L = 60\ \Omega$
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	$t_f$	—	45	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-0.9	—	V	$I_F = -1\text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	200	—	ns	$I_F = -1\text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 50\text{ A}/\mu\text{s}$

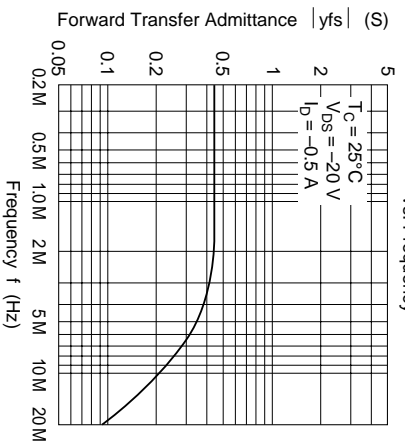
Note: 1. Pulse test



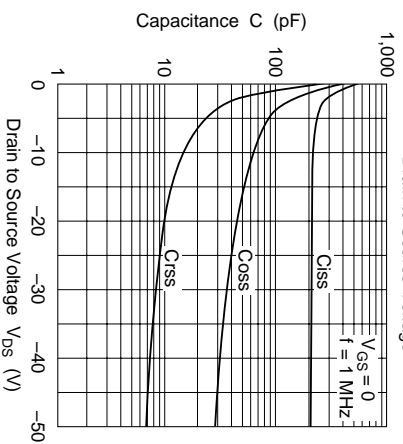


**2SJ130(L), 2SJ130(S)**

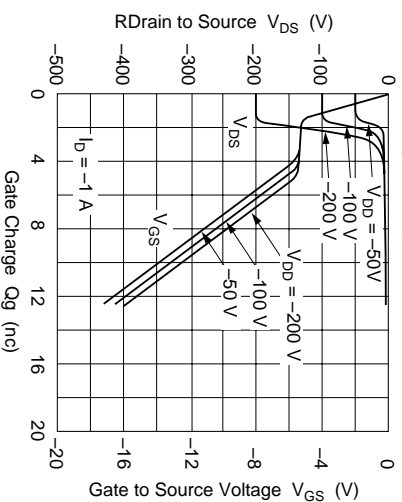
Forward Transfer Admittance vs. Frequency



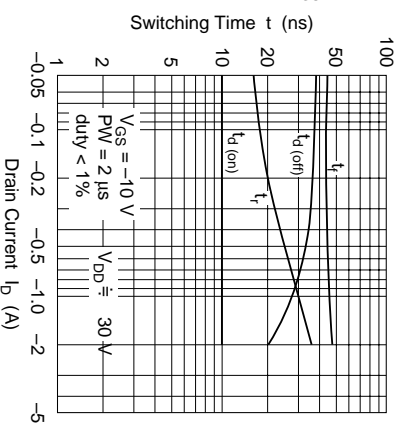
Typical Capacitance vs. Drain to Source Voltage

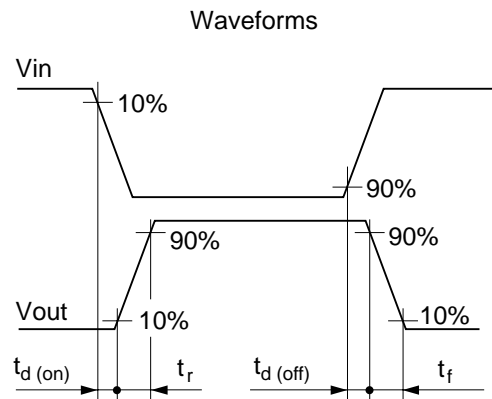
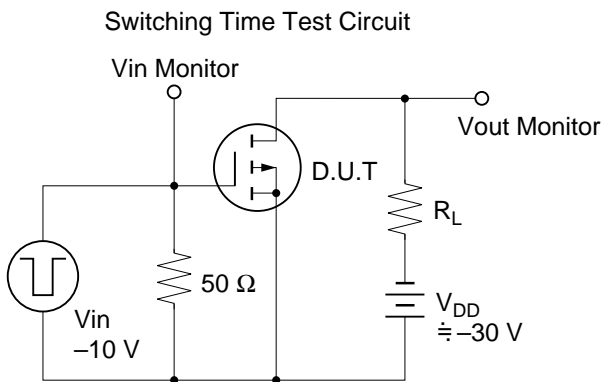
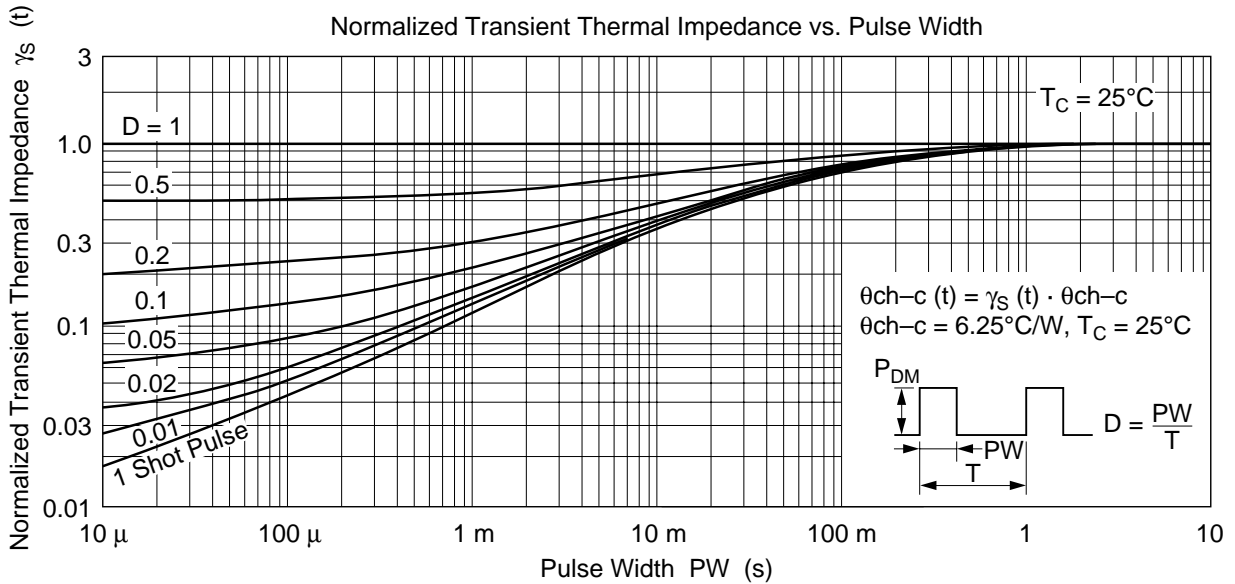
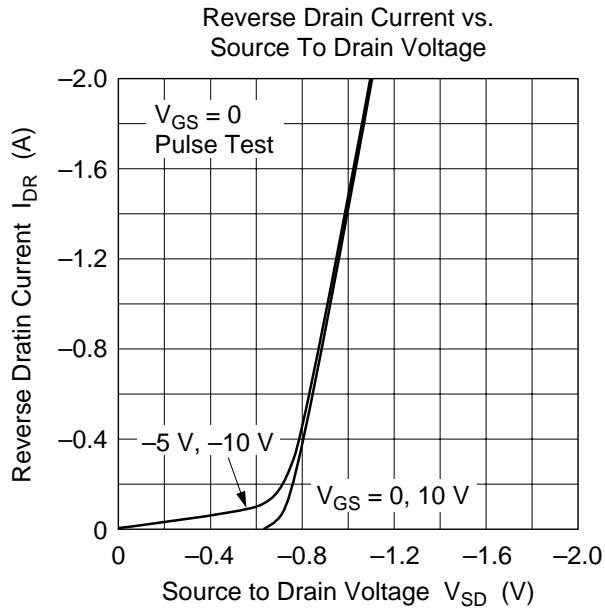


Dynamic Input Characteristics

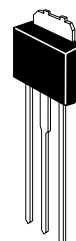
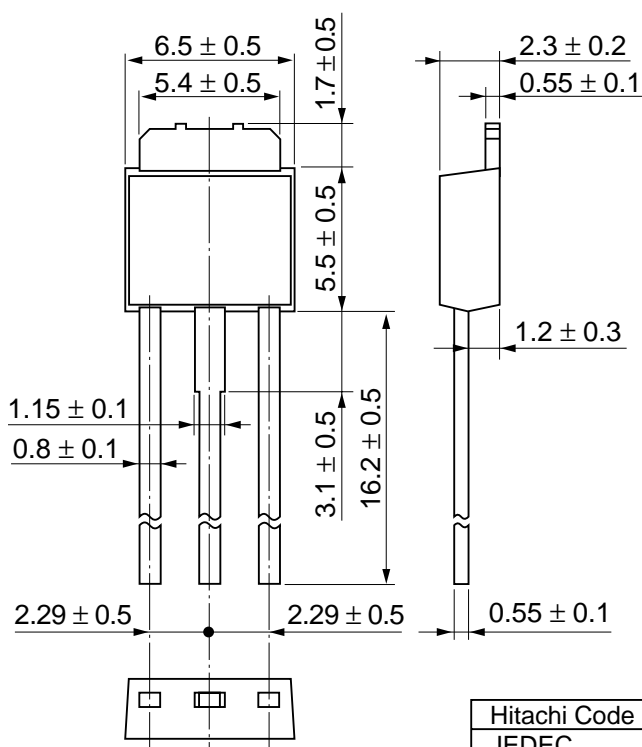


Switching Characteristics





Unit: mm



Hitachi Code	DPAK (L)-(1)
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.42 g

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## Hitachi, Ltd.

Semiconductor & Integrated Circuits.

Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL       NorthAmerica       : <http://semiconductor.hitachi.com/>  
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### For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher StraÙe 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00  
Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building. No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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