

# 2SJ186

Silicon P-Channel MOS FET

# HITACHI

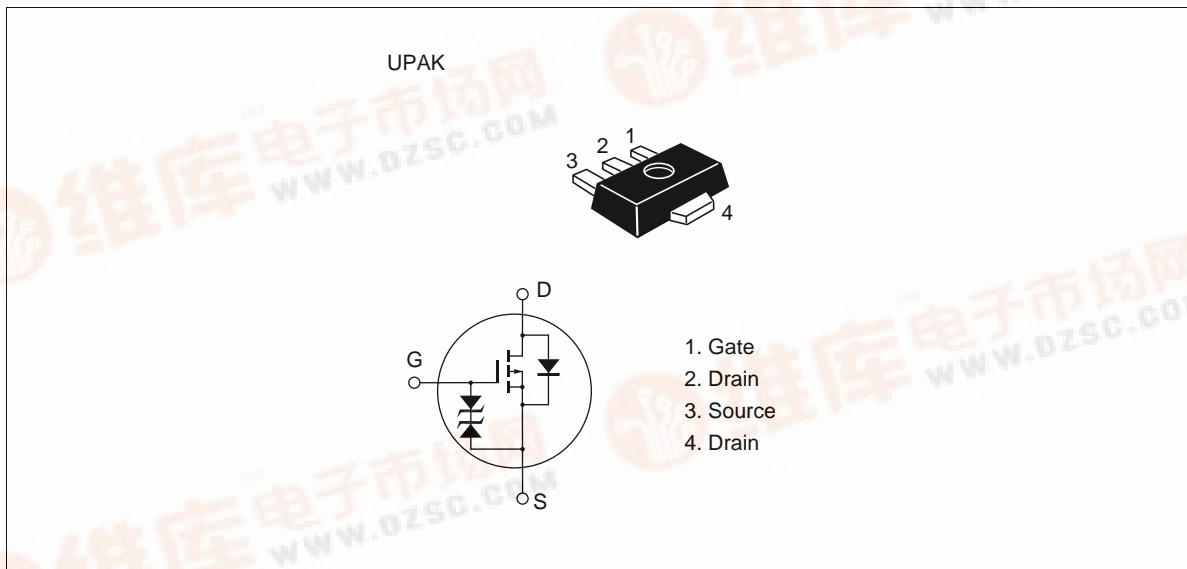
## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive

## Outline



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## 2SJ186

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

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	−200	V
Gate to source voltage	$V_{GS}$	±15	V
Drain current	$I_D$	−0.5	A
Drain peak current	$I_{D(pulse)}^{*1}$	−1.0	A
Body to drain diode reverse drain current	$I_{DR}$	−0.5	A
Channel dissipation	$Pch^{*2}$	1	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. When using the alumina ceramic board (12.5×20×0.7 mm)

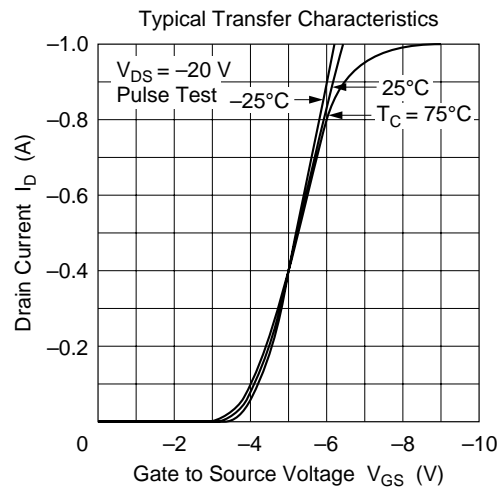
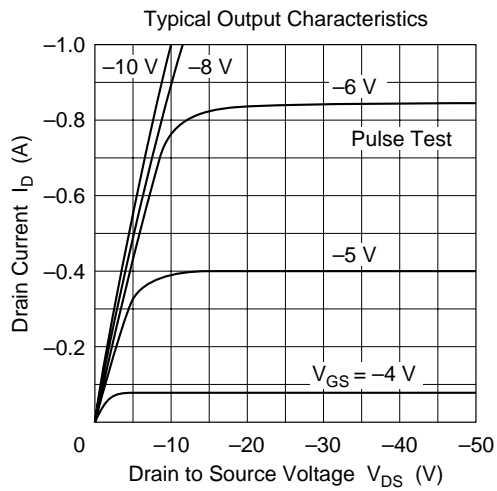
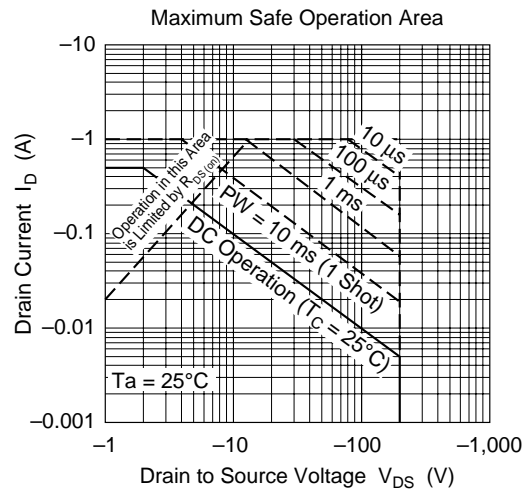
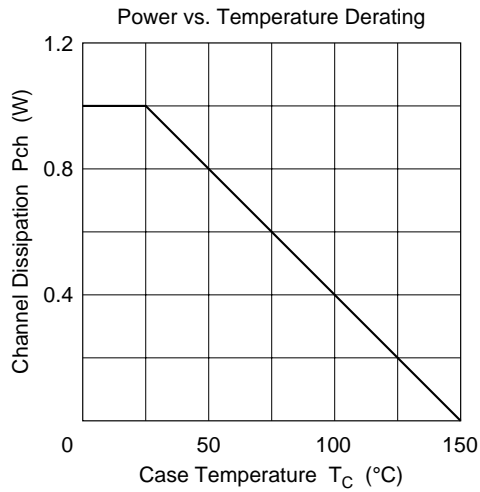
**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

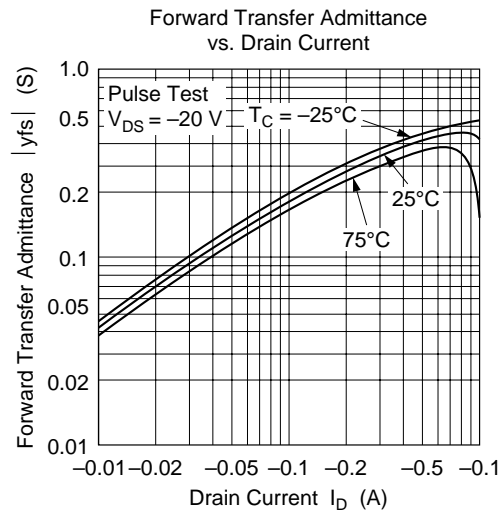
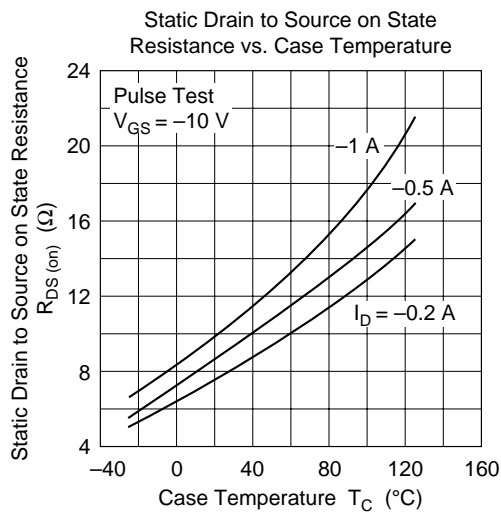
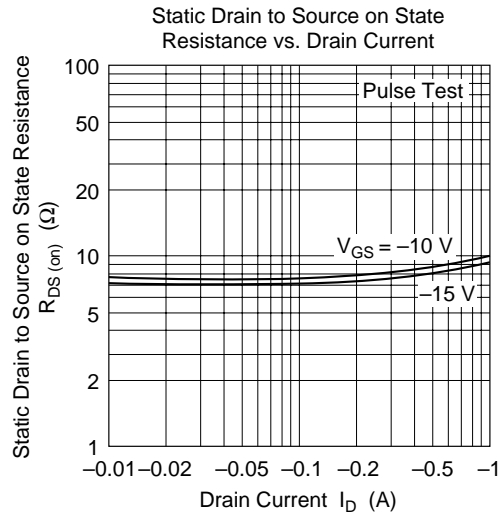
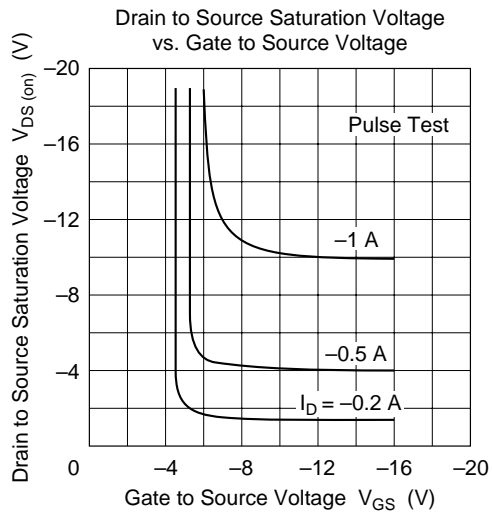
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-200	—	—	V	$I_D = -10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 15$	—	—	V	$I_G = \pm 100\text{ }\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 12\text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-50	$\mu\text{A}$	$V_{DS} = -160\text{ V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	8.0	12.0	$\Omega$	$I_D = -0.25\text{ A}$ , $V_{GS} = -10\text{ V}^{*1}$
		—	10.0	15.0		$I_D = -1\text{ A}$ , $V_{GS} = -10\text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.18	0.3	—	S	$I_D = -0.25\text{ A}$ , $V_{DS} = -10\text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	75	—	pF	$V_{DS} = -10\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$
Output capacitance	$C_{oss}$	—	32	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	5	—	pF	
Turn-on delay time	$t_{d(on)}$	—	6	—	ns	$I_D = -0.25\text{ A}$ , $V_{GS} = -10\text{ V}$ , $R_L = 120\text{ }\Omega$
Rise time	$t_r$	—	6	—	ns	
Turn-off delay time	$t_{d(off)}$	—	17	—	ns	
Fall time	$t_f$	—	15	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = -0.5\text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	100	—	ns	$I_F = -0.5\text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 50\text{ A}/\mu\text{s}$

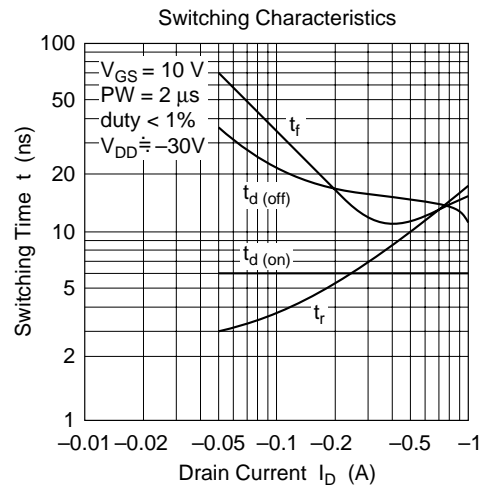
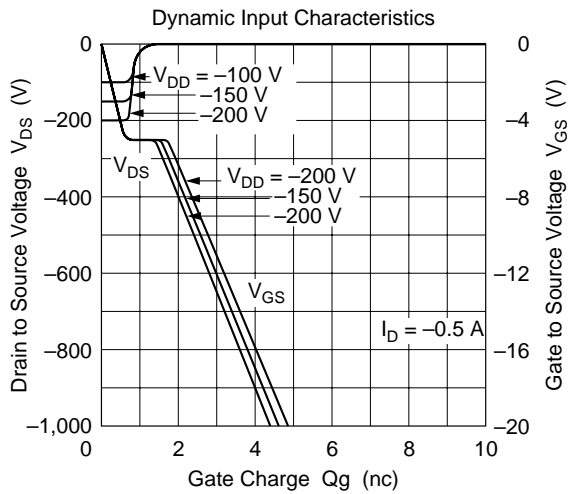
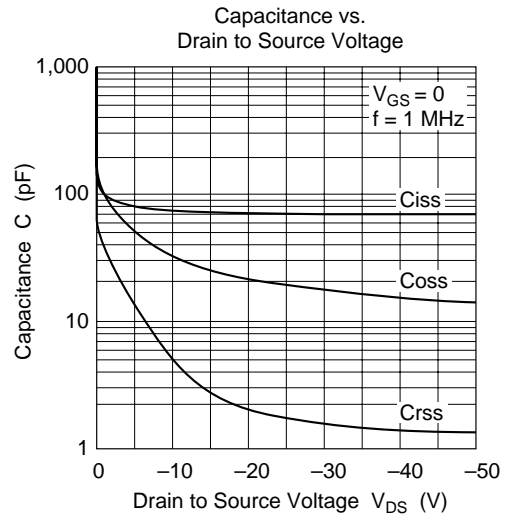
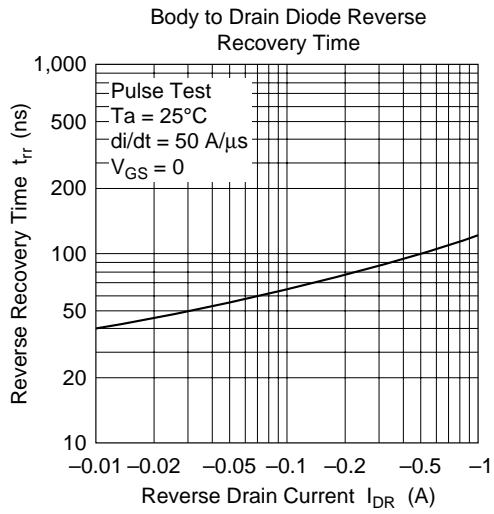
Note: 1. Pulse test

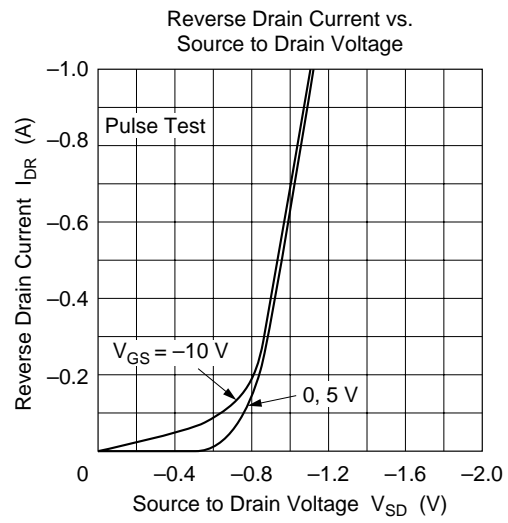
Marking for 2SJ186 is “CY”.

## 2SJ186

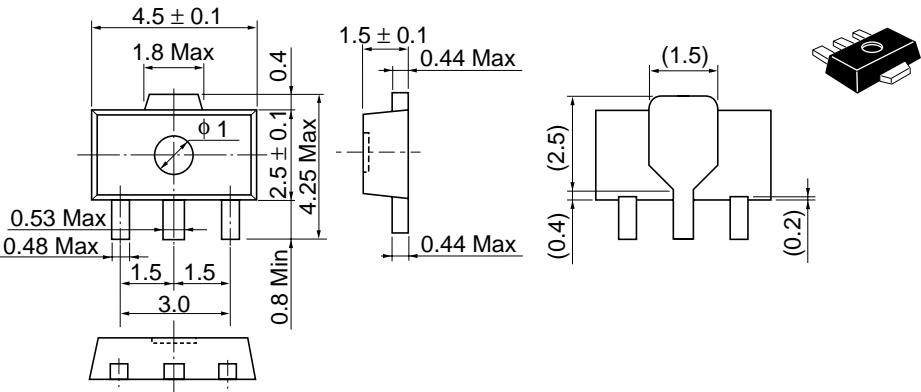








Unit: mm





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