HITACHI

2SJ294

Silicon P Channel MOS FET

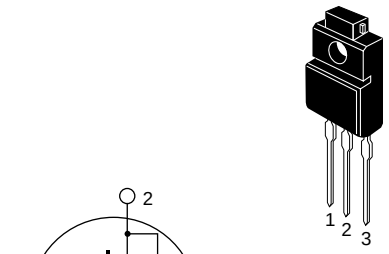
Application

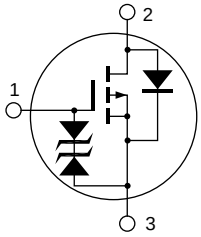
High speed power switching

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

TO–220FM





1. Gate
2. Drain
3. Source

Table 1 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	–20	A
Drain peak current	$I_{D(pulse)}$*	–80	A
Body–drain diode reverse drain current	I_{DR}	–20	A
Avalanche current	I_{AP}***	–20	A
Avalanche energy	E_{AR}***	34	mJ
Channel dissipation	Pch**	35	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

* PW ≤ 10 µs, duty cycle ≤ 1 %
** Value at Tc = 25 °C
*** Value at Tch = 25 °C, Rg ≥ 50 Ω

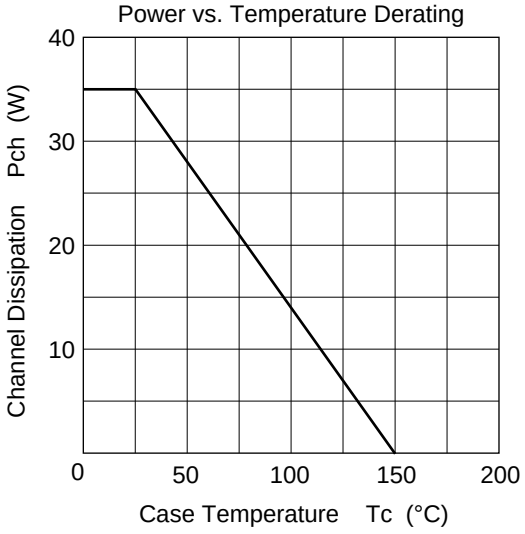
Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	–60	—	—	V	I_D = –10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	–250	µA	V_{DS} = –50 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	–1.0	—	–2.25	V	I_D = –1 mA, V_{DS} = –10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.05	0.065	Ω	I_D = –10 A V_{GS} = –10 V *
		—	0.07	0.095	Ω	I_D = –10 A V_{GS} = –4 V *
Forward transfer admittance	$\|y_{fs}\|$	10	16	—	S	I_D = –10 A V_{DS} = –10 V *
Input capacitance	Ciss	—	2200	—	pF	V_{DS} = –10 V
Output capacitance	Coss	—	1000	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	300	—	pF	f = 1 MHz
Turn–on delay time	$t_{d(on)}$	—	25	—	ns	I_D = –10 A
Rise time	t_r	—	130	—	ns	V_{GS} = –10 V
Turn–off delay time	$t_{d(off)}$	—	320	—	ns	R_L = 3 Ω
Fall time	t_f	—	210	—	ns	
Body–drain diode forward voltage	V_{DF}	—	–1.1	—	V	I_F = –20 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	160	—	ns	I_F = –20 A, V_{GS} = 0, diF / dt = 50 A / µs

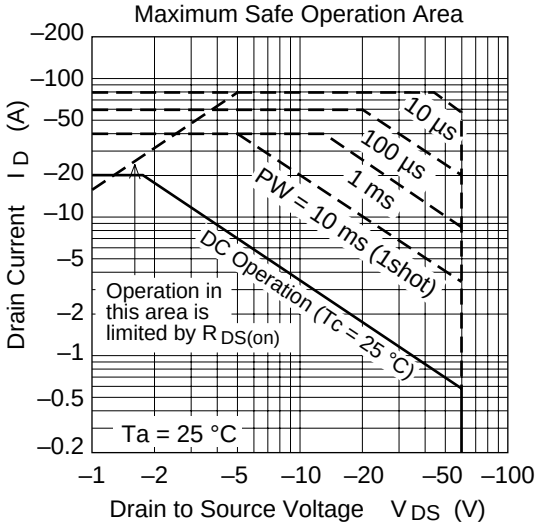
* Pulse Test

See characteristic curves of 2SJ291

Power vs. Temperature Derating



Maximum Safe Operation Area



Normalized Transient Thermal Impedance vs. Pulse Width