

HA31005ANP

SiGe MMIC
High Frequency Power Amplifier

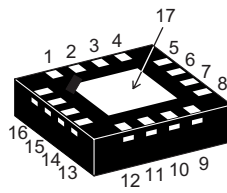
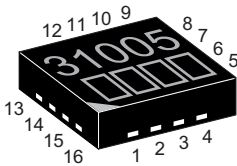
REJ03F0173-0200
Rev.2.00
Jul 31, 2007

Features

- Ideal for IEEE802.11a / b / g / n applications. e.g. Wireless LAN FEM
- High Gain (24 dB @ 5.2 GHz, 30dB @ 2.4 GHz)
- Small footprint package.
(HWQFN-16 : 3.0 x 3.0 x 0.8 mm)
- RoHS Compliant

Outline

RENESAS Package code: PWQN0016KA-B
(Package name: HWQFN-16)



- | | |
|----------|----------|
| 1. GND | 10. GND |
| 2. RFout | 11. RFin |
| 3. RFout | 12. GND |
| 4. GND | 13. VC1 |
| 5. GND | 14. GND |
| 6. VB3 | 15. VC2 |
| 7. VB2 | 16. GND |
| 8. VB1 | |
| 9. VCC | 17. GND |

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|----------------------------|---------------------|---------------------|------|
| Supply Voltage | V _{CC} | 4 | V |
| Maximum Current | I _{CC} | 400 | mA |
| Maximum Input Power | P _{in max} | +10 | dBm |
| Total Power Dissipation | P _t | 1.4 ^{note} | W |
| Operating Case Temperature | T _{c(op)} | -10 to +85 | °C |
| Storage Temperature | T _{stg} | -55 to +150 | °C |

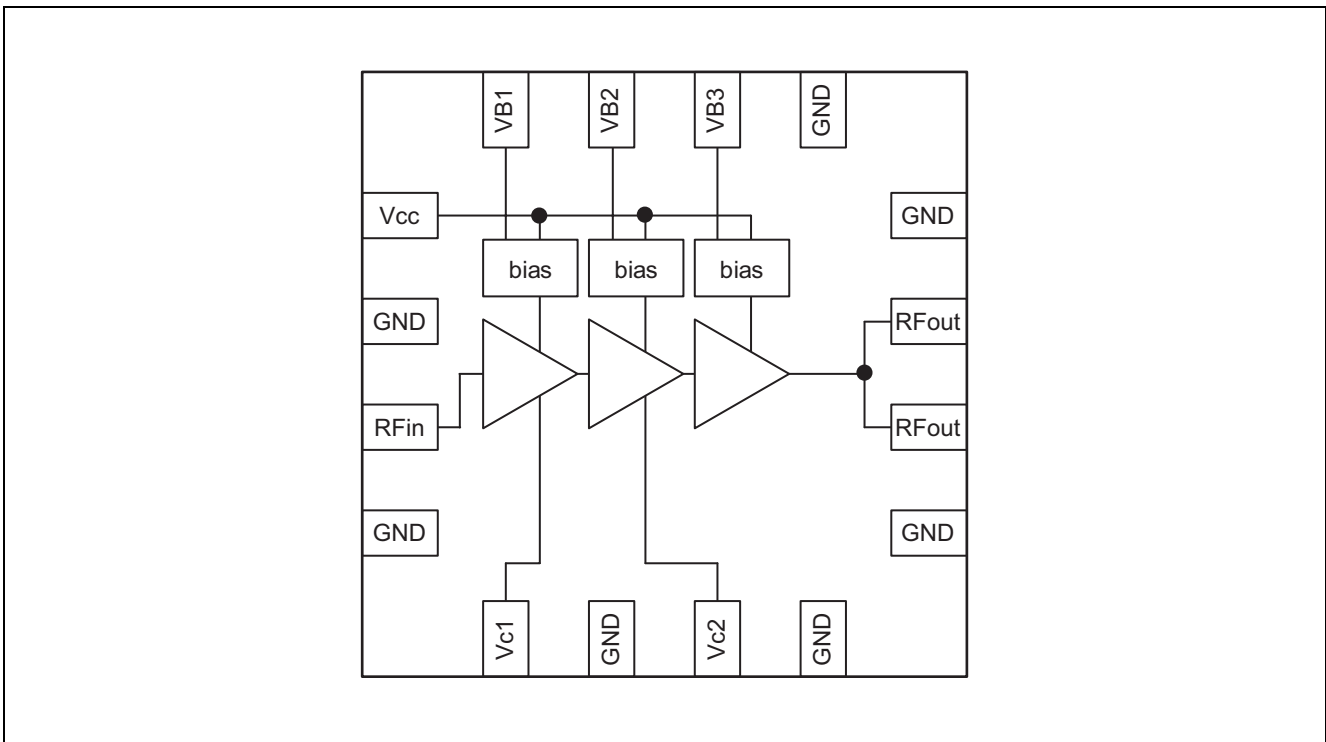
Notes: Value on PCB (FR-4 : 20 x 20 x 0.4 mm double side)

Electrical Characteristics

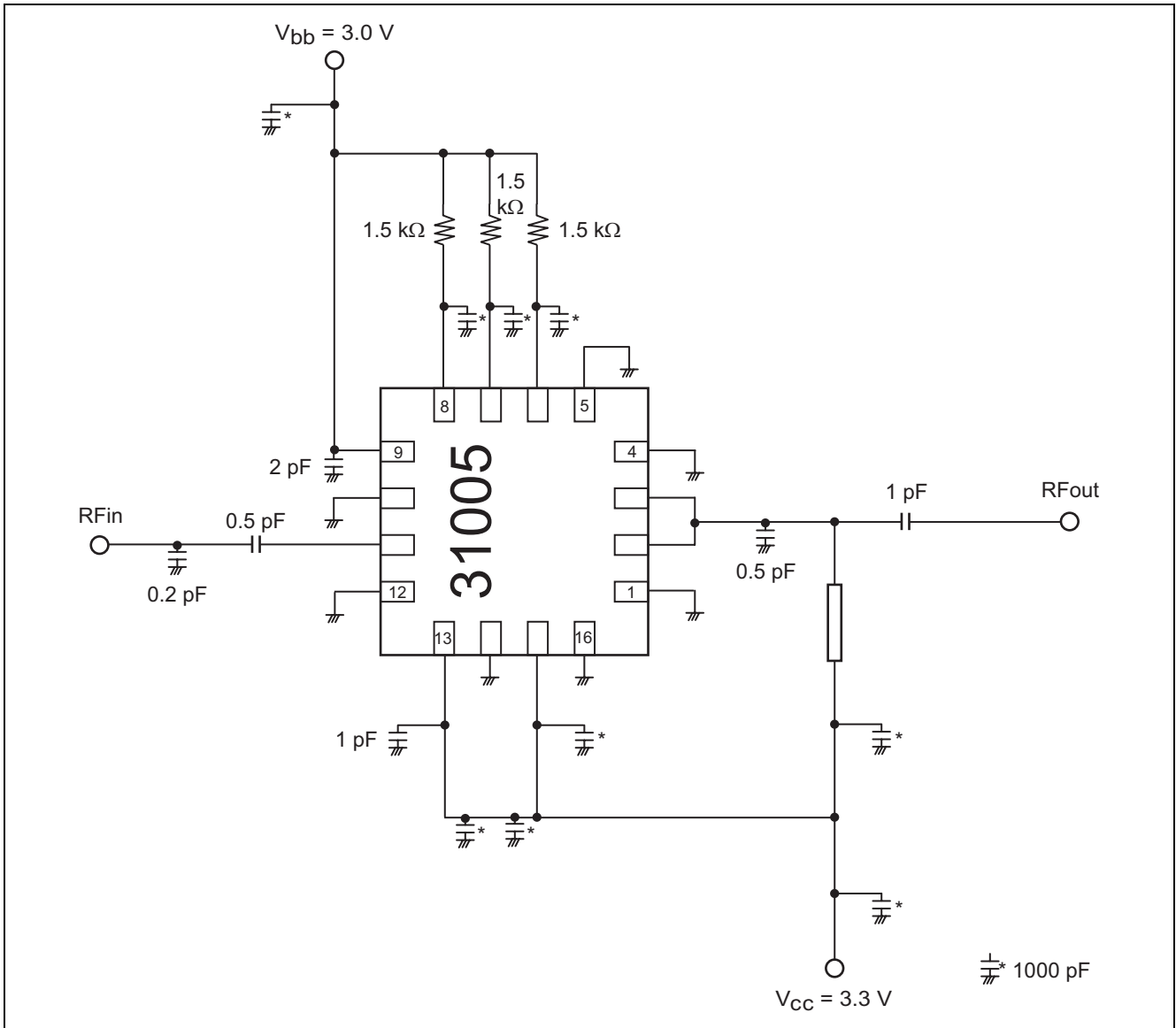
(Ta = 25°C)

| Item | Symbol | Min. | Typ | Max. | Unit | Test Conditions |
|-----------------|-------------------|------|-----|------|------|---|
| Supply Voltage | V _{CC} | 3 | 3.3 | 3.6 | V | |
| Power Gain | PG1 | — | 24 | — | dB | f = 5.15 to 5.35 GHz |
| Circuit Current | I _{CC1} | — | 160 | — | mA | P _{out} = +18 dBm, I _{cq} = 130 mA |
| Output Power | P _{out1} | — | +18 | — | dBm | f = 5.15 GHz, EVM = 4%, 54 Mbps, 64 QAM_OFDM, I _{cq} = 130 mA |
| Power Gain | PG2 | — | 30 | — | dB | f = 2.484 GHz |
| Circuit Current | I _{CC2} | — | 110 | — | mA | P _{out} = +18 dBm, I _{cq} = 90 mA |
| Output Power | P _{out2} | — | +18 | — | dBm | f = 2.484 GHz, EVM = 4%, 54 Mbps, 64 QAM_OFDM, I _{cq} = 90 mA |
| Power Gain | PG3 | — | 30 | — | dB | f = 2.484 GHz, .11 b 11 Mbps |
| Circuit Current | I _{CC3} | — | 170 | — | mA | V _{CC} = 3.3 V, I _{cq} = 90 mA |
| Output Power | P _{out3} | — | +22 | — | dBm | |

Function Block Diagram



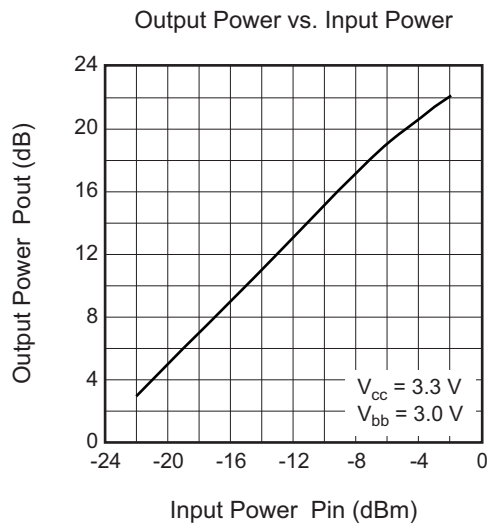
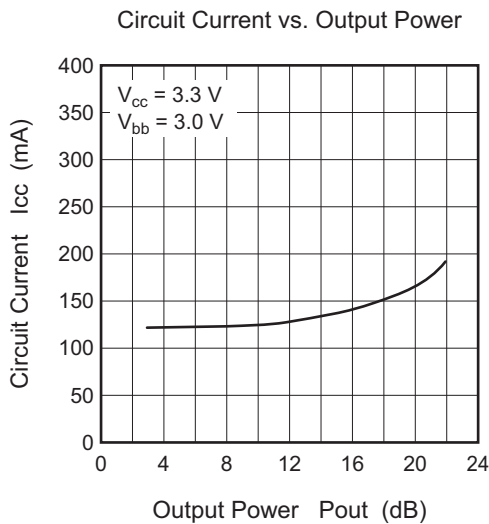
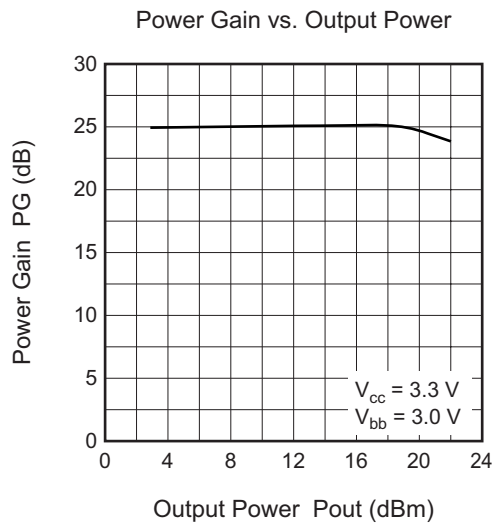
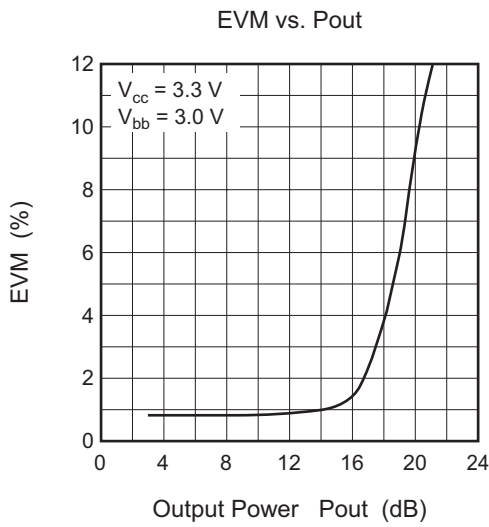
Evaluation Circuit for IEEE 802.11a



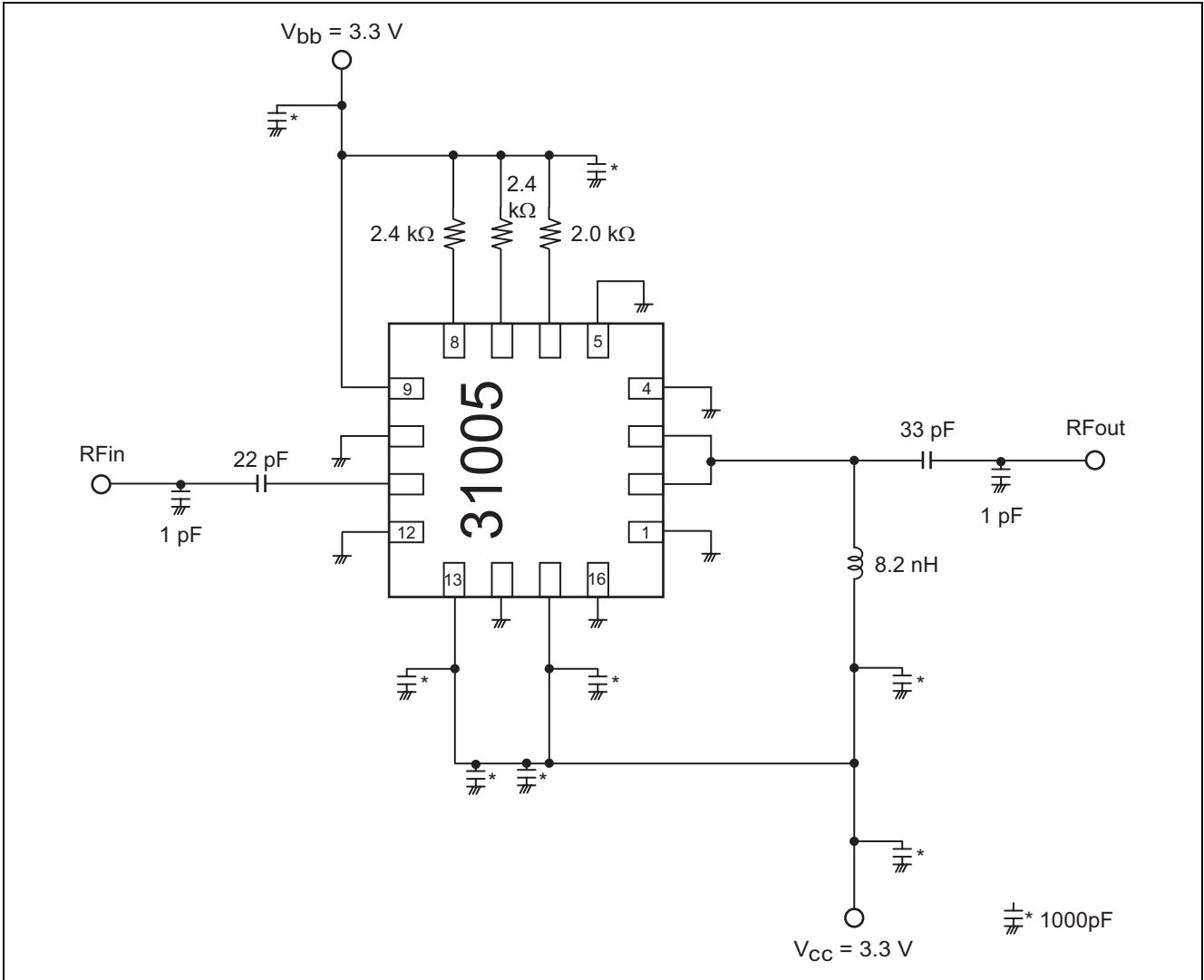
Characteristics for IEEE 802.11a

f = 5.15 GHz

64 QAM / OFDM, Encode rate 3/4, 54 Mbps, idle interval = 110 μs, 1024 + 34 byte / frame



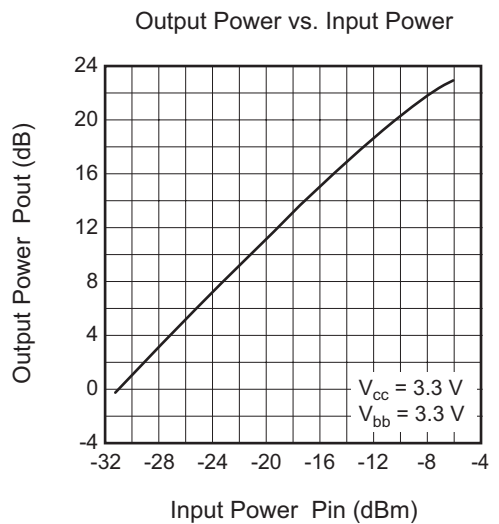
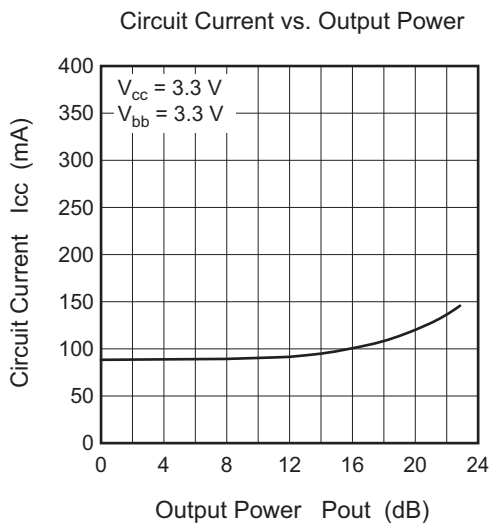
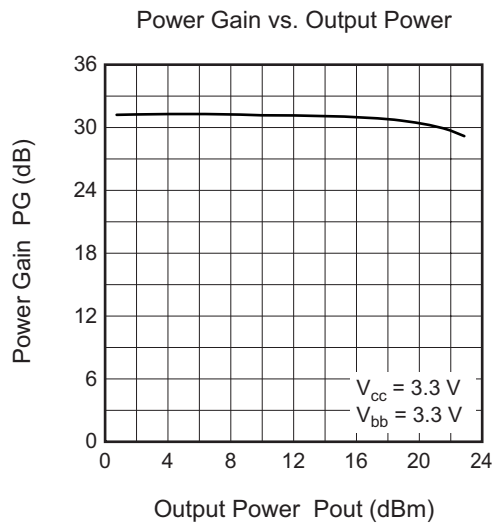
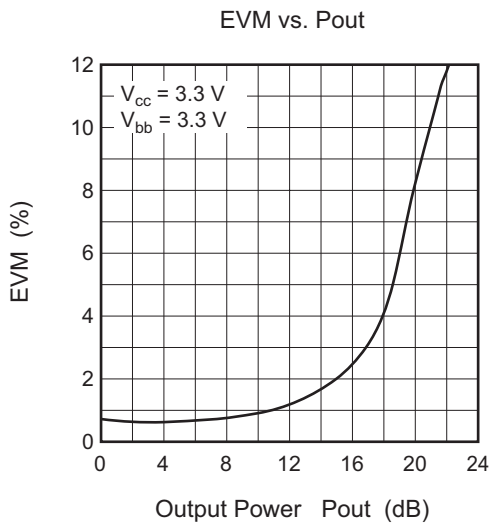
Evaluation Circuit for IEEE 802.11g



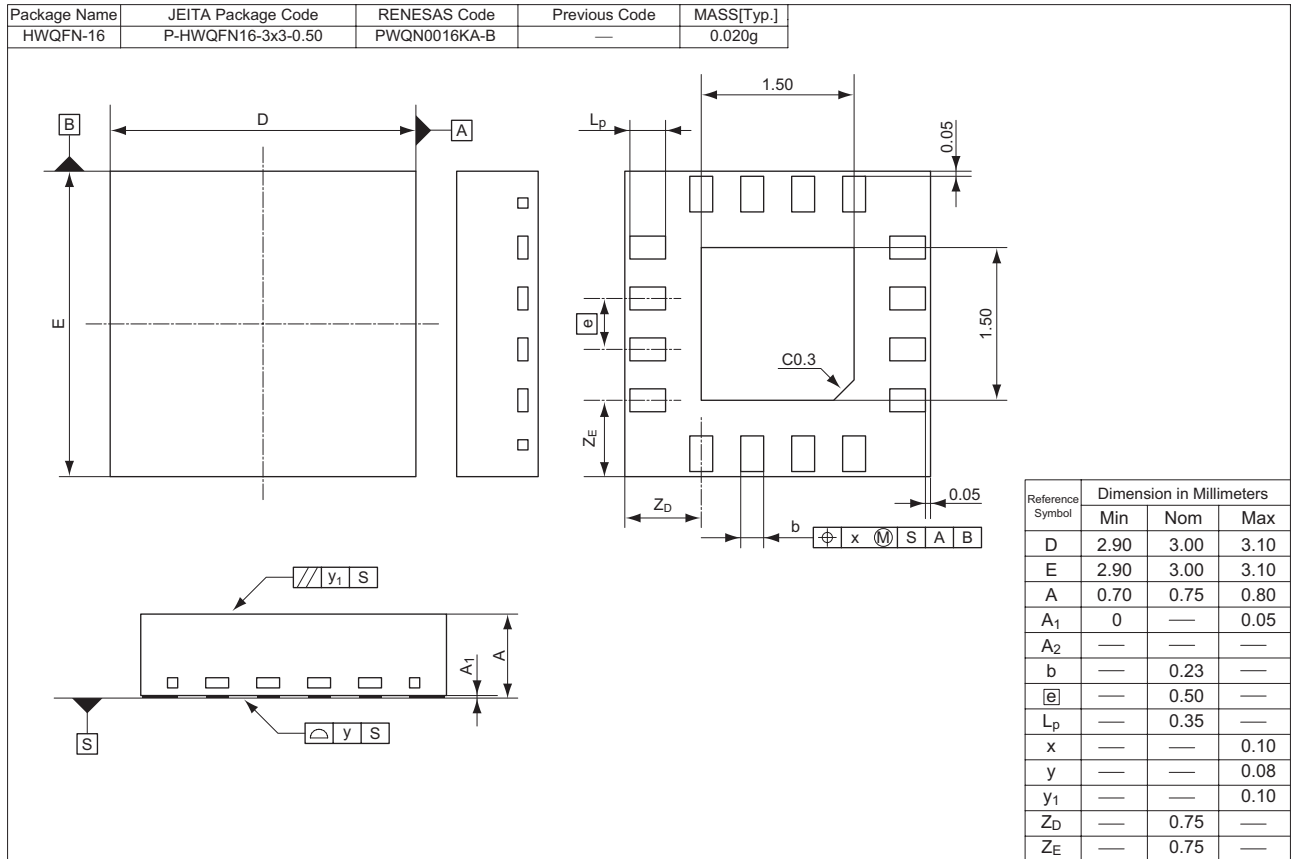
Characteristics for IEEE 802.11g

f = 2.484 GHz

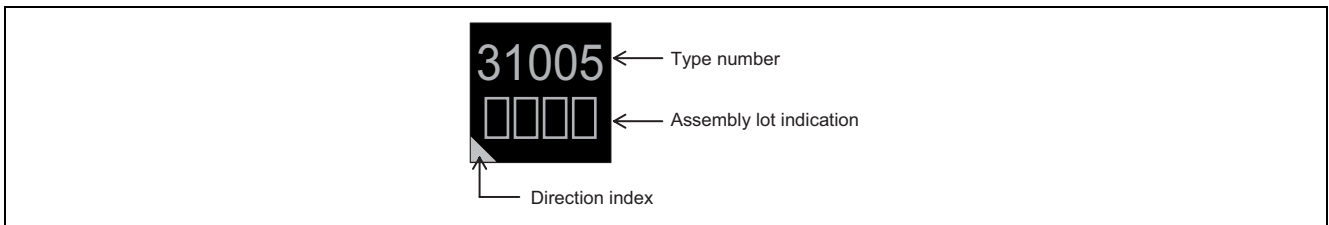
64 QAM / OFDM, Encode rate 3/4, 54 Mbps, idle interval = 110 μs, 1024 + 34 byte / frame



Package Dimensions



Marking



Ordering Information

| Part No. | Quantity | Shipping Container |
|----------------|-----------|-----------------------------------|
| HA31005ANPTL-E | 2000 pcs. | φ178 mm reel, 12 mm emboss taping |

Notes:

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