

H5N3007CF

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0473-0100

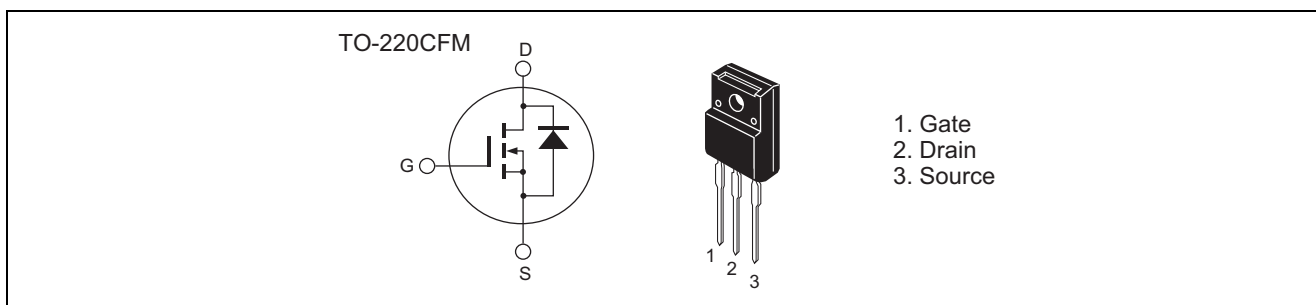
Rev.1.00

Nov.11.2004

Features

- Low on-resistance
- Low leakage current
- High Speed Switching
- Built-in fast recovery diode

Outline



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	300	V
Gate to source voltage	V_{GSS}	± 30	V
Drain current	I_D	15	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	60	A
Body-drain diode reverse drain current	I_{DR}	15	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ ^{Note 1}	60	A
Avalanche current	I_{AP} ^{Note 3}	15	A
Channel dissipation	P_{ch} ^{Note 2}	35	W
Channel to case Thermal Impedance	θ_{ch-c}	3.57	°C/W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

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

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

3. $T_{ch} \leq 150^\circ C$

Electrical Characteristics

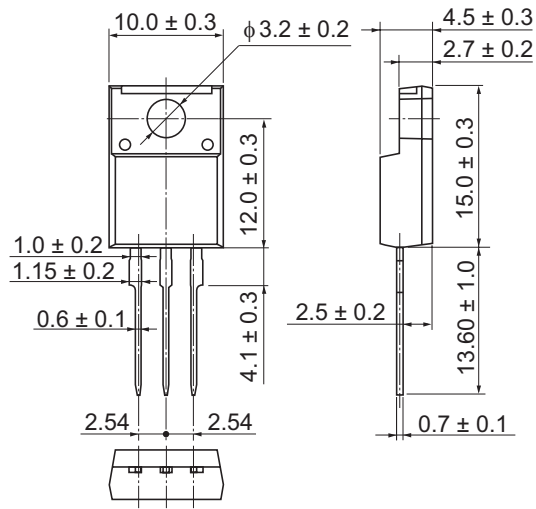
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	300	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 300 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	4.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.12	0.16	Ω	$I_D = 7.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note 4}
Forward transfer admittance	$ y_{fs} $	9	15	—	S	$I_D = 7.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note 4}
Input capacitance	C_{iss}	—	2180	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	275	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	77	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	35	—	ns	$I_D = 7.5 \text{ A}$
Rise time	t_r	—	50	—	ns	$R_L = 20 \Omega$
Turn-off delay time	$t_{d(off)}$	—	160	—	ns	$V_{GS} = 10 \text{ V}$
Fall time	t_f	—	40	—	ns	$R_g = 10 \Omega$
Total gate charge	Q_g	—	81	—	nC	$V_{DD} = 240 \text{ V}$
Gate to source charge	Q_{gs}	—	10	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Q_{gd}	—	38	—	nC	$I_D = 15 \text{ A}$
Body-drain diode forward voltage	V_{DF}	—	0.85	1.3	V	$I_F = 15 \text{ A}$, $V_{GS} = 0$ ^{Note 4}
Body-drain diode reverse recovery time	t_{rr}	—	110	—	ns	$I_F = 15 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$
Body-drain diode reverse recovery time	Q_{rr}	—	0.44	—	μC	

Notes: 4. Pulse test

Package Dimensions

As of January, 2003
Unit: mm



Package Code	TO-220CFM
JEDEC	—
JEITA	—
Mass (reference value)	1.9 g

Ordering Information

Part Name	Quantity	Shipping Container
H5N3007CF	50	Stick

Note: Therefore especially small contact area of terminal, miss contact may occur if inadequate soldering condition is applied.

Contact Renesas sales office for any question regarding recommended soldering condition of Renesas.

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