

# 2SK1880(L), 2SK1880(S)

Silicon N-Channel MOS FET

# HITACHI

## Application

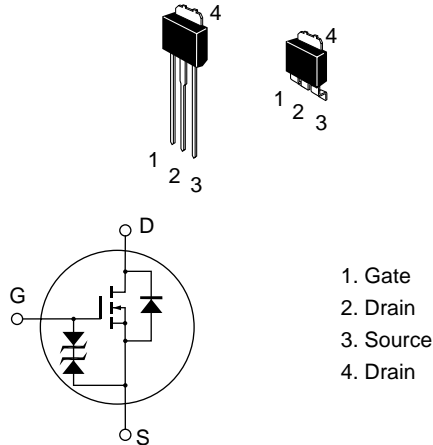
High speed power switching

## Features

- Low on-resistance
- High speed switching
- No secondary breakdown
- Suitable for Switching regulator

## Outline

DPAK-1



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## 2SK1880(L), 2SK1880(S)

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

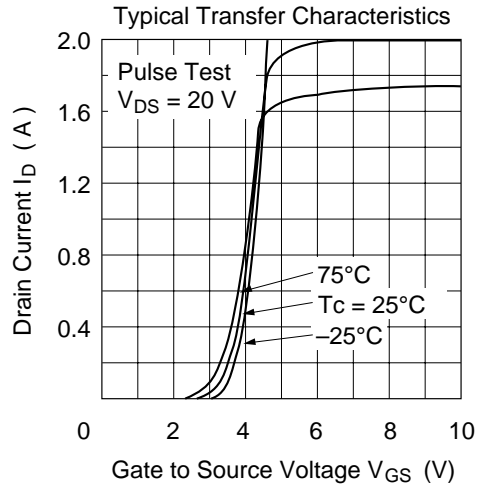
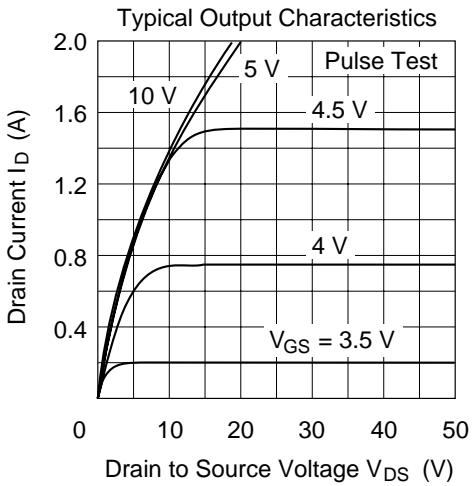
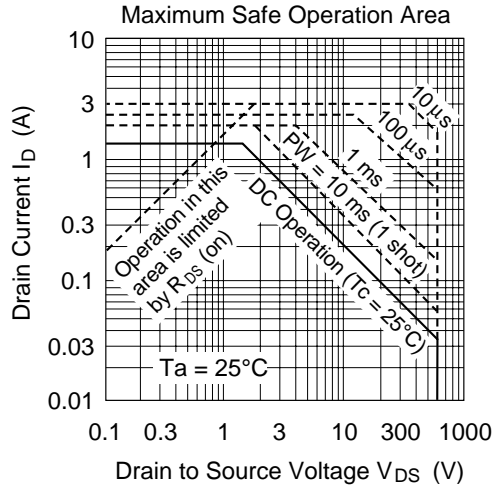
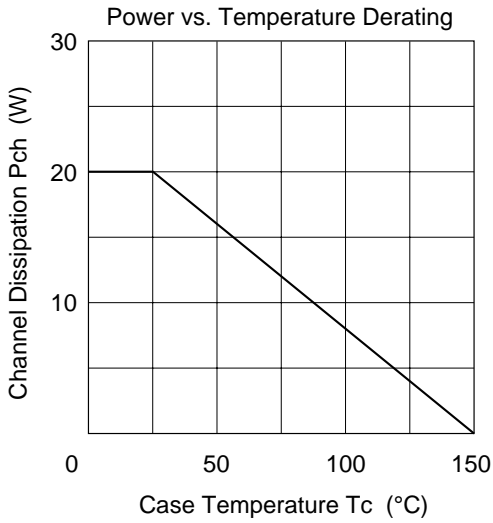
Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	600	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	1.5	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	3.0	A
Body to drain diode reverse drain current	I <sub>DR</sub>	1.5	A
Channel dissipation	Pch <sup>*2</sup>	20	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

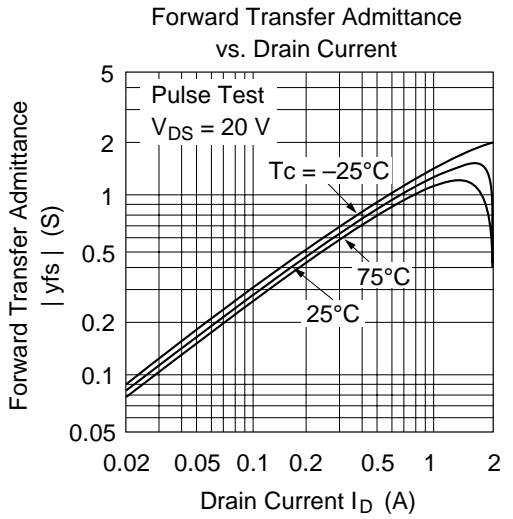
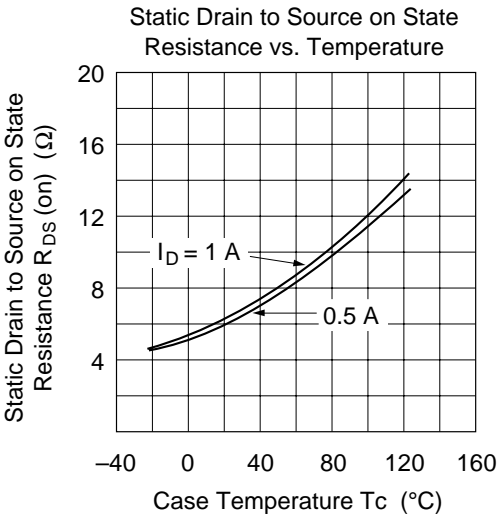
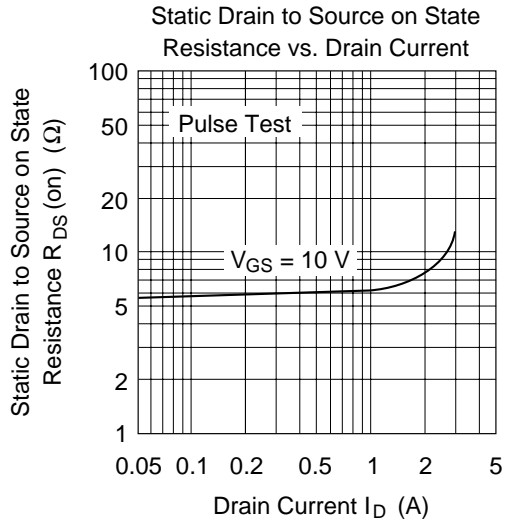
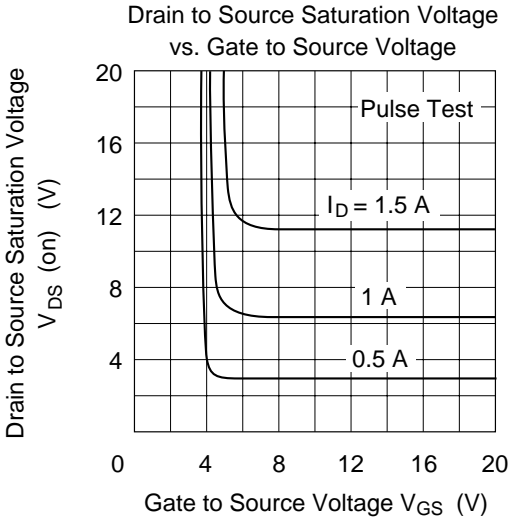
- Notes 1. PW ≤ 10 μs, duty cycle ≤ 1 %  
2. Value at Tc = 25 °C

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

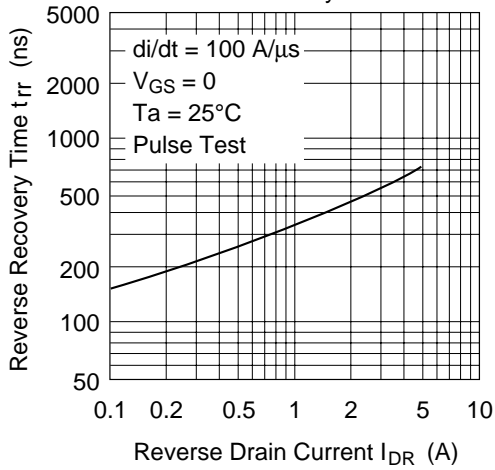
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 30$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	100	$\mu\text{A}$	$V_{DS} = 500 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.5	8.0	$\Omega$	$I_D = 1 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.85	1.4	—	S	$I_D = 1 \text{ A}$ $V_{DS} = 20 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	250	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	55	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	8	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = 1 \text{ A}$
Rise time	$t_r$	—	25	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	$R_L = 30 \text{ }\Omega$
Fall time	$t_f$	—	30	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = 1.5 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	350	—	$\mu\text{s}$	$I_F = 1.5 \text{ A}, V_{GS} = 0,$ $di_F / dt = 100 \text{ A} / \mu\text{s}$

Note 1. Pulse Test

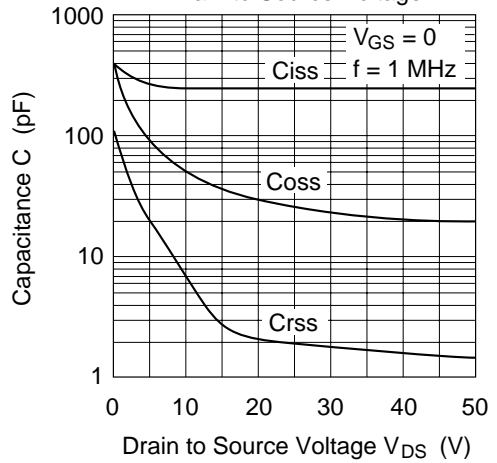




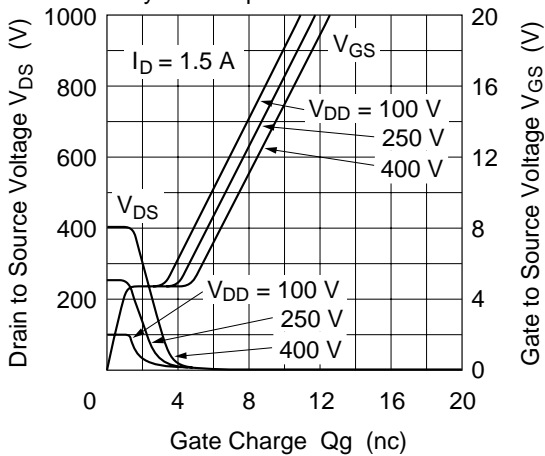
Body to Drain Diode Reverse Recovery Time



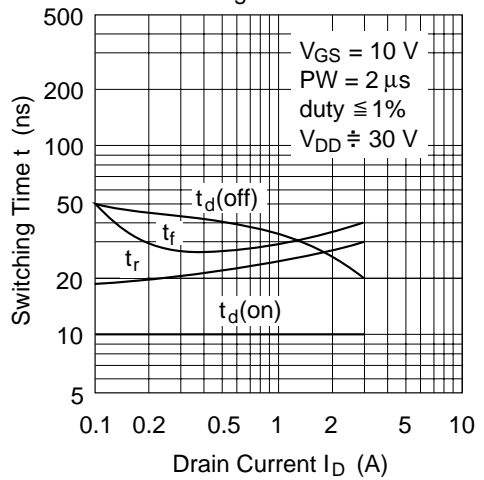
Typical Capacitance vs. Drain to Source Voltage

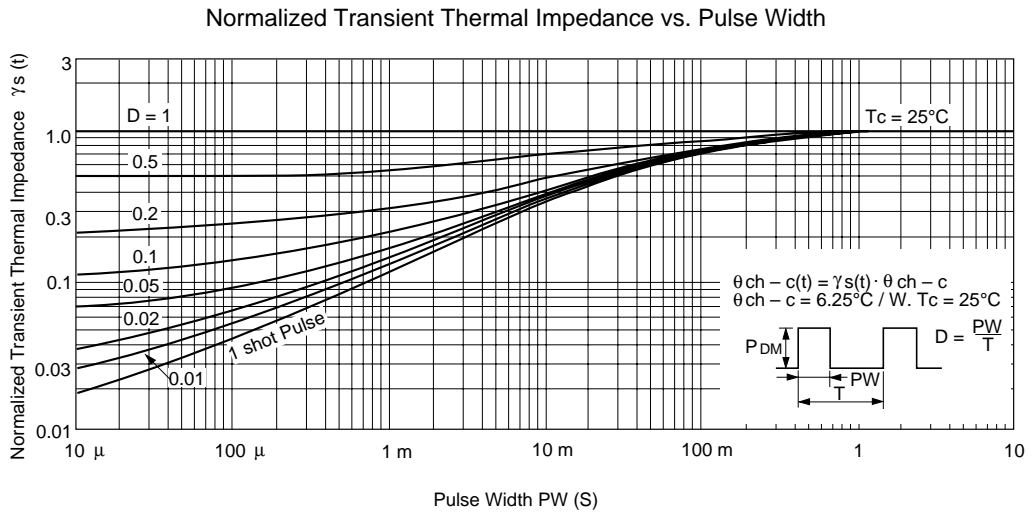
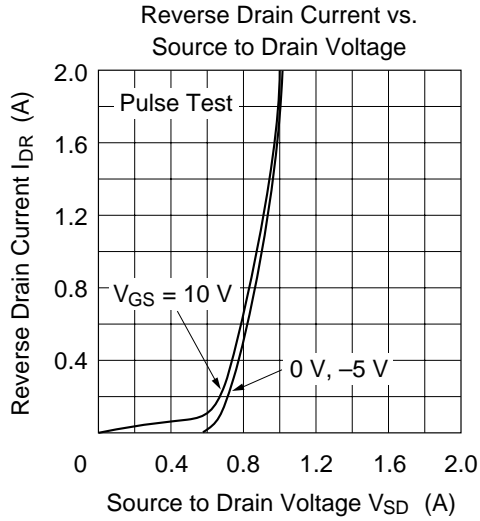


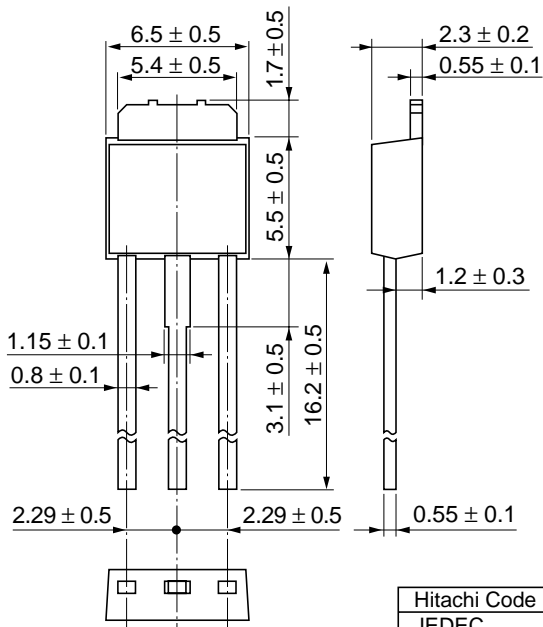
Dynamic Input Characteristics



Switching Characteristics







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



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