

# 2SJ217

Silicon P-Channel MOS FET

# HITACHI

November 1996

## Application

High speed power switching

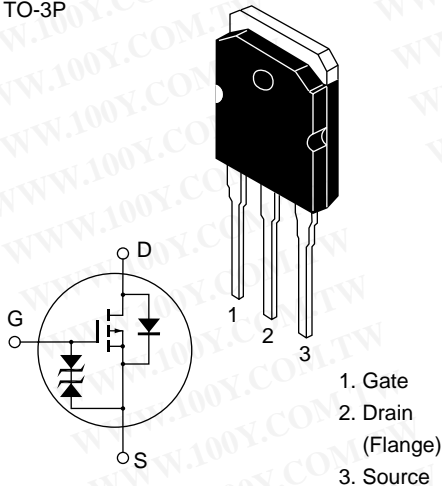
## Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device  
— Can be driven from 5 V source
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive

## Outline

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勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
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TO-3P



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

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	-60	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	-45	A
Drain peak current	$I_{D(pulse)}^{*1}$	-180	A
Body to drain diode reverse drain current	$I_{DR}$	-45	A
Channel dissipation	$Pch^{*2}$	150	W
Channel temperature	$Tch$	150	°C
Storage temperature	$Tstg$	-55 to +150	°C

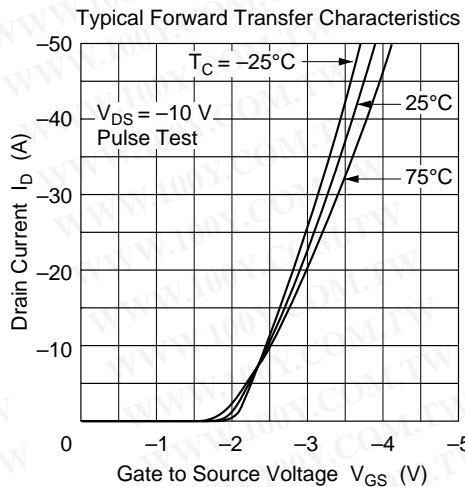
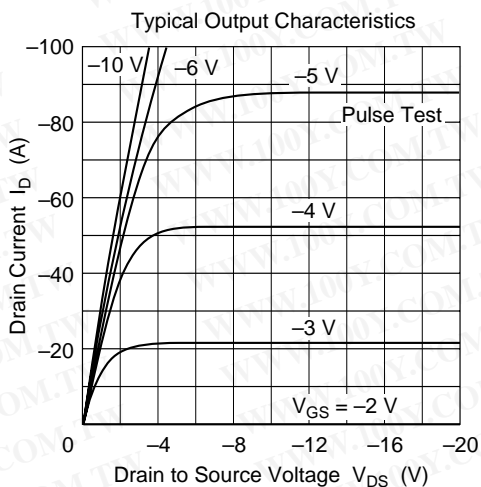
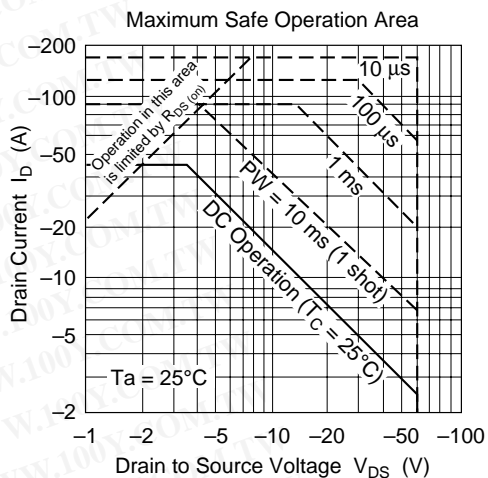
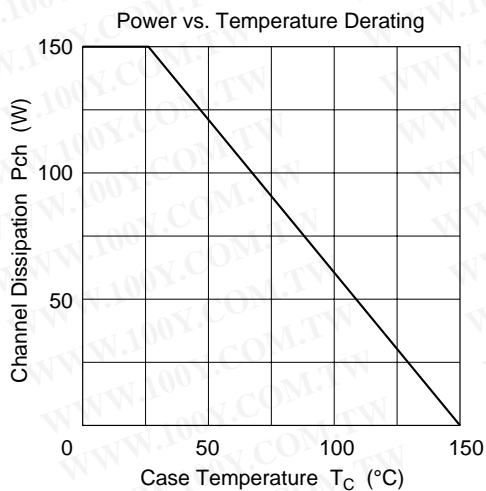
Notes 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$   
 2. Value at  $T_c = 25^\circ C$

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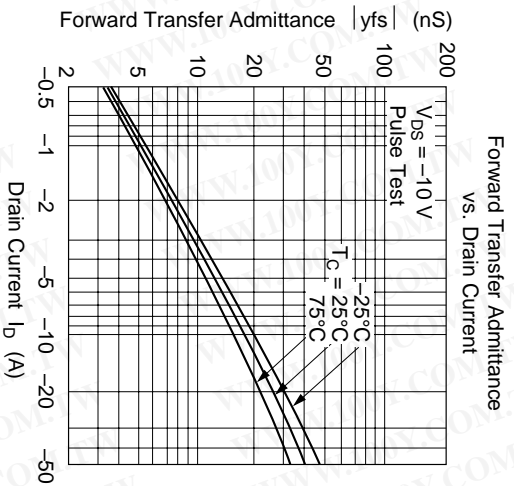
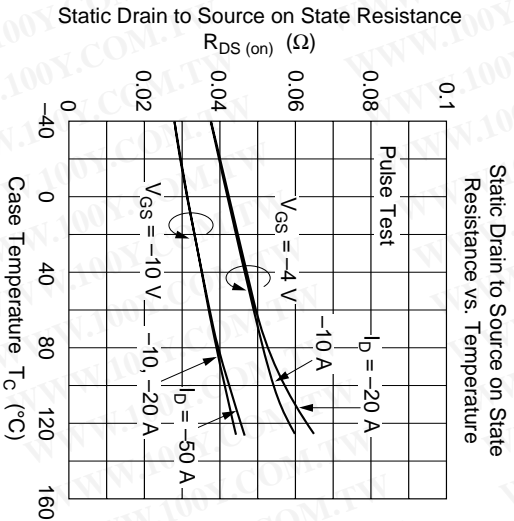
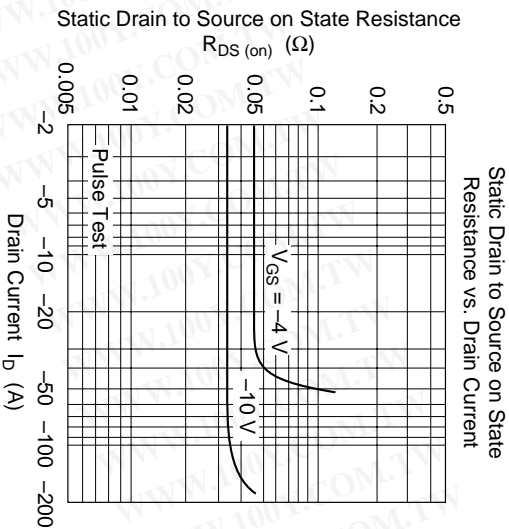
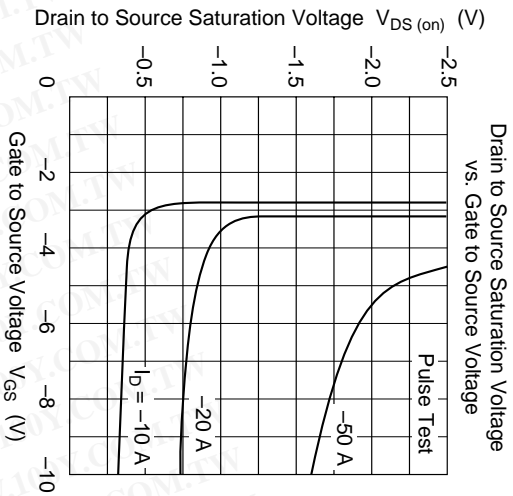
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-250	μA	$V_{DS} = -50 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$I_D = -1 \text{ mA}$ , $V_{DS} = -10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.033	0.042	Ω	$I_D = -20 \text{ A}$ , $V_{GS} = -10 \text{ V}^{*1}$
		—	0.045	0.06		$I_D = -20 \text{ A}$ , $V_{GS} = -4 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	16	25	—	S	$I_D = -20 \text{ A}$ , $V_{DS} = -10 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	3800	—	pF	$V_{DS} = -10 \text{ V}$ , $V_{GS} = 0$ ,
Output capacitance	$C_{oss}$	—	2000	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	$C_{rss}$	—	490	—	pF	
Turn-on delay time	$t_{d(on)}$	—	30	—	ns	$I_D = -20 \text{ A}$ , $V_{GS} = -10 \text{ V}$ ,
Rise time	$t_r$	—	235	—	ns	$R_L = 1.5 \Omega$
Turn-off delay time	$t_{d(off)}$	—	670	—	ns	
Fall time	$t_f$	—	450	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-1.35	—	V	$I_F = -45 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	300	—	ns	$I_F = -45 \text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 50 \text{ A}/\mu s$

Note 1. Pulse test

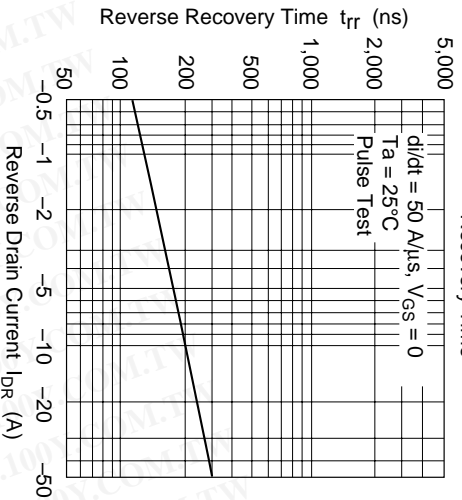


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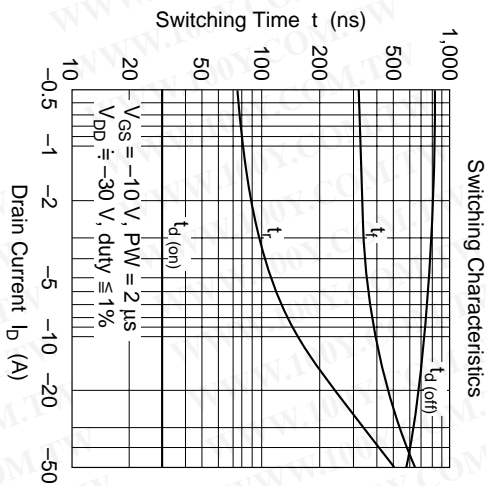
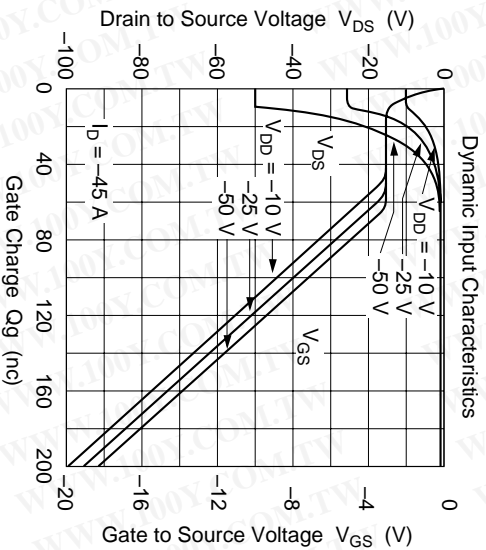
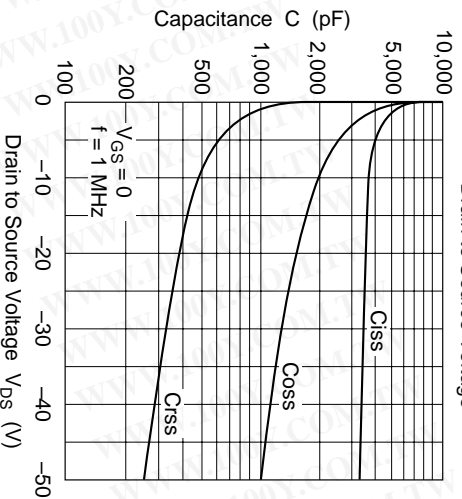


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Body to Drain Diode Reverse Recovery Time

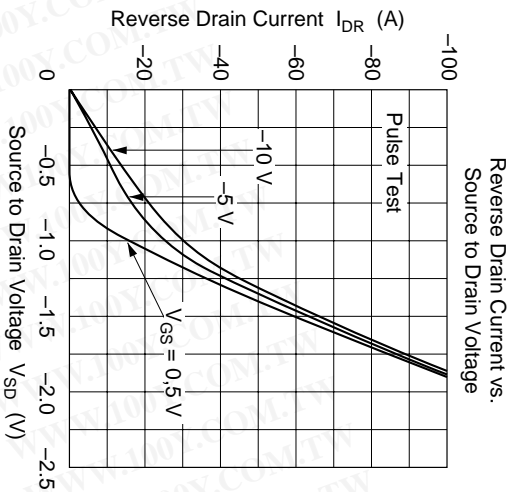


Typical Capacitance vs. Drain to Source Voltage

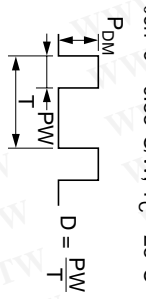
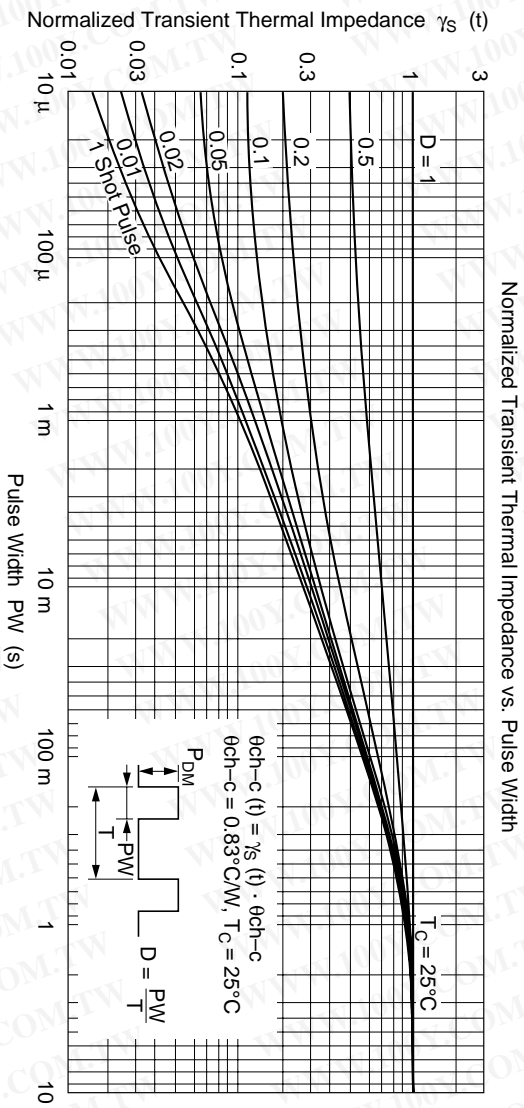


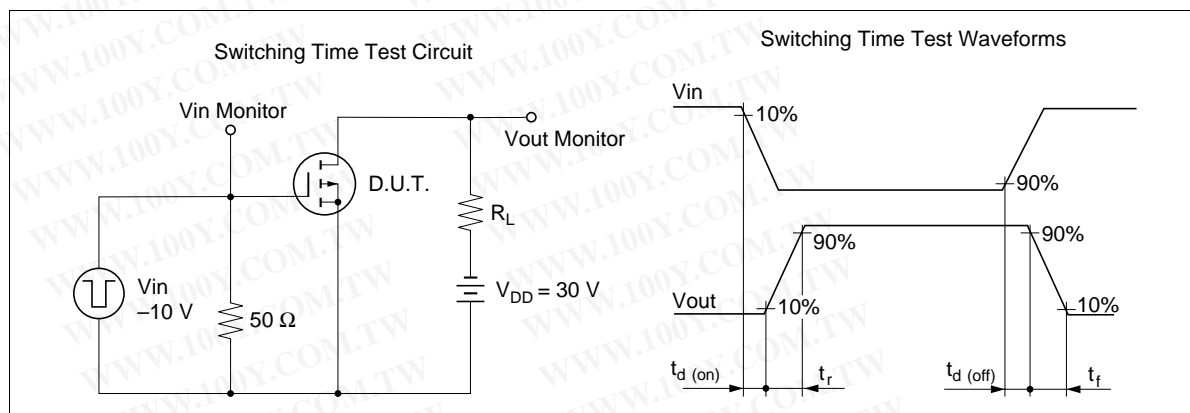
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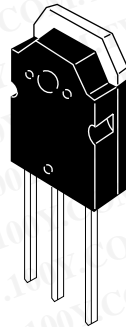
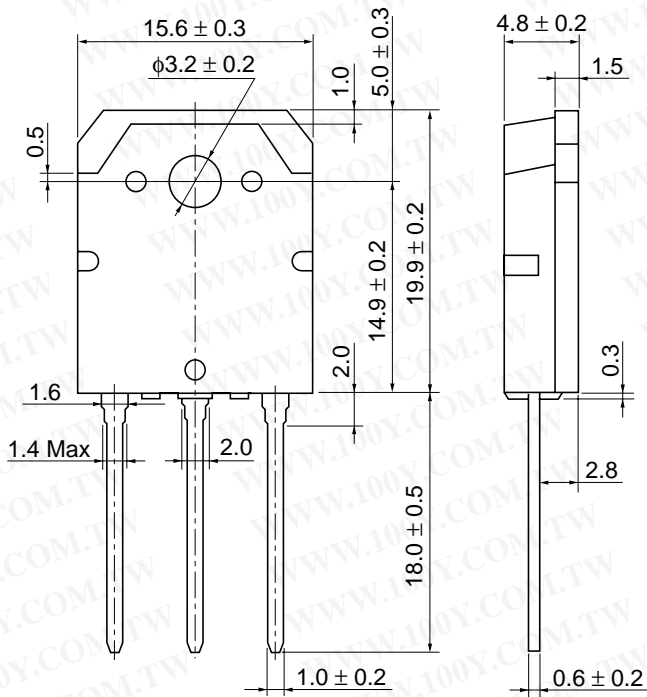


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Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Weight (reference value)	5.0 g



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