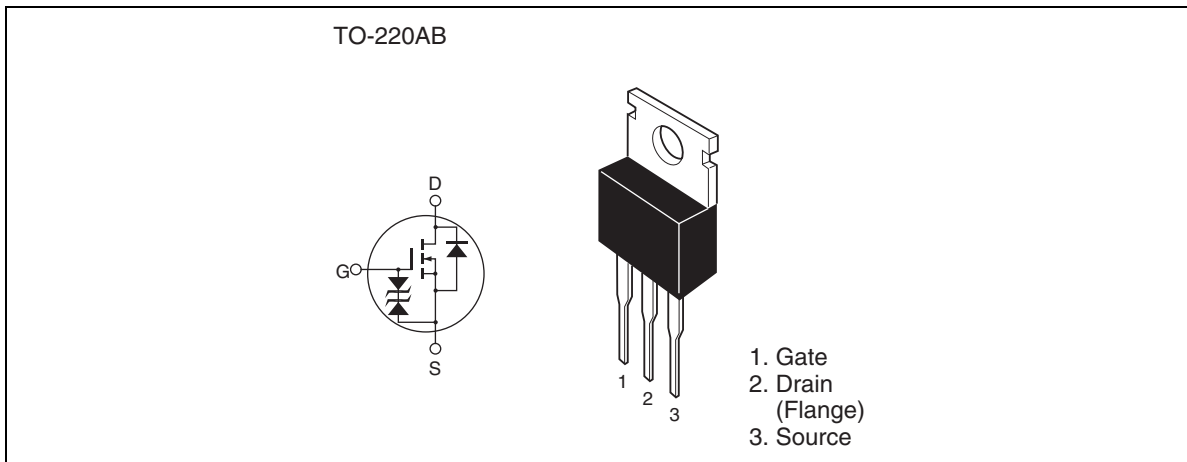# H7N0602AB

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0068-0100Z
Preliminary
Rev.1.00
Aug.06.2003

Features

- Low on-resistance

  $R_{DS(on)} = 4.1$ mΩ typ.

- Low drive current
- Capable of 4.5 V gate drive

Outline

TO-220AB

1. Gate
2. Drain
   (Flange)
3. Source

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	85	A
Drain peak current	I_D (pulse)[Note1]	340	A
Body-drain diode reverse drain current	I_{DR}	85	A
Avalanche current	I_{AP}[Note3]	65	A
Avalanche energy	E_{AR}[Note3]	362	mJ
Channel dissipation	Pch[Note2]	100	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Tc = 25°C

3. Value at Tch = 25°C, Rg ≥ 50 Ω

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}	—	—	10	µA	V_{DS} = 60 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	2.5	V	I_D = 1 mA, V_{DS} = 10 V[Note1]
Static drain to source on state resistance	$R_{DS(on)}$	—	4.1	5.2	mΩ	I_D = 45 A, V_{GS} = 10 V[Note1]
		—	6.2	9.0	mΩ	I_D = 45 A, V_{GS} = 4.5 V[Note1]
Forward transfer admittance	$|y_{fs}|$	70	120	—	S	I_D = 45 A, V_{GS} = 10 V[Note1]
Input capacitance	Ciss	—	9000	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	1000	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	470	—	pF	f = 1 MHz
Total gate charge	Qg	—	140	—	nC	V_{DD} = 25 V
Gate to source charge	Qgs	—	30	—	nC	V_{GS} = 10 V
Gate to drain charge	Qgd	—	30	—	nC	I_D = 85 A
Turn-on delay time	$t_{d(on)}$	—	55	—	ns	V_{GS} = 10 V, I_D = 45 A
Rise time	t_r	—	290	—	ns	R_L = 0.67 Ω
Turn-off delay time	$t_{d(off)}$	—	140	—	ns	Rg = 4.7 Ω
Fall time	t_f	—	50	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.95	—	V	I_F = 85 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	45	—	ns	I_F = 85 A, V_{GS} = 0 diF/dt = 100 A/µs

Notes: 1. Pulse test

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Package Dimensions

As of January, 2003
Unit: mm
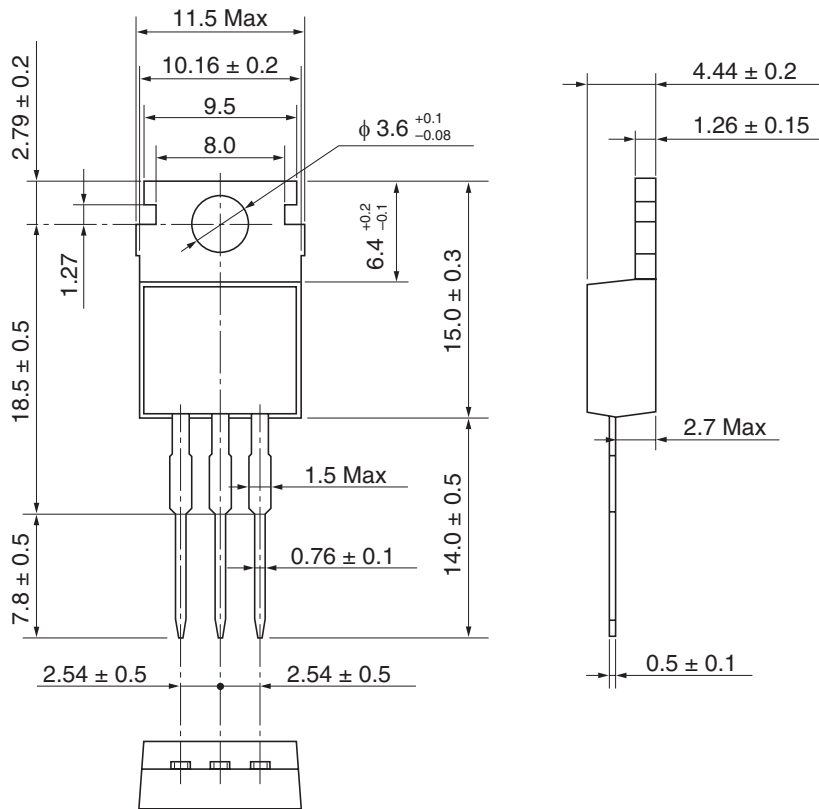
Package Code	TO-220AB
JEDEC	Conforms
JEITA	Conforms
Mass (reference value)	1.8 g

http://www.renesas.com