

2SK1880(L), 2SK1880(S)

Silicon N-Channel MOS FET

HITACHI

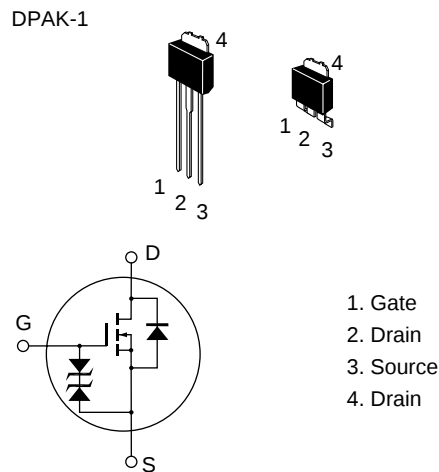
Application

High speed power switching

Features

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

Outline



2SK1880(L), 2SK1880(S)

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	600	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	1.5	A
Drain peak current	I _{D(pulse)} ^{*1}	3.0	A
Body to drain diode reverse drain current	I _{DR}	1.5	A
Channel dissipation	Pch ^{*2}	20	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

Notes

1. PW ≤ 10 μs, duty cycle ≤ 1 %

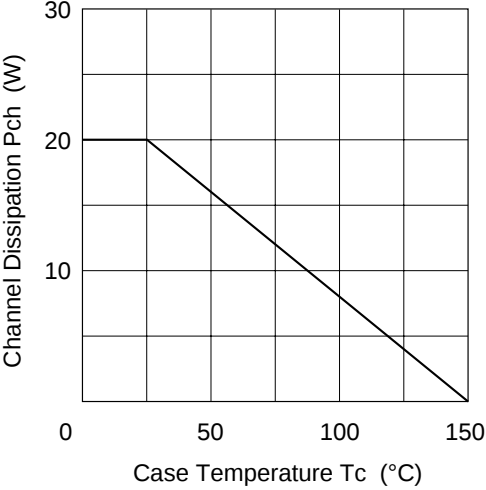
2. Value at Tc = 25 °C

Electrical Characteristics (Ta = 25°C)

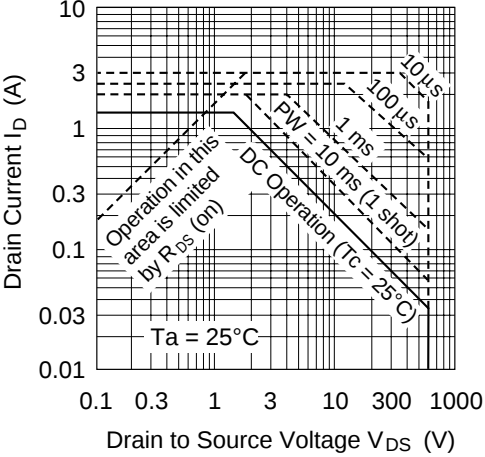
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	100	μA	$V_{DS} = 500 \text{ V}$, $V_{GS} = 0$
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	Ω	$I_D = 1 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
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	—	μs	$I_F = 1.5 \text{ A}$, $V_{GS} = 0$, $di_F / dt = 100 \text{ A} / \mu\text{s}$

Note 1. Pulse Test

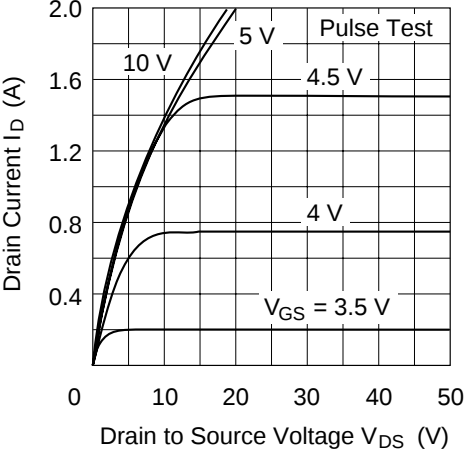
Power vs. Temperature Derating



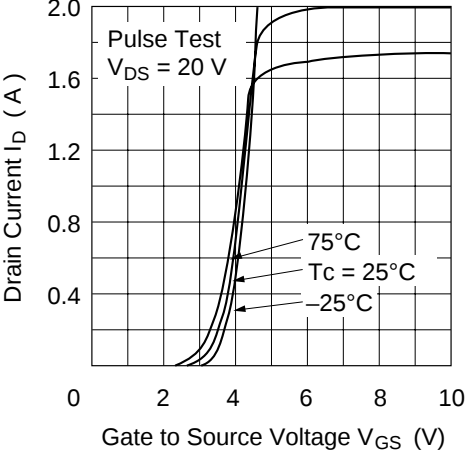
Maximum Safe Operation Area

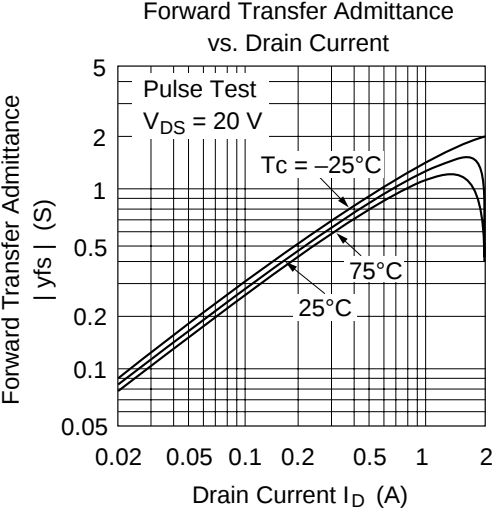
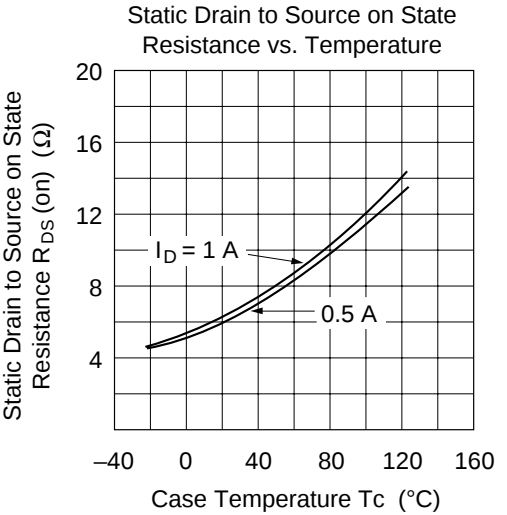
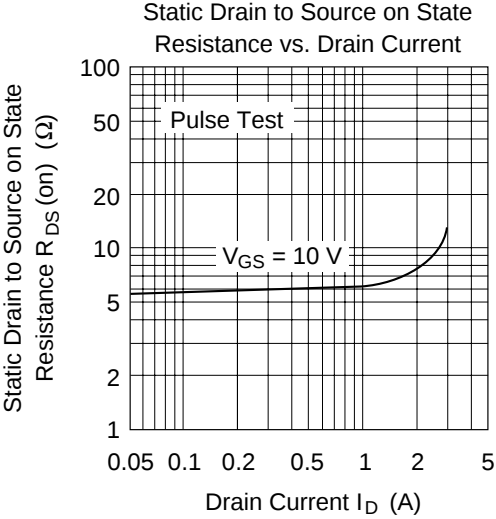
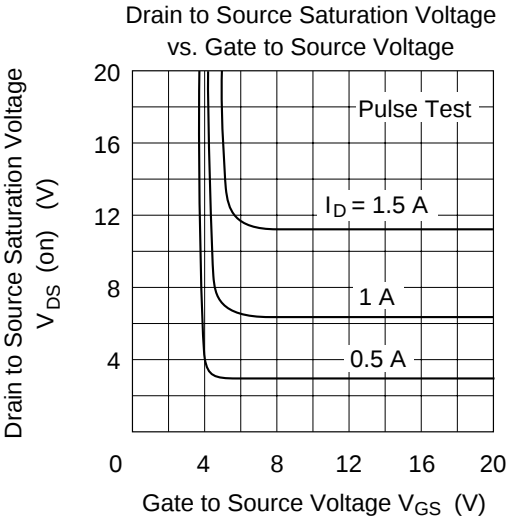


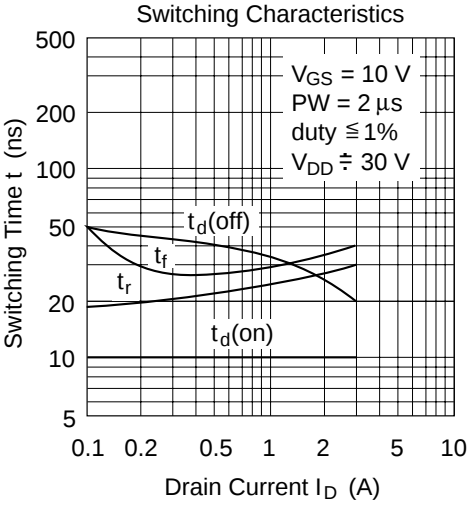
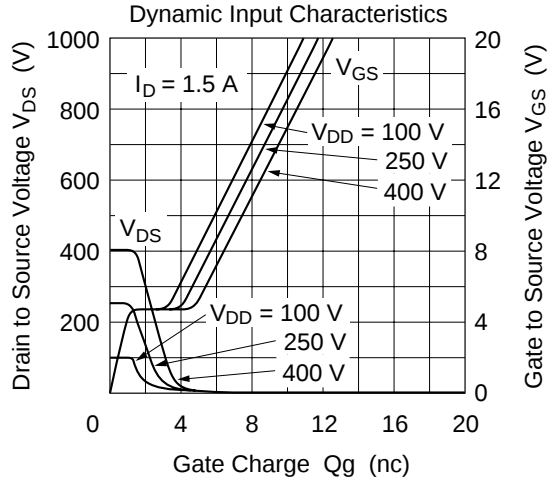
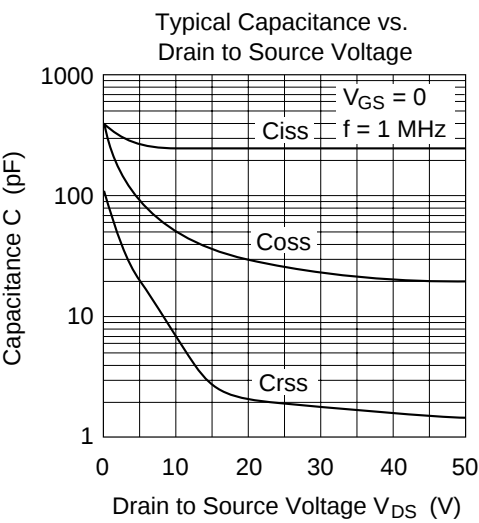
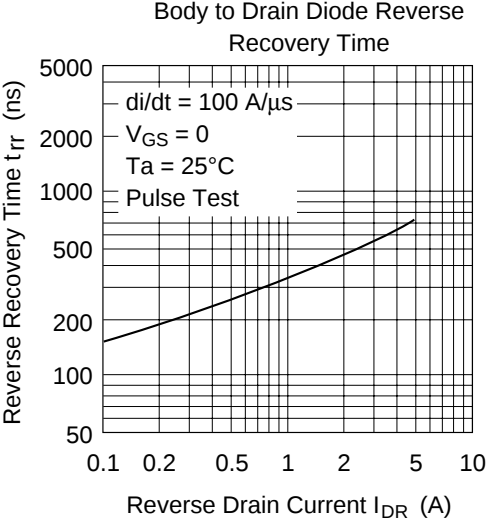
Typical Output Characteristics

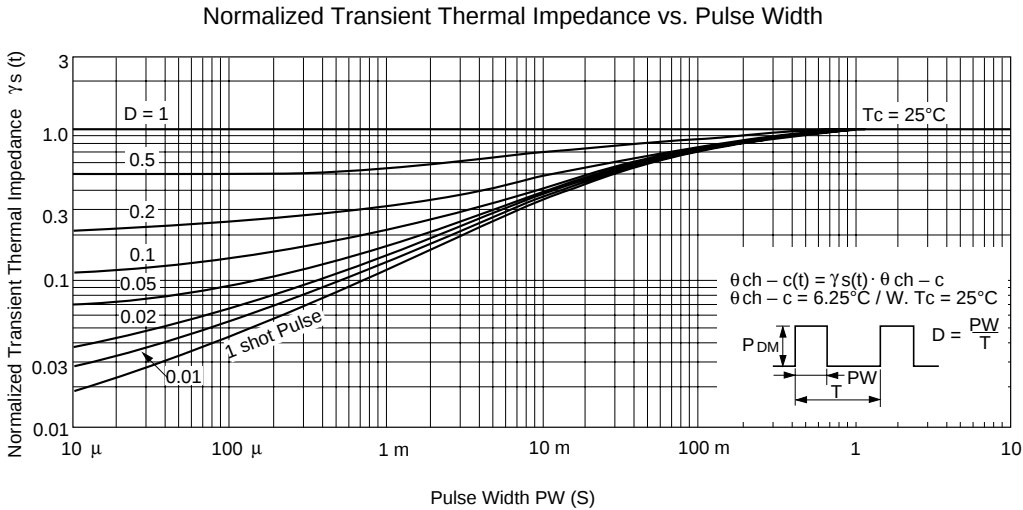
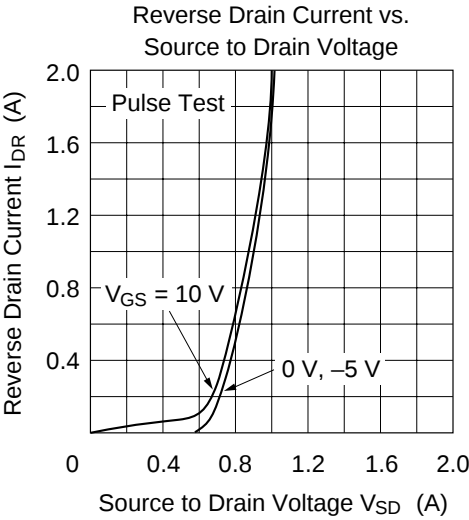


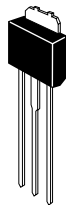
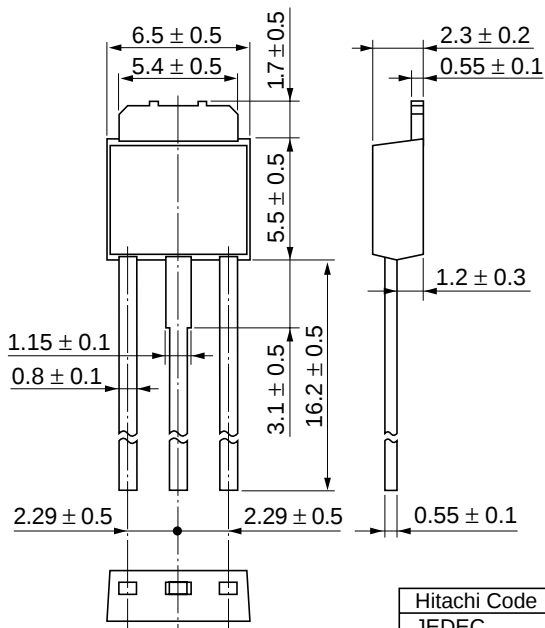
Typical Transfer Characteristics











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

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