RENESAS

H7N0308CF

Silicon N Channel MOS FET
High Speed Power Switching

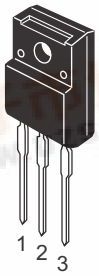
REJ03G1123-0300
(Previous: ADE-208-1570A)
Rev.3.00
Sep 07, 2005

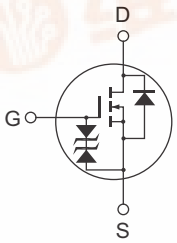
Features

- Low on-resistance
  $R_{DS\ (on)}$ = 3.8 mΩ typ.
- Low drive current
- 4.5 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0003AE-A
(Package name: TO-220C•FM)





1. Gate
2. Drain
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	60	A
Drain peak current	$I_{D\ (pulse)}$ Note 1	240	A
Body-drain diode reverse drain current	I_{DR}	60	A
Channel dissipation	Pch Note 2	30	W
Channel to case thermal impedance	θ ch-c	4.17	°C/W
Channel to ambient thermal impedance	θ ch-a	62.5	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

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

Electrical Characteristics

(Ta = 25°C)

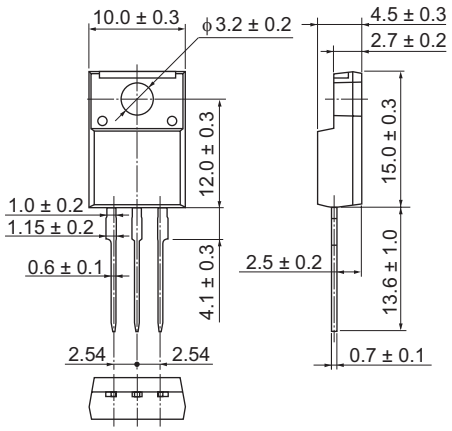
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)\ DSS}$	30	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)\ GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	10	µA	V_{DS} = 30 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS\ (off)}$	1.0	—	2.5	V	I_D = 1 mA, V_{DS} = 10 V Note 3
Static drain to source on state resistance	$R_{DS\ (on)}$	—	3.8	4.8	mΩ	I_D = 30 A, V_{GS} = 10 V Note 3
		—	6.0	8.5	mΩ	I_D = 30 A, V_{GS} = 4.5 V Note 3
Forward transfer admittance	$\|y_{fs}\|$	42	70	—	S	I_D = 30 A, V_{DS} = 10 V Note 3
Input capacitance	Ciss	—	3350	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	840	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	480	—	pF	f = 1 MHz
Total gate charge	Qg	—	52	—	nC	V_{DD} = 10 V
Gate to source charge	Qgs	—	11	—	nC	V_{GS} = 10 V
Gate to drain charge	Qgd	—	10	—	nC	I_D = 60 A
Turn-on delay time	$t_{d\ (on)}$	—	30	—	ns	V_{GS} = 10 V, I_D = 30 A
Rise time	t_r	—	370	—	ns	R_L = 0.33 Ω
Turn-off delay time	$t_{d\ (off)}$	—	80	—	ns	Rg = 4.7 Ω
Fall time	t_f	—	27	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.90	—	V	I_F = 60 A, V_{GS} = 0
Body-drain diode reverse recovery time	t_{rr}	—	55	—	ns	I_F = 60 A, V_{GS} = 0 di_F/dt = 50 A/µs

Note: 3. Pulse test

Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
—	PRSS0003AE-A	TO-220CFM / TO-220CFMV	1.9g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
H7N0308CF-E	50 pcs	Plastic magazine

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

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