

# BB301C

Build in Biasing Circuit MOS FET IC  
VHF RF Amplifier

# HITACHI

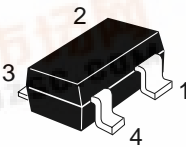
ADE-208-507  
1st. Edition

## Features

- Build in Biasing Circuit; To reduce using parts cost & PC board space.
- Low noise characteristics; (NF = 1.3 dB typ. at f = 200 MHz)
- Withstanding to ESD; Build in ESD absorbing diode . Withstand up to 200 V at C = 200 pF, Rs = 0 conditions.

## Outline

CMPAK-4



1. Source
2. Gate1
3. Gate2
4. Drain

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## BB301C

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

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	6	V
Gate 1 to source voltage	$V_{G1S}$	+6 -0	V
Gate 2 to source voltage	$V_{G2S}$	±6	V
Drain current	$I_D$	25	mA
Channel power dissipation	Pch	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	6	—	—	V	$I_D = 200 \mu A$ $V_{G1S} = V_{G2S} = 0$
Gate 1 to source breakdown voltage	$V_{(BR)G1SS}$	+6	—	—	V	$I_{G1} = +10 \mu A$ $V_{G2S} = V_{DS} = 0$
Gate 2 to source breakdown voltage	$V_{(BR)G2SS}$	$\pm 6$	—	—	V	$I_{G2} = \pm 10 \mu A$ $V_{G1S} = V_{DS} = 0$
Gate 1 to source cutoff current	$I_{G1SS}$	—	—	+100	nA	$V_{G1S} = +5 V$ $V_{G2S} = V_{DS} = 0$
Gate 2 to source cutoff current	$I_{G2SS}$	—	—	$\pm 100$	nA	$V_{G2S} = \pm 5 V$ $V_{G1S} = V_{DS} = 0$
Gate 1 to source cutoff voltage	$V_{G1S(off)}$	0.4	—	1.0	V	$V_{DS} = 5 V, V_{G2S} = 4 V$ $I_D = 100 \mu A$
Gate 2 to source cutoff voltage	$V_{G2S(off)}$	0.4	—	1.0	V	$V_{DS} = 5 V, V_{G1S} = 5 V$ $I_D = 100 \mu A$
Drain current	$I_{D(op)}$	10	15	20	mA	$V_{DS} = 5 V, V_{G1} = 5 V$ $V_{G2S} = 4 V, R_G = 100 k\Omega$
Forward transfer admittance	$ y_{fs} $	15	20	—	mS	$V_{DS} = 5 V, V_{G1} = 5 V$ $V_{G2S} = 4 V$ $R_G = 100 k\Omega, f = 1 kHz$
Input capacitance	Ciss	2.2	3.0	4.0	pF	$V_{DS} = 5 V, V_{G1} = 5 V$
Output capacitance	Coss	0.9	1.2	1.6	pF	$V_{G2S} = 4 V, R_G = 100 k\Omega$
Reverse transfer capacitance	Crss	—	0.018	0.04	pF	$f = 1 MHz$
Power gain	PG	22	26	—	dB	$V_{DS} = 5 V, V_{G1} = 5 V$ $V_{G2S} = 4 V$
Noise figure	NF	—	1.3	1.9	dB	$R_G = 100 k\Omega, f = 200 MHz$

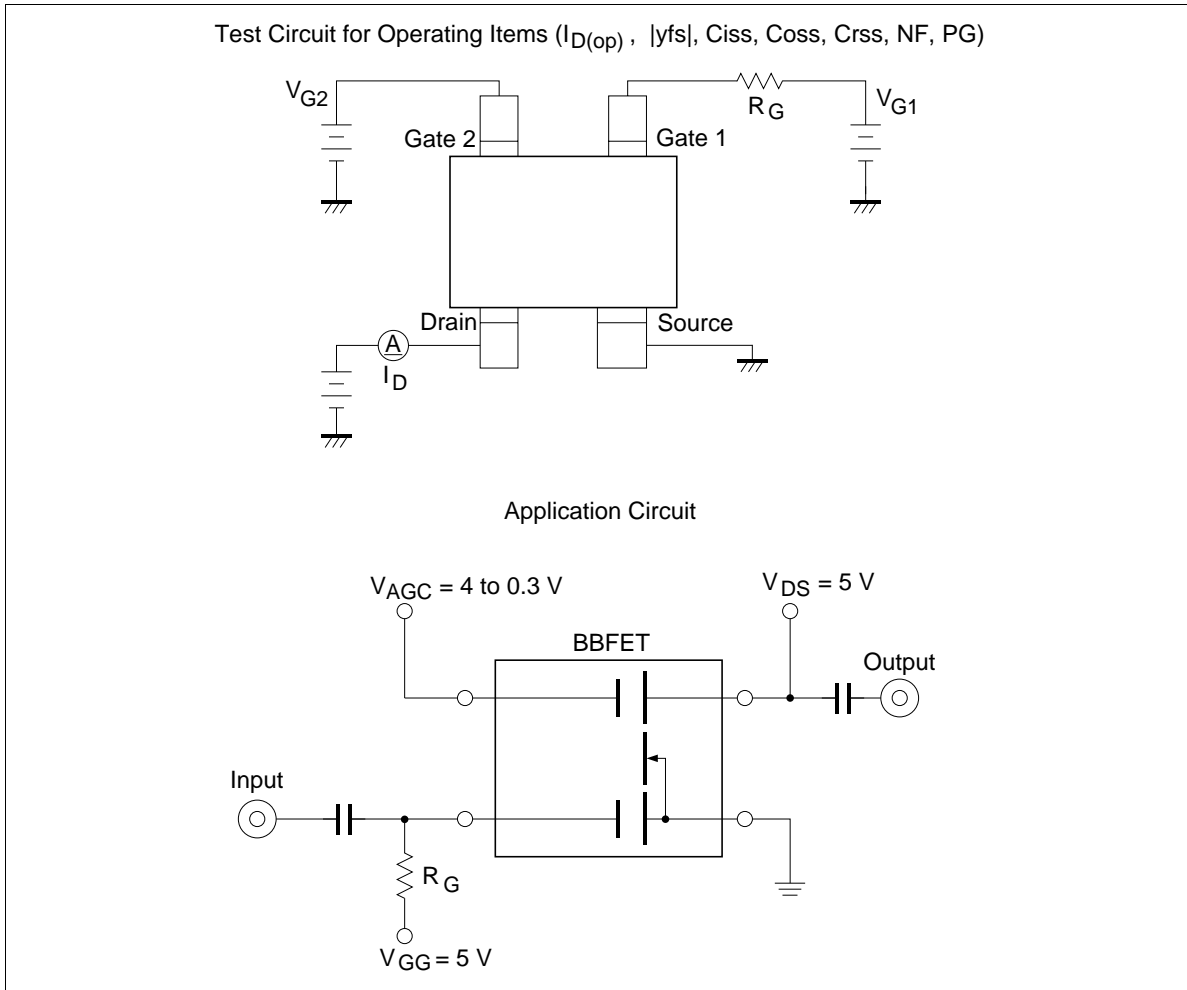
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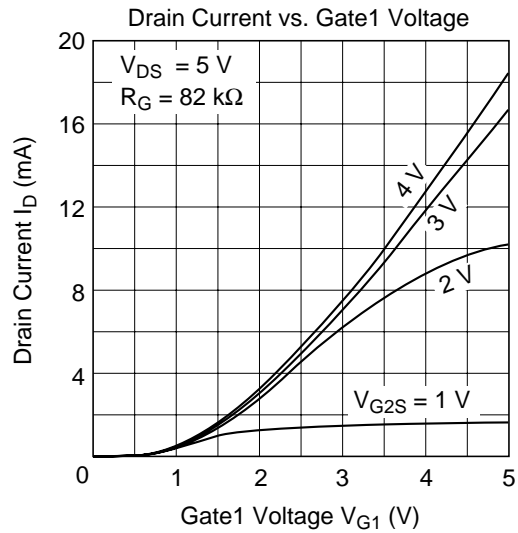
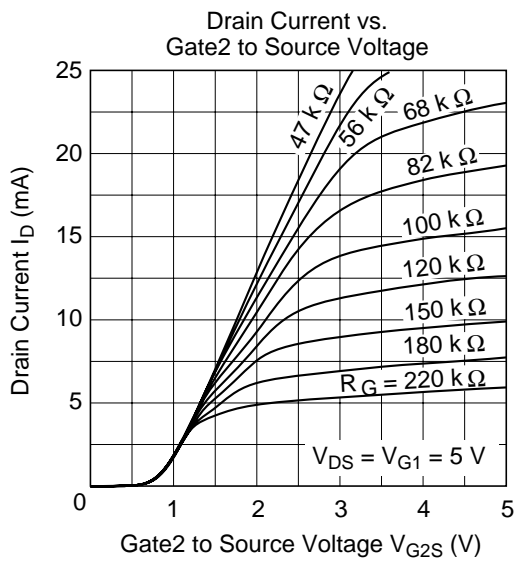
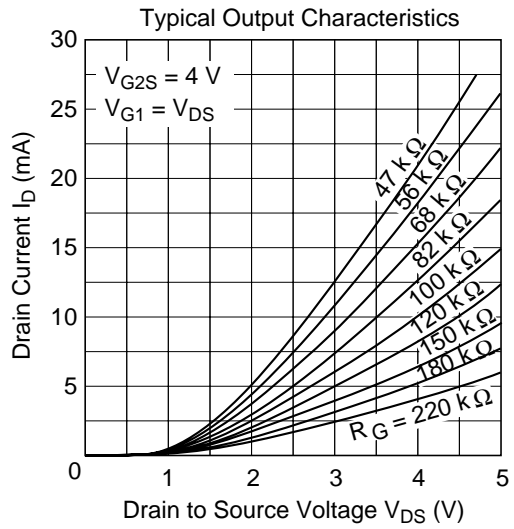
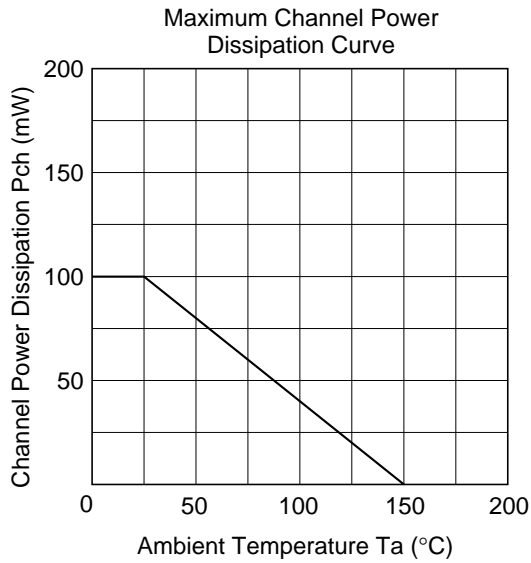
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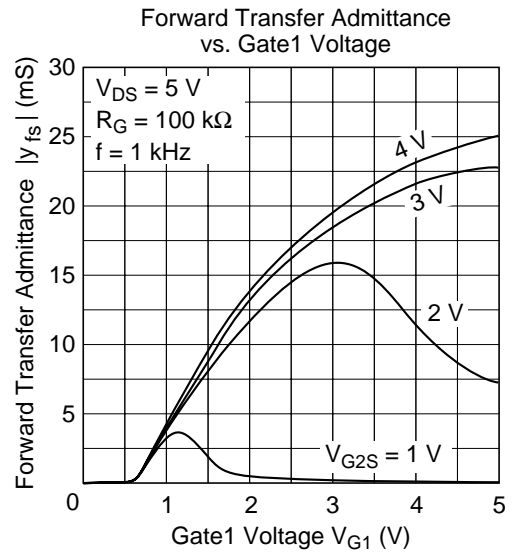
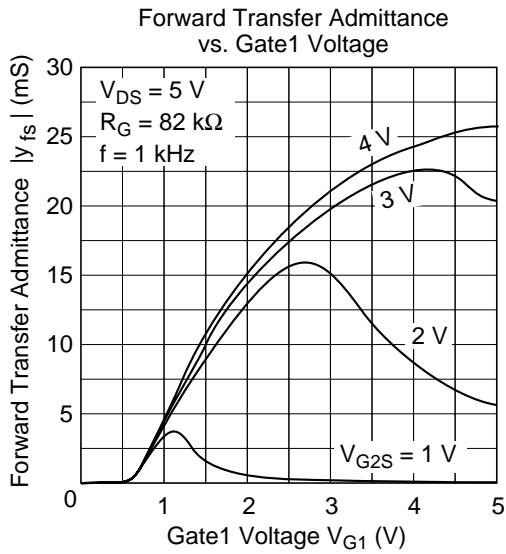
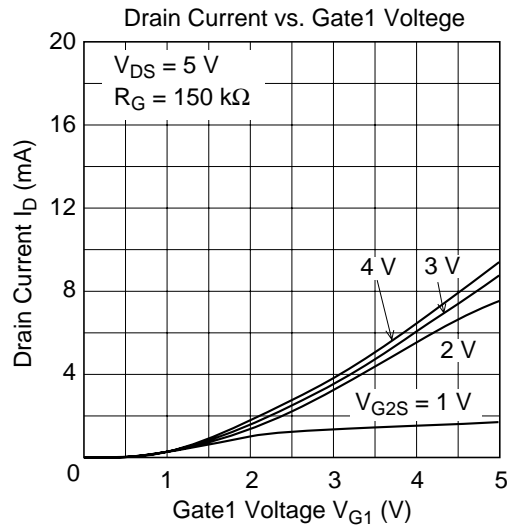
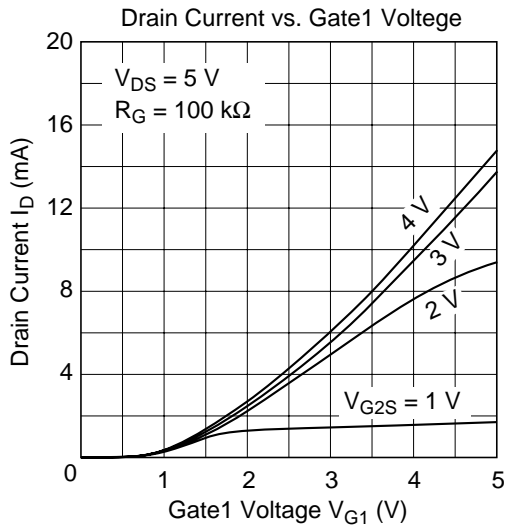
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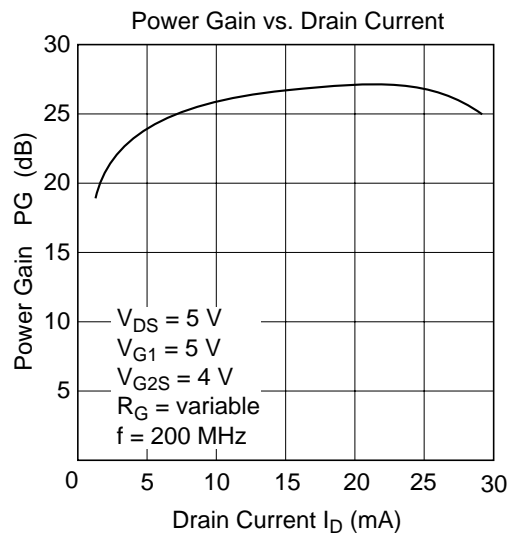
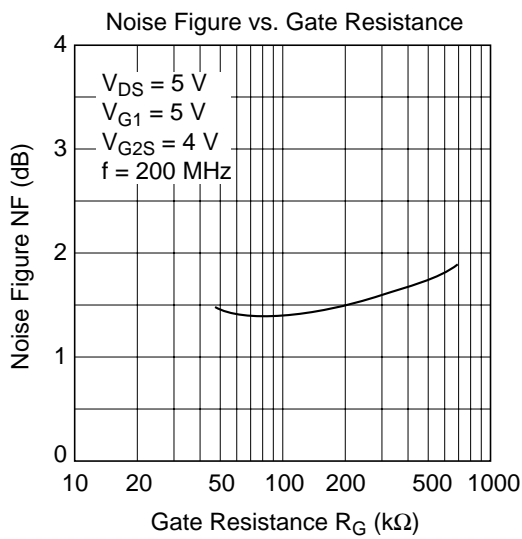
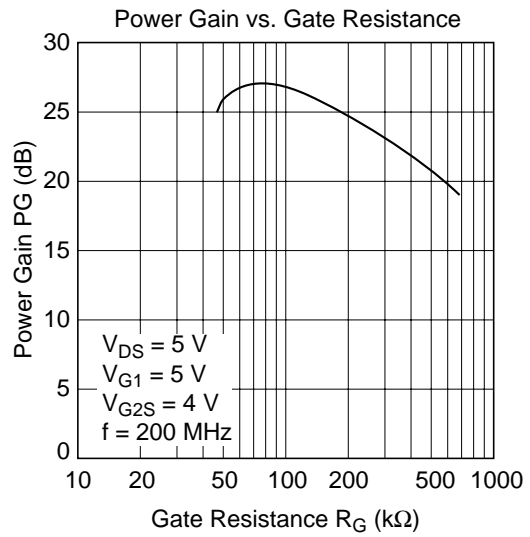
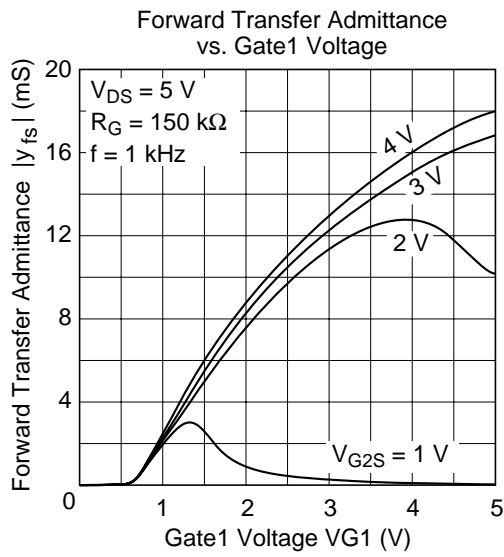
## Main Characteristics



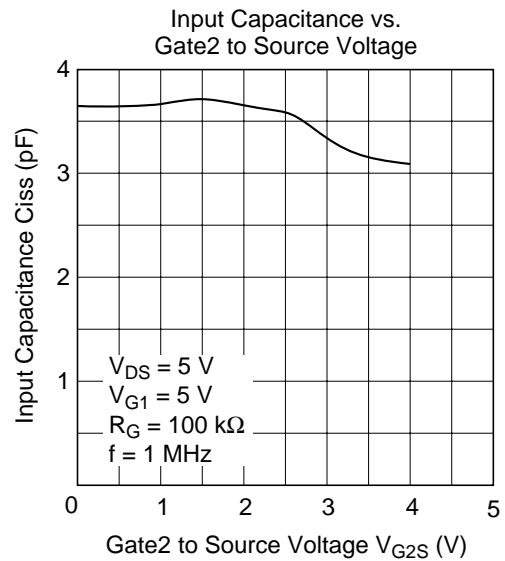
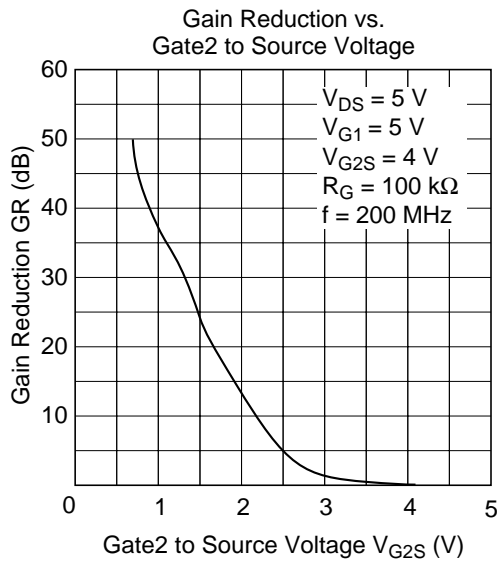
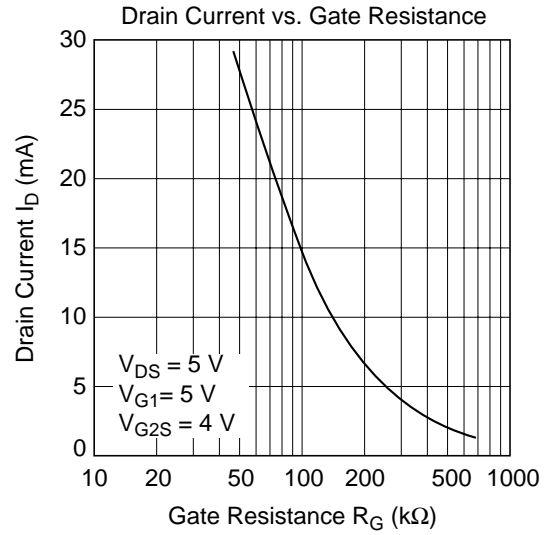
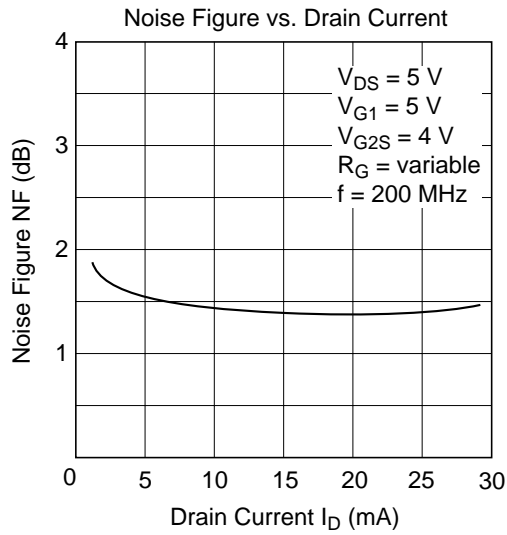


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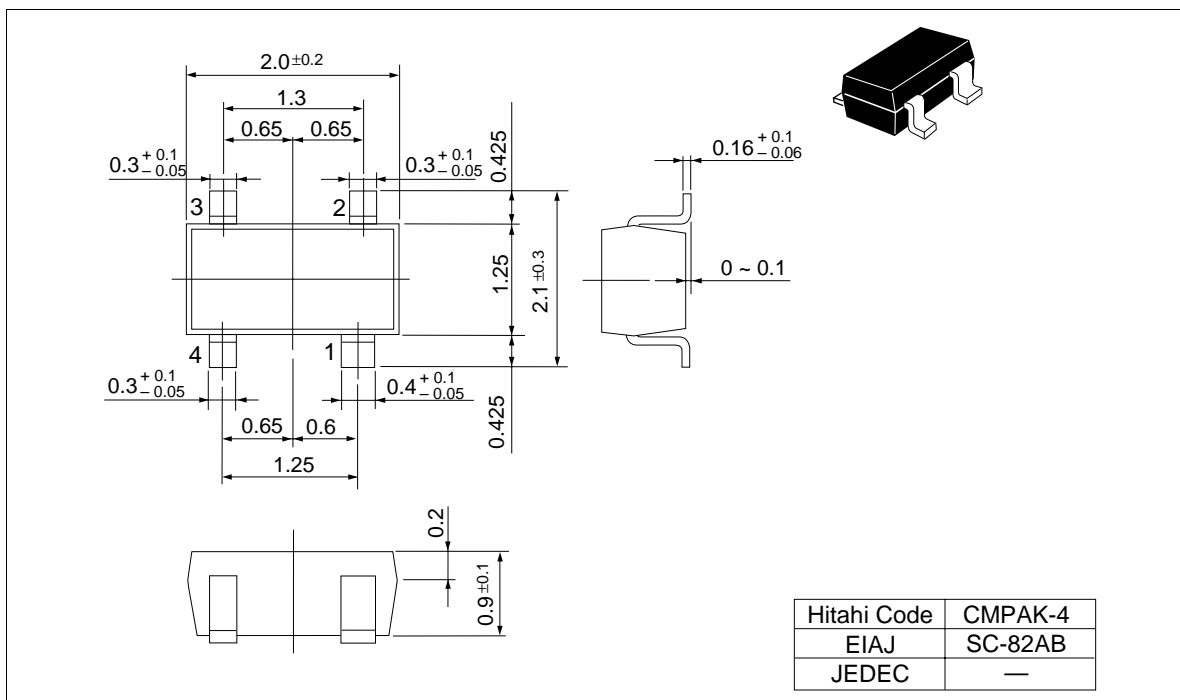
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Package Dimentions

Unit: mm



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# HITACHI

## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL   NorthAmerica   : <http://semiconductor.hitachi.com/>  
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### For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher StraÙe 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00  
  
Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX