

2SJ323

## Silicon P-Channel MOS FET

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November 1996

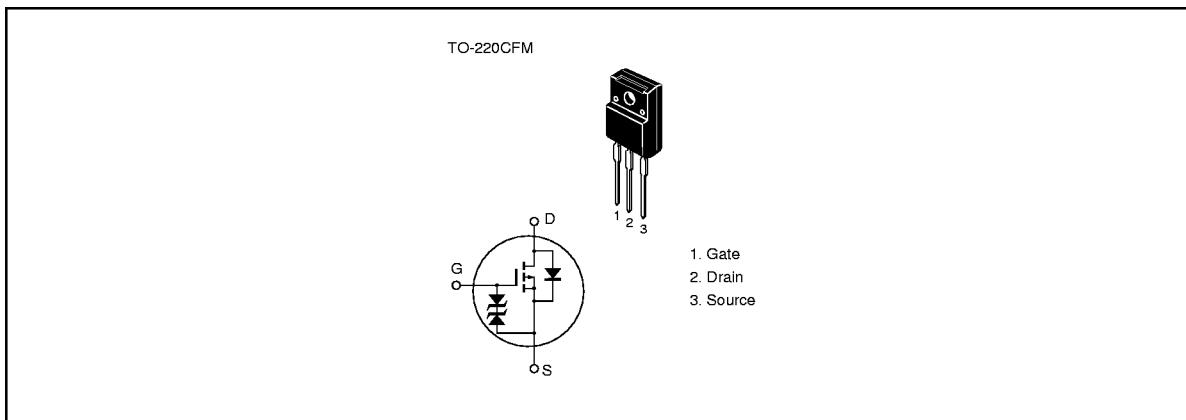
## Application

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 switching regulator, DC-DC converter
  - Avalanche ratings

## Outline



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

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	-60	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-30	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	-120	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-30	A
Avalanche current	I <sub>AP</sub> <sup>*3</sup>	-30	A
Avalanche energy	E <sub>AR</sub> <sup>*3</sup>	77	mJ
Channel dissipation	Pch <sup>*2</sup>	35	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 T<sub>c</sub> = 25°C
  3. Value at T<sub>ch</sub> = 25°C, R<sub>g</sub> ≥ 50 Ω

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	-60	—	—	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> = ±200 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> = -50 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	-1.0	—	-2.25	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>D(on)</sub>	—	0.033	0.043	Ω	I <sub>D</sub> = -15 A, V <sub>GS</sub> = -10 V <sup>*1</sup>
		—	0.045	0.06	Ω	I <sub>D</sub> = -15 A, V <sub>GS</sub> = -4 V <sup>*1</sup>
Forward transfer admittance	y <sub>fs</sub>	17	25	—	S	I <sub>D</sub> = -15 A, V <sub>DS</sub> = -10 V <sup>*1</sup>
Input capacitance	C <sub>iss</sub>	—	3300	—	pF	V <sub>DS</sub> = -10 V, V <sub>GS</sub> = 0,
Output capacitance	C <sub>oss</sub>	—	1500	—	pF	f = 1 MHz
Reverse transfer capacitance	C <sub>rss</sub>	—	480	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	30	—	ns	I <sub>D</sub> = -15 A, V <sub>GS</sub> = -10 V,
Rise time	t <sub>r</sub>	—	170	—	ns	R <sub>L</sub> = 2 Ω
Turn-off delay time	t <sub>d(off)</sub>	—	500	—	ns	
Fall time	t <sub>f</sub>	—	390	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	-1.5	—	V	I <sub>F</sub> = -30 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	200	—	ns	I <sub>F</sub> = -30 A, V <sub>GS</sub> = 0, di <sub>F</sub> /dt = 50 A/μs

Note 1. Pulse test

See characteristic curve of 2SJ280

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