

# 14. Nonreciprocal circuits

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## 14.1 Loss-less characteristics of circuits

isolators

circulators

## 14.2 Microwave response of magnetic material

## 14.3 Isolator

## 14.4 Circulator

## 14.5 Edge-guided mode

## 14.6 Application of circulators

Bi-directional transmission

Applicable to a switch

Add Drop Multiplexer