

# 2SJ410

Silicon P-Channel MOS FET

**HITACHI**

ADE-208-539 (Z)

1st. Edition

Sep. 1997

## Application

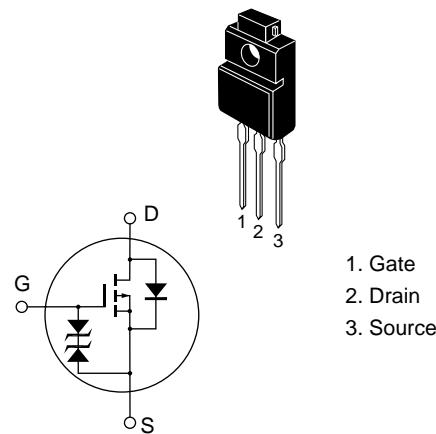
High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter and motor driver

## Outline

TO-220FM



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

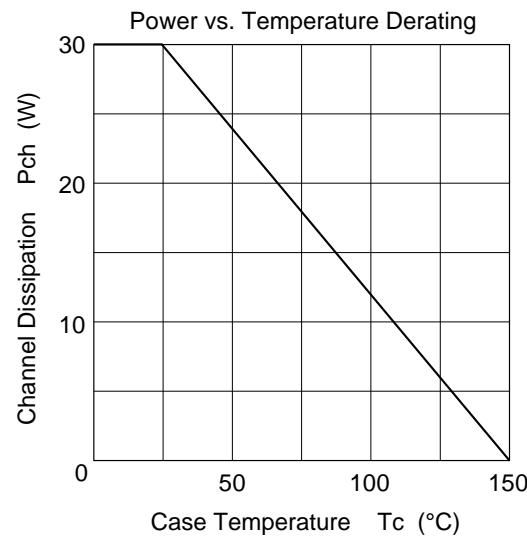
Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	-200	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-6	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	-24	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-6	A
Channel dissipation	Pch <sup>*2</sup>	30	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW 10 µs, duty cycle 1%  
2. Value at Tc = 25°C

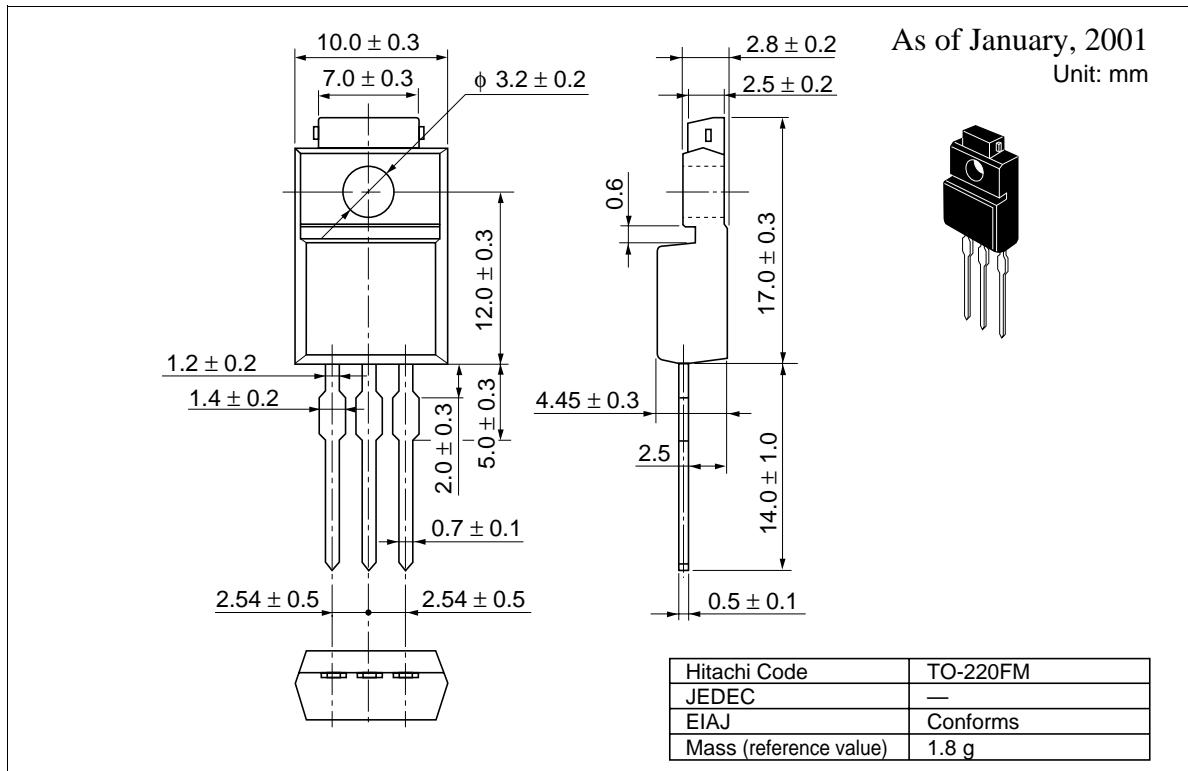
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	-200	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-250	μA	V <sub>DS</sub> = -160 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	-2.0	—	-4.0	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	0.7	0.85		I <sub>D</sub> = -3 A V <sub>GS</sub> = -10 V* <sup>1</sup>
Forward transfer admittance	y <sub>fs</sub>	2.0	3.2	—	S	I <sub>D</sub> = -3 A V <sub>DS</sub> = -10 V* <sup>1</sup>
Input capacitance	C <sub>iss</sub>	—	900	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	280	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	65	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d(on)</sub>	—	18	—	ns	I <sub>D</sub> = -3 A
Rise time	t <sub>r</sub>	—	50	—	ns	V <sub>GS</sub> = -10 V
Turn-off delay time	t <sub>d(off)</sub>	—	90	—	ns	R <sub>L</sub> = 6
Fall time	t <sub>f</sub>	—	40	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	-1.0	—	V	I <sub>F</sub> = -6 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	220	—	ns	I <sub>F</sub> = -6 A, V <sub>GS</sub> = 0, dI/dt = 50 A/μs

Note: 1. Pulse Test



## Package Dimensions



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