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# 2SK1317

Silicon N-Channel MOS FET

# HITACHI

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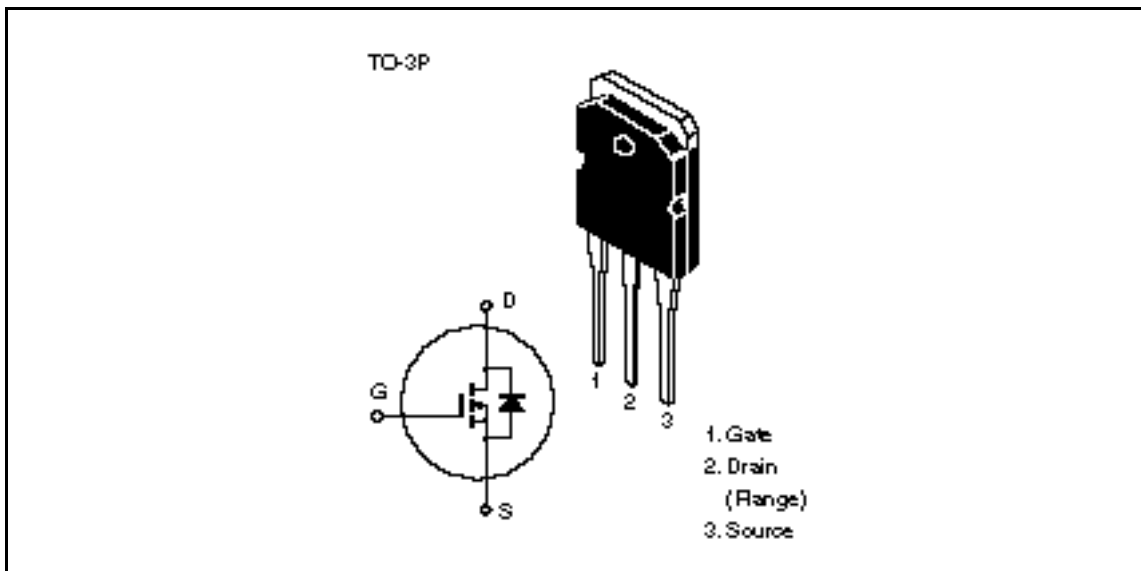
## Application

High speed power switching

## Features

- High breakdown voltage  $V_{DSS} = 1500\text{ V}$
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

## Outline



## 2SK1317

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

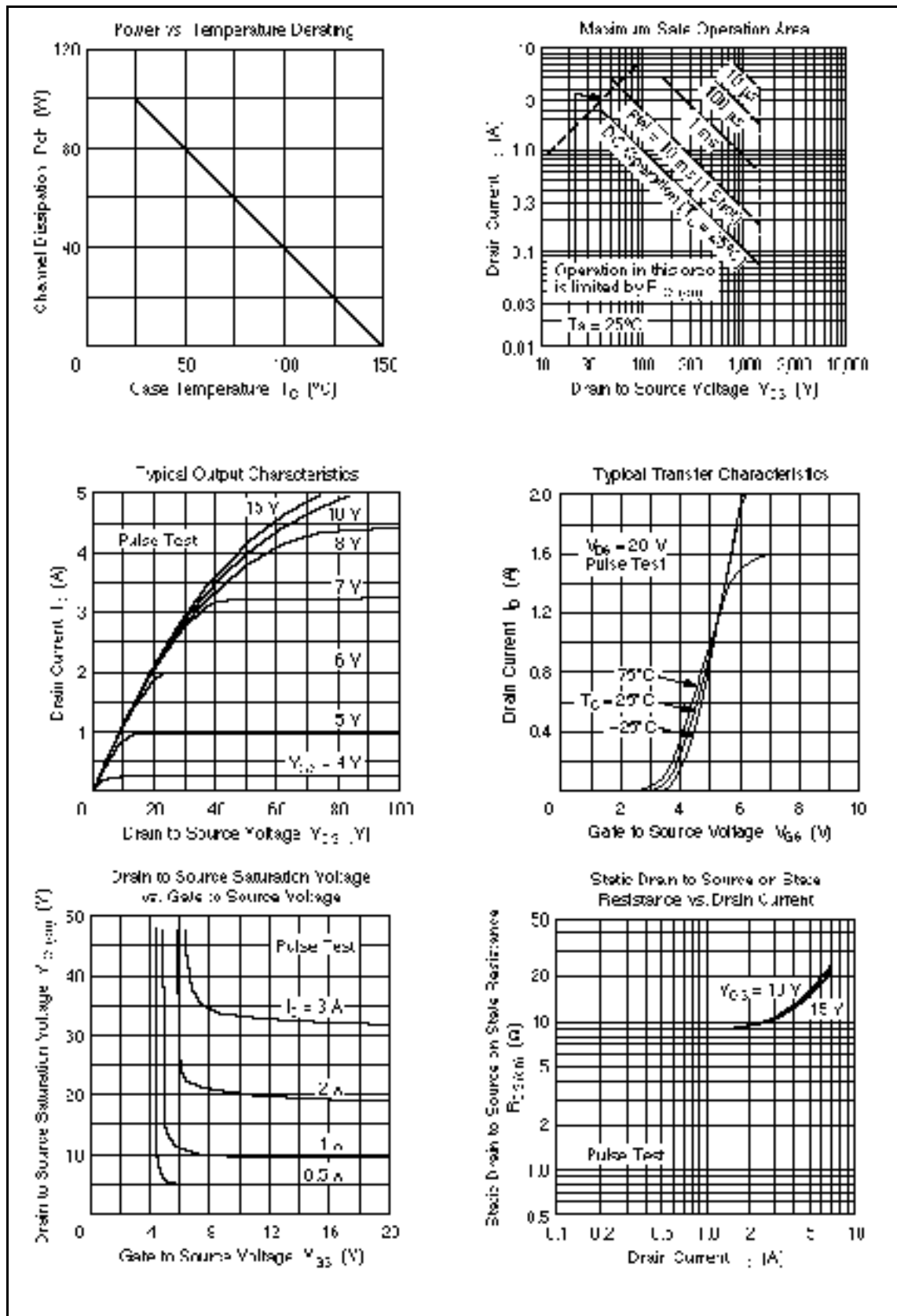
Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	1500	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	2.5	A
Drain peak current	$I_{D(pulse)}^{*1}$	7	A
Body to drain diode reverse drain current	$I_{DR}$	2.5	A
Channel dissipation	Pch*2	100	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

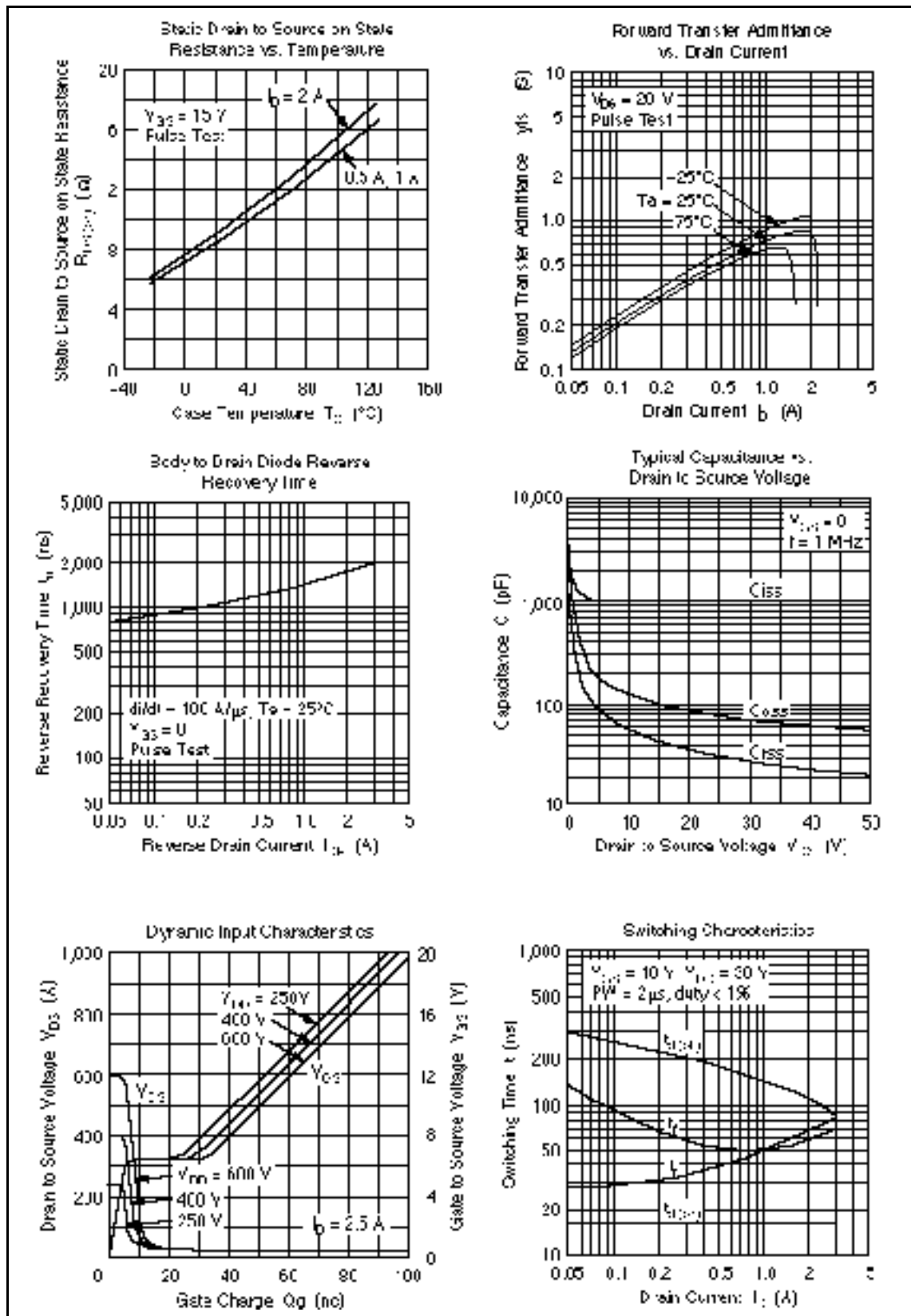
Notes: 1. PW 10 μs, duty cycle 1%  
 2. Value at T<sub>C</sub> = 25°C

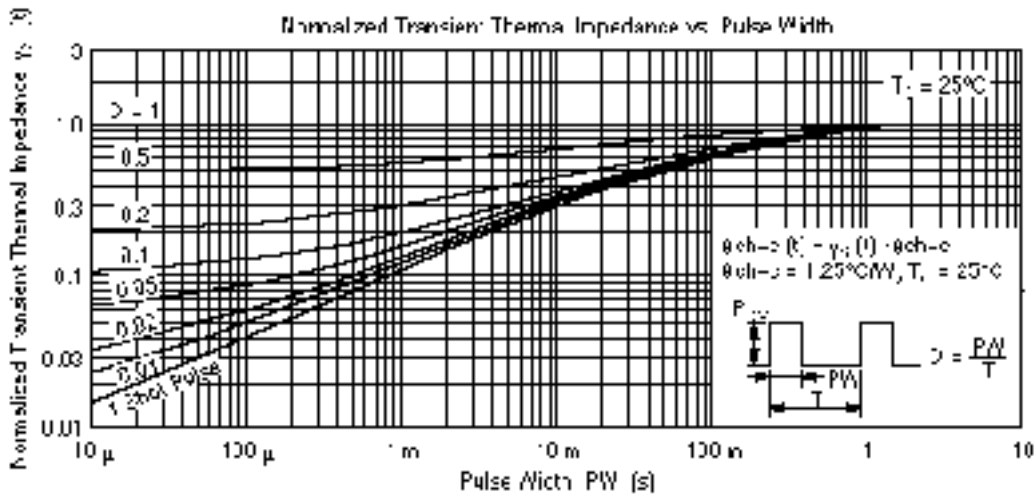
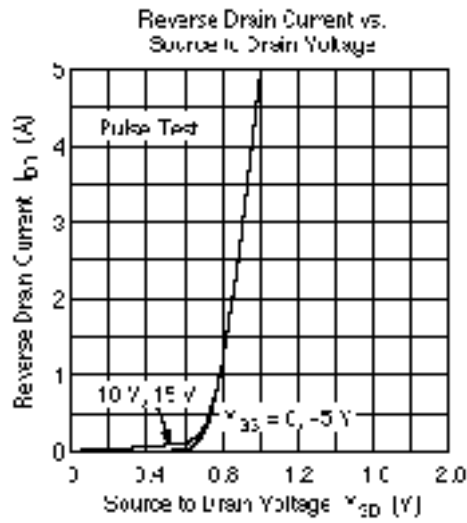
### Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±1	μA	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	500	μA	$V_{DS} = 1200 \text{ V}, V_{GS} = 0$
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	$R_{DS(on)}$	—	9	12		$I_D = 2 \text{ A}, V_{GS} = 15 \text{ V}^{*1}$
Forward transfer admittance	yfs	0.45	0.75	—	S	$I_D = 1 \text{ A}, V_{DS} = 20 \text{ V}^{*1}$
Input capacitance	Ciss	—	990	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	Coss	—	125	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	Crss	—	60	—	pF	
Turn-on delay time	$t_{d(on)}$	—	17	—	ns	$I_D = 2 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	$t_r$	—	70	—	ns	$R_L = 15$
Turn-off delay time	$t_{d(off)}$	—	110	—	ns	
Fall time	$t_f$	—	60	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.9	—	V	$I_F = 2 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	1750	—	ns	$I_F = 2 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

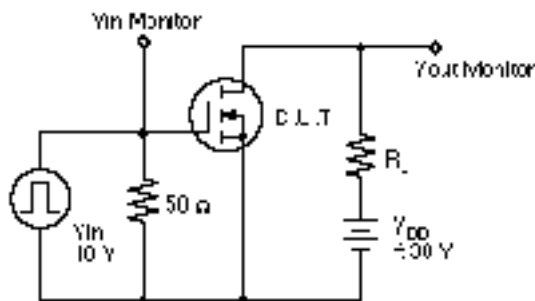
Note: 1. Pulse test



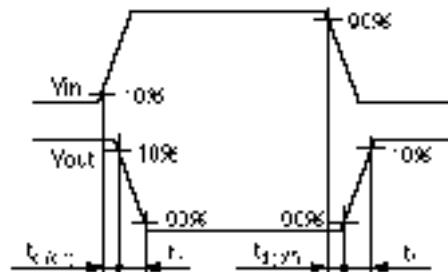




Switching Time Test Circuit:



Waveforms



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