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Renesas Technology Corp. Customer Support Dept. April 1, 2003



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## **2SJ217**

## Silicon P-Channel MOS FET



November 1996

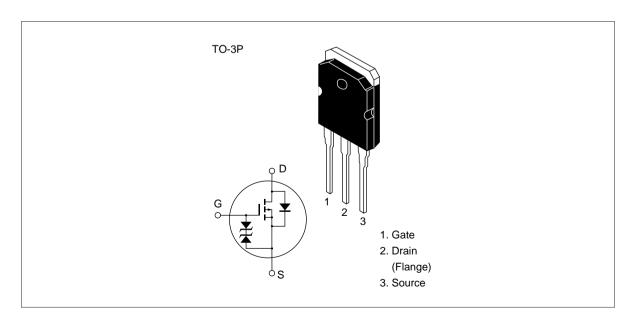
#### **Application**

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**



## 2SJ217

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

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

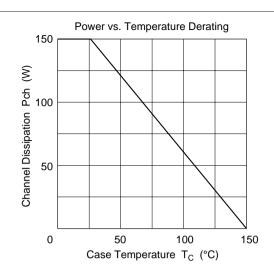
Notes 1.  $PW \le 10 \mu s$ , duty cycle  $\le 1\%$ 

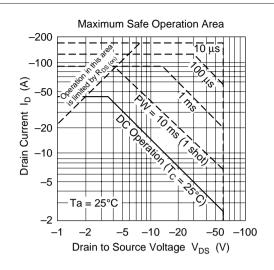
2. Value at  $T_c = 25^{\circ}C$ 

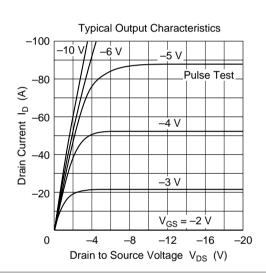
## **Electrical Characteristics** ( $Ta = 25^{\circ}C$ )

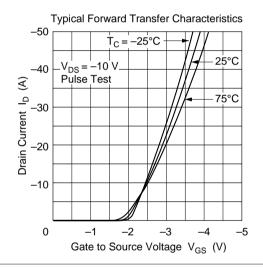
Item	Symbol	Min	Тур	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	_	_	V	$I_D = -10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	_	_	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak current	I <sub>GSS</sub>	_	_	±10	μΑ	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I <sub>DSS</sub>	_	_	-250	μΑ	$V_{DS} = -50 \text{ V}, V_{GS} = 0$
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	R <sub>DS(on)</sub>	_	0.033	0.042	Ω	$I_D = -20 \text{ A}, V_{GS} = -10 \text{ V}^{*1}$
resistance		_	0.045	0.06	_	$I_D = -20 \text{ A}, V_{GS} = -4 \text{ V}^{*1}$
Forward transfer admittance	y <sub>fs</sub>	16	25	_	S	$I_D = -20 \text{ A}, V_{DS} = -10 \text{ V}^{*1}$
Input capacitance	Ciss	_	3800	_	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0,$
Output capacitance	Coss	_	2000	_	pF	f = 1 MHz
Reverse transfer capacitance	Crss	_	490	_	pF	
Turn-on delay time	t <sub>d(on)</sub>	_	30	_	ns	$I_D = -20 \text{ A}, V_{GS} = -10 \text{ V},$
Rise time	t <sub>r</sub>	_	235	_	ns	$R_L = 1.5 \Omega$
Turn-off delay time	t <sub>d(off)</sub>	_	670	_	ns	
Fall time	t <sub>f</sub>	_	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 <sub>rr</sub>	_	300	_	ns	$I_F = -45 \text{ A}, V_{GS} = 0,$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

Note 1. Pulse test

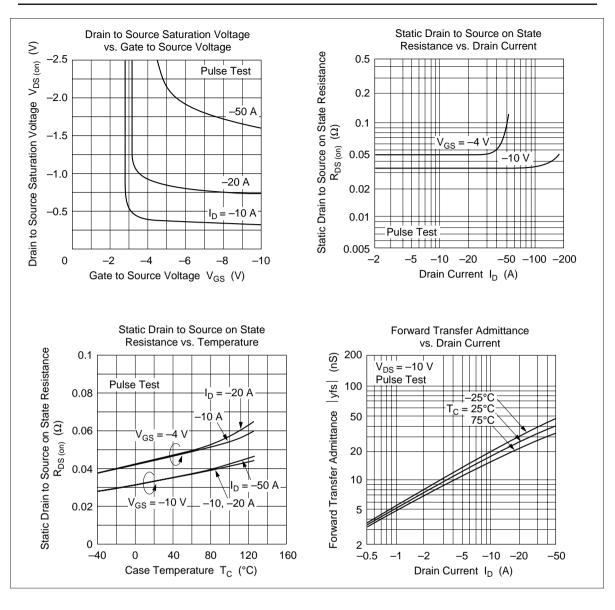


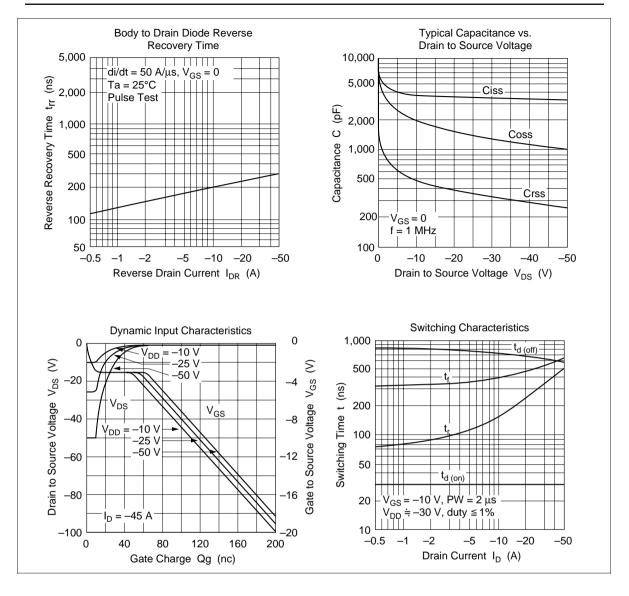


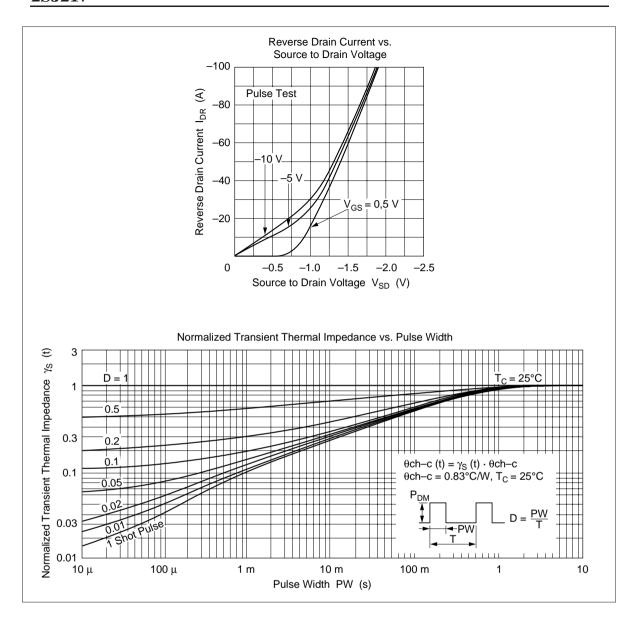


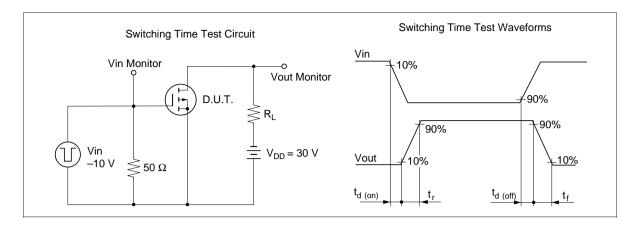


## 2SJ217









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