BK4818

Analog Two Way Radio IC

Features

- World wide band: 124 ~ 560 MHz
- 12.5/25 kHz channel spacing
- On chip 5 dBm RF PA
- 3.0 V to 3.6 V power supply
- CTCSS tone receiver with up to parallel eight frequency detector
- 23/24 bit programmable DCS code
- Standard DTMF and programmable in-band dual tone
- SELCALL and programmable in-band single tone
- 1.2/2.4 kbps FSK data modem with either F2D or F1W modulation type
- Frequency inversion scrambler
- Voice activated switch (VOX) and time-out timer
- RF Signal strength measurement and signal quality measurement
- TX Audio signal strength indication and RX audio signal strength indication
- 3-wires interface with MCU with maximum 8 Mbps clock rate
- QFN 4x4 32-Pin package

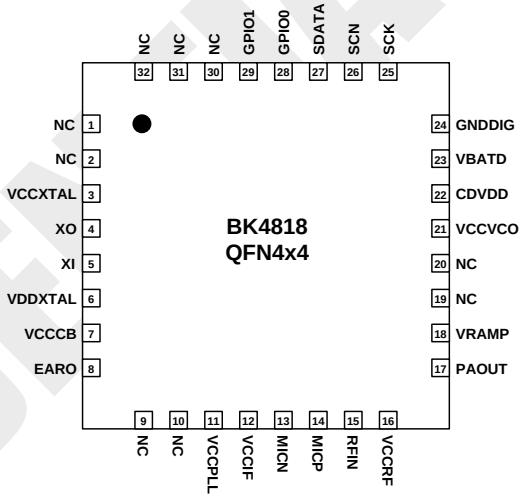
Applications

- Personal Radio Service
- Baby Monitor
- Toys

General Description

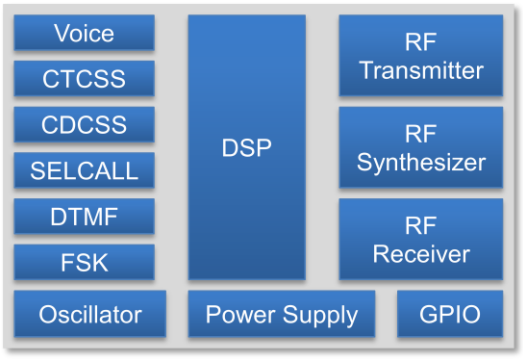
The BK4818 is a half-duplex TDD FM transceiver operating from 124 MHz to 560 MHz band for worldwide personal radio. Besides speech communication, the BK4818 on-chip FSK data modem supports F2D and F1W emission to be used in both FRS and DPMR band for text message and GPS information exchange.

The BK4818 is a complete, small form factor solution optimized for low-power, low-cost, and highly integrated mobile and portable consumer electronic devices, requiring only a few external decoupling capacitors and an external inductor for input matching.



QFN 32 Pin Assignments (Top View)

Functional Block Diagram



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4 Pin Assignment

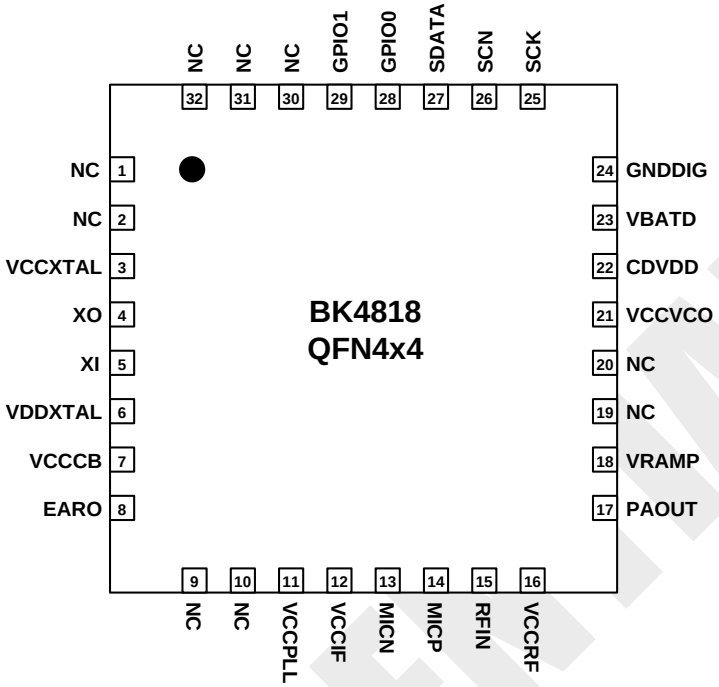


Figure 16. BK4818 Pin Assignment (Top View)

Table 12. BK4818 4mmx4mm 32-Pin Definition

Pin #	Name	Direction	Function
1	NC		
2	NC		
3	VCCXTAL	Input	Power supply, 3.0 V to 3.6 V
4	XO	Output	Crystal oscillator port, output
5	XI	Input	Crystal oscillator port, input
6	VDDXTAL	Output	XTAL OSC regulator output
7	VCCCB	Input	Power supply, 3.0 V to 3.6 V
8	EARO	Output	Earpiece output
9	NC		
10	NC		
11	VCCPLL	Input	Power supply, 3.0 V to 3.6 V
12	VCCIF	Input	Power supply, 3.0 V to 3.6 V
13	MICN	Input	Microphone input, negative
14	MICP	Input	Microphone output, positive
15	RFIN	Input	Input of RXFE
16	VCCRF	Input	Power supply, 3.0 V to 3.6 V
17	PAOUT	Output	Output of power amplifier
18	VRAMP	Output	PA regulator output
19	NC		
20	NC		
21	VCCVCO	Input	Power Supply, 3.0 V~ 3.6 V
22	CDVDD	Output	Digital regulator output
23	VBATD	Input	Power Supply, 3.0 V~ 3.6 V

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6 Package Information

QFN 4mmx4mm 32pin package is available for BK4818. Detail information of the package is shown below:

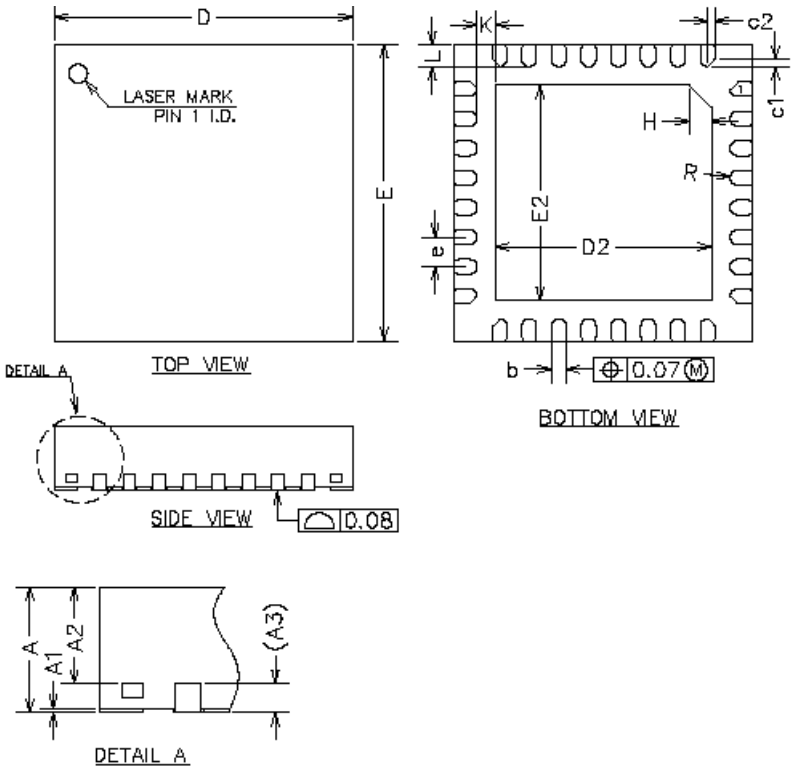


Figure 18. QFN 4x4 32 Pin Package diagram

Table 13. QFN 4x4 32 Pin Package dimensions

Parameter	Min	Typ	Max	Unit
A	0.80	0.85	0.90	mm
A1	0.00	0.02	0.05	mm
A2	0.60	0.65	0.70	mm
A3		0.20 REF		mm
b	0.15	0.20	0.25	mm
D	3.90	4.00	4.10	mm
E	3.90	4.00	4.10	mm
D2	2.80	2.90	3.00	mm
E2	2.80	2.90	3.00	mm
e	0.30	0.40	0.50	mm
H		0.30 REF		mm
K		0.25 REF		mm
L	0.25	0.30	0.35	mm
R	0.09	–	–	mm
c1	–	0.10	–	mm
c2	–	0.10	–	mm

Soldering layer content

Content	width	unit
Ni	0.5-2.0	um
Pd	0.02-0.15	um
Au	0.003-0.015	um

Storage Caution

1. Calculated shelf life in vacuum sealed bag 12 months at<40℃ and 90% relative humidity (RH).
2. Peak package body temperature 260℃.
3. After vacuum sealed bag is opened ,devices that will be subjected to reflow solder or other high temperature process must
   a) Mounted within 168 hours of factory conditions<40℃/60%.
   b) Stored at 10% RH.

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7 Tape and Reel Information

All dimensions are in millimeters by default.

7.1 Tape Information

The figure below shows the dimensions of the tape for the BK4818 QFN.

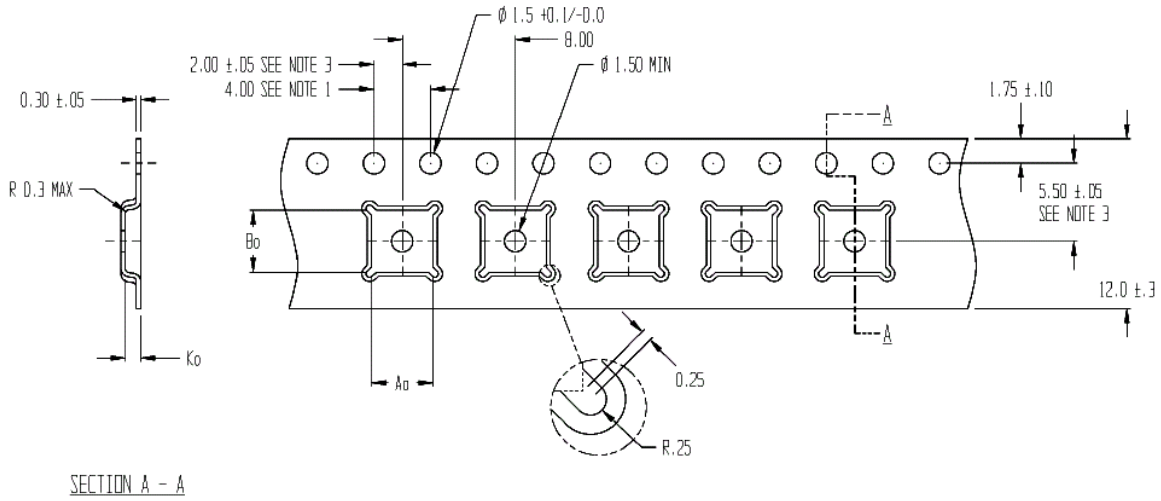


Figure 19. Tape Dimensions

A_0	B_0	K_0	Unit	Notes
4.35	4.35	1.1	mm	1. 10 sprocket hole pitch cumulative tolerance ±0.2. 2. Camber in compliance with EIA 481. 3. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

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7.2 Cover Information

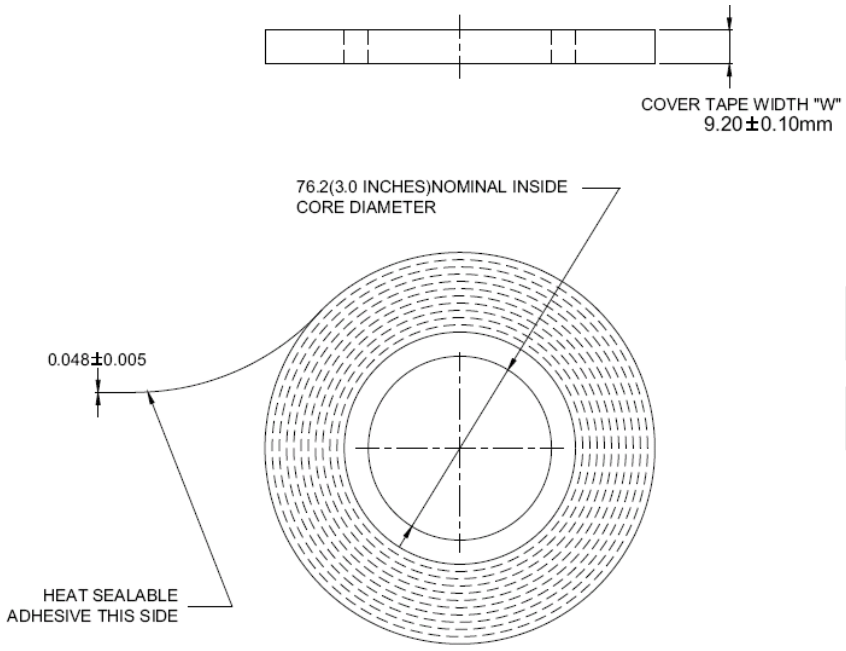


Figure 20. Cover Dimensions

Note:

1. Reel to contain 300 meters of splice free material.
2. Material: Polyester film with antistatic coating and adhesive coating.
3. Color: Transparent, natural

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7.3 Reel Information

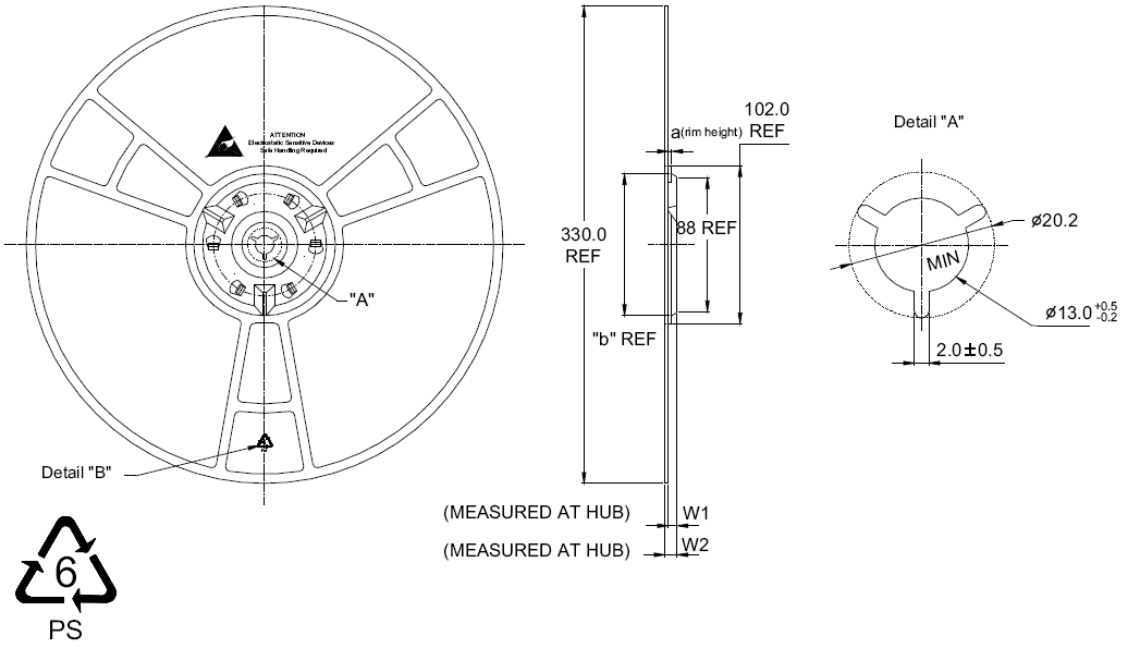


Figure 21. Reel Dimensions

Nominal Hub Width	W1 +0.6mm -0.4mm	W2 MAX	a	b	Unit
12	12.8	18.2	1.5	96.5	mm

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8 Solder Reflow Profile

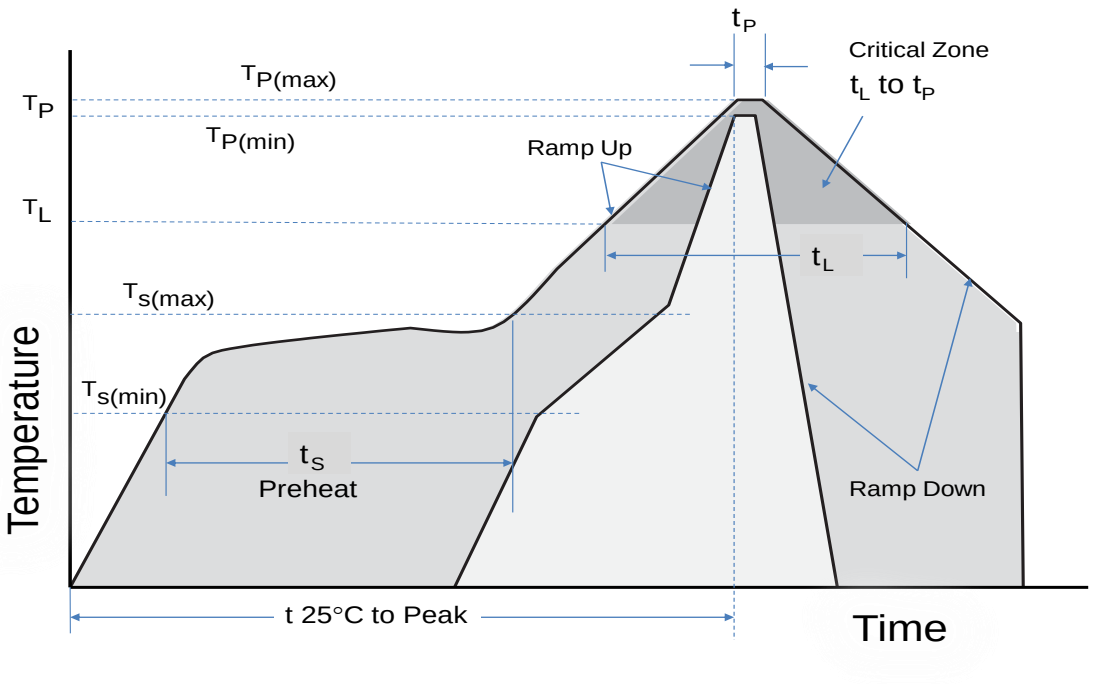


Figure 22. Classification Reflow Profile

Profile Feature		Specification
Average Ramp-Up Rate (tsmax to tp)		3°C/second max.
Pre_heat	Temperature Min (Tsmin)	150°C
	Temperature Max (Tsmax)	200°C
	Time (ts)	60-180 seconds
Time Maintained above	Temperature (TL)	217°C
	Time (tL)	60-150 seconds
Peak/Classification Temperature (Tp)		260°C
Time within 5°C of Actual Peak Temperature (tp)		20-40 seconds
Ramp-Down Rate 6		6°C/second max.
Time 25°C to Peak Temperature 8		8 minutes max.
Maximum Reflow Cycles		3

RoHS Compliant

The product does not contain lead, mercury, cadmium, hexavalent chromium, PBB&PBDE content in accordance with directive 2002/95/EC(RoHS).

ESD Sensitivity

Integrated circuits are ESD sensitive and can be damaged by static electricity. Proper ESD techniques should be used when handling these devices.

9 Order Information

Part number	Package	Packing	MOQ (ea)
BK4818QB	QFN	Tape Reel	3 k

Remark:
MOQ: Minimum Order Quantity

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