6.3.2 QPSK receiver

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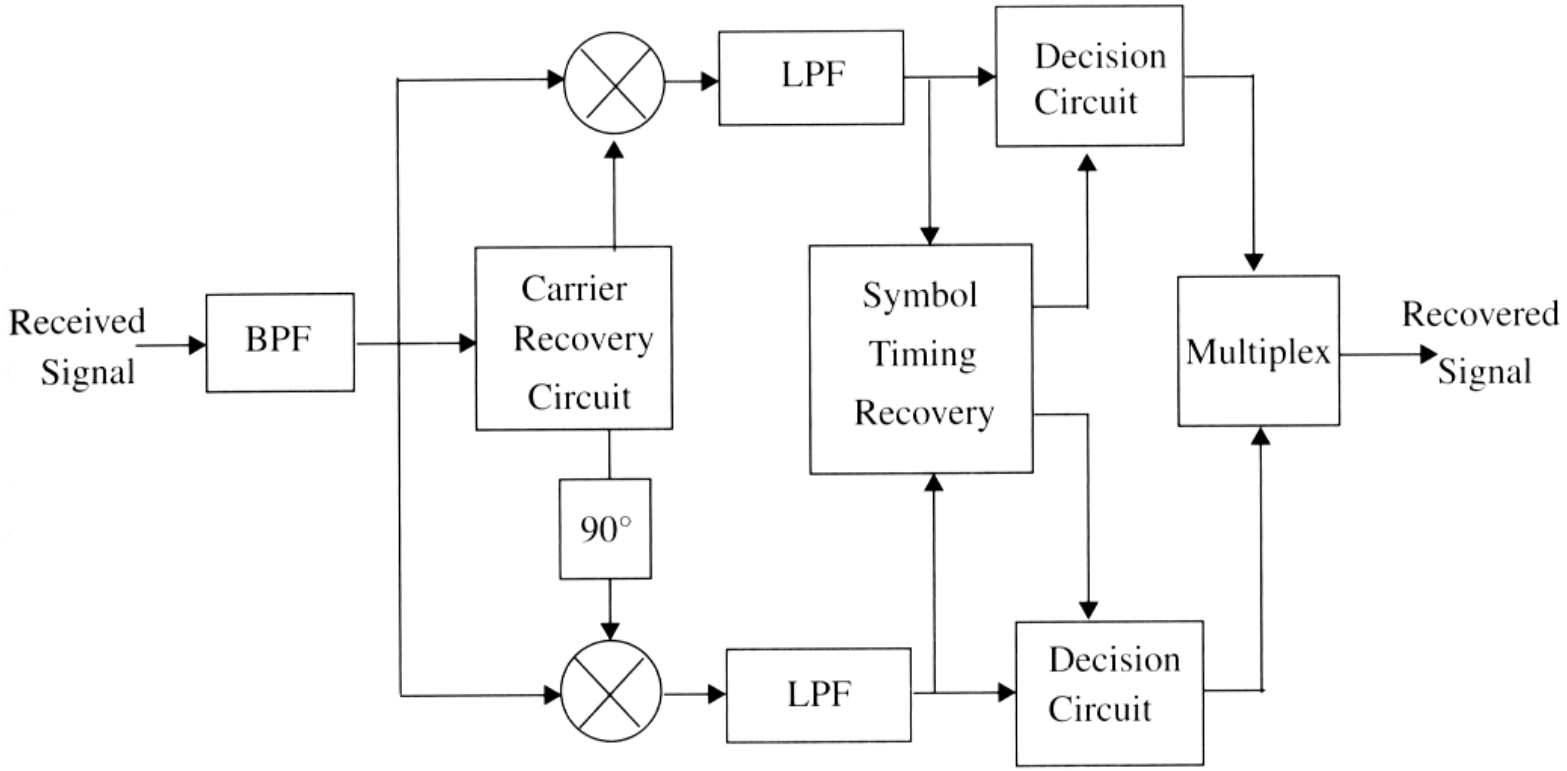

Fig. 8 Block diagram of a QPSK receiver.

6.3.3 MSK modulation

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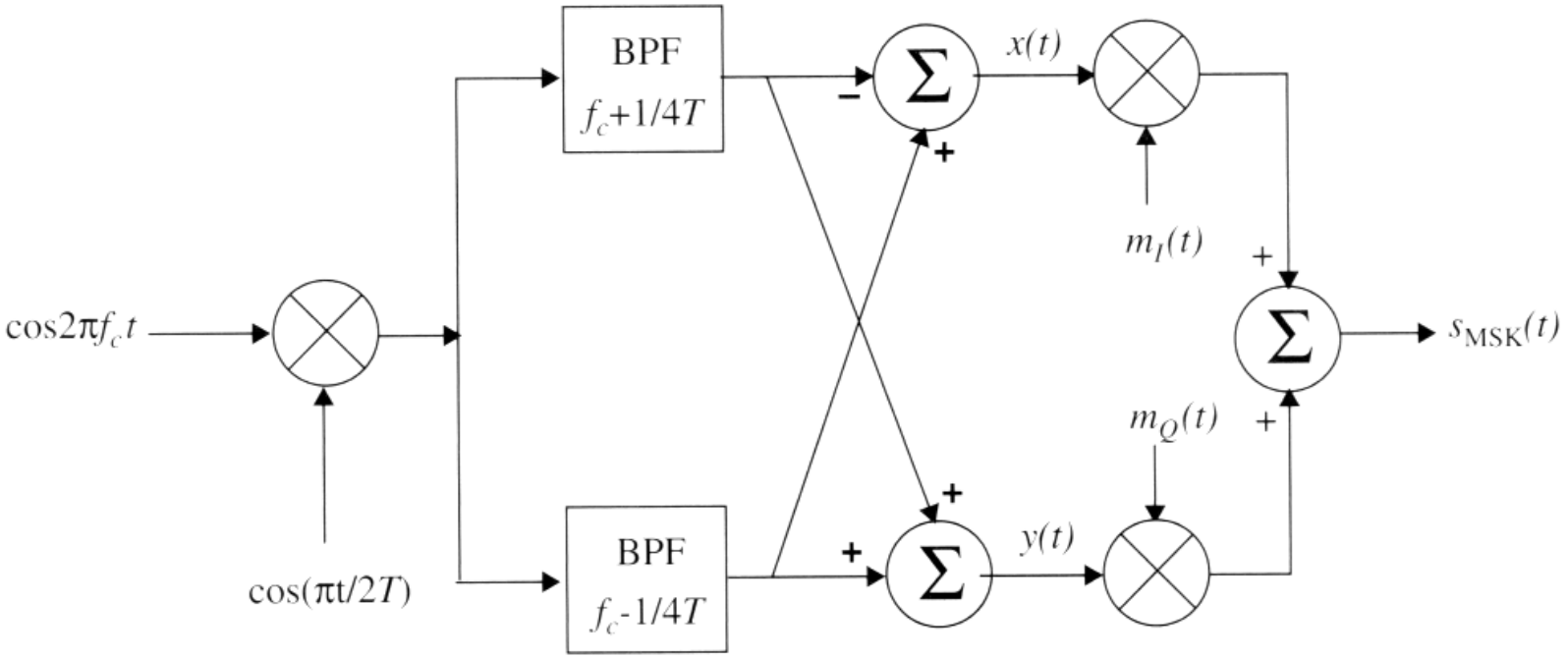


Fig. 9 Block diagram of an MSK transmitter. Note that $m_I(t)$ and $m_Q(t)$ are offset by T_b.

6.3.4 MSK reception

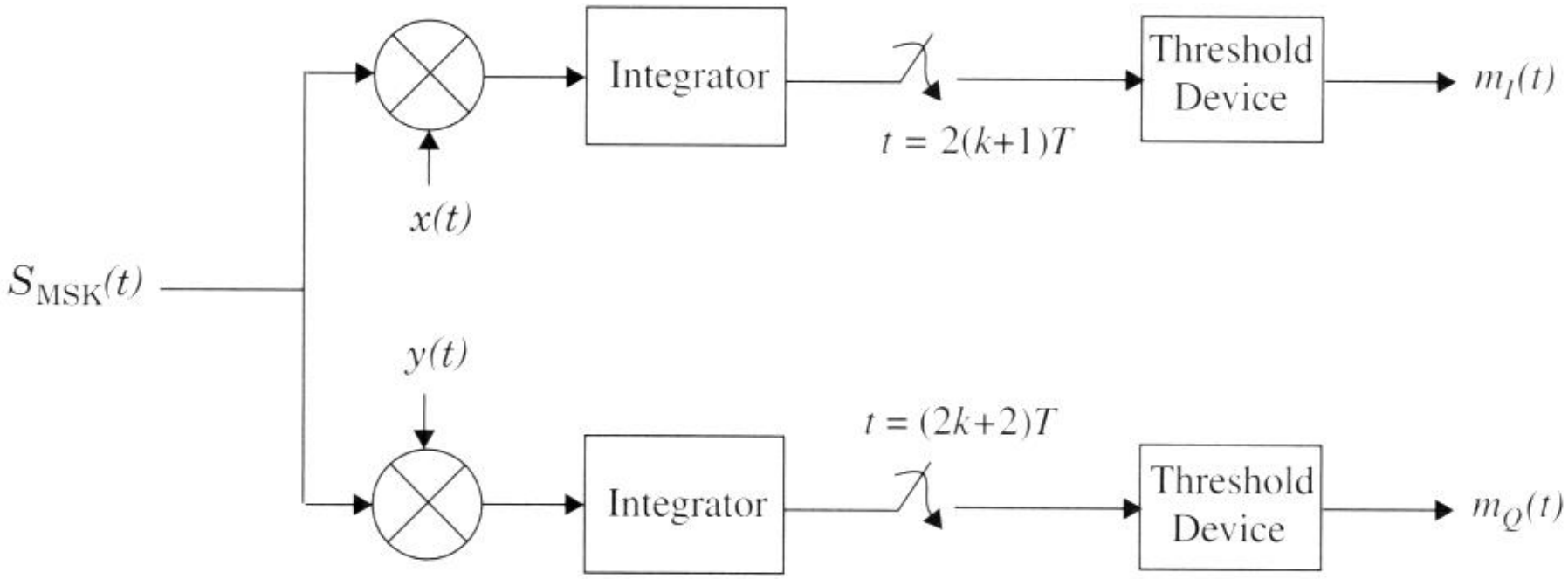
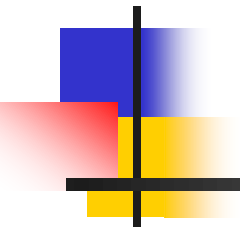


Fig. 10 Block diagram of an MSK receiver.



6.4 Wireless Systems

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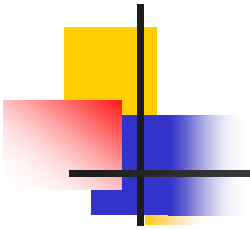
6.4.1 IS-95 Interfaces

- A Interface (BSC-MSC) .. This interface is between the BSC and the MSC. It supports both the control plane and user plane
- Abis Interface (BTS-BSC)—This is the interface between the BSC and BTS. This is internal interface and generally proprietary
- B Interface (MSC-VLR) This interface is defined by TIA IS-41
- C Interface (MSC-HLR) This interface uses IS-41 messaging as well
- D Interface (HLR-VLR) – HLR-VLR signaling is based on IS-41 as well. It sits on top of SS7
- E Interface (MSC-MSC)– Inter MSC signaling is defined in IS-41
- L interface (MSC-IWF) This interface allows the ability for circuit switched data in second generation networks
- Um Interface (BS-MS) – This is the air interface between the mobile and the network

6.4.2 Multiple Access

- Code-Division Multiple Access CDMA
  - unique digital codes are used to differentiate subscribers
  - codes are shared by both MS and BS
  - all users share the same range of radio spectrum

- Benefits of CDMA:
  1) Capacity increases: 4 to 5 times (GSM)
  2) Improved call quality
  3) Simplified system planning
  4) Enhanced privacy



5) Improved coverage characteristics
6) Increased talk time for portables
7) Bandwidth on demand

- 6.4.3 Disadvantages
  - Receiver must be precisely synchronized with the transmitter to apply the decoding correctly
  - Receiver must know the code and must separate the channel with user data from the background noise composed of other signals and environmental noise