

# LNB (Low Noise Block) Satellite Set-tops

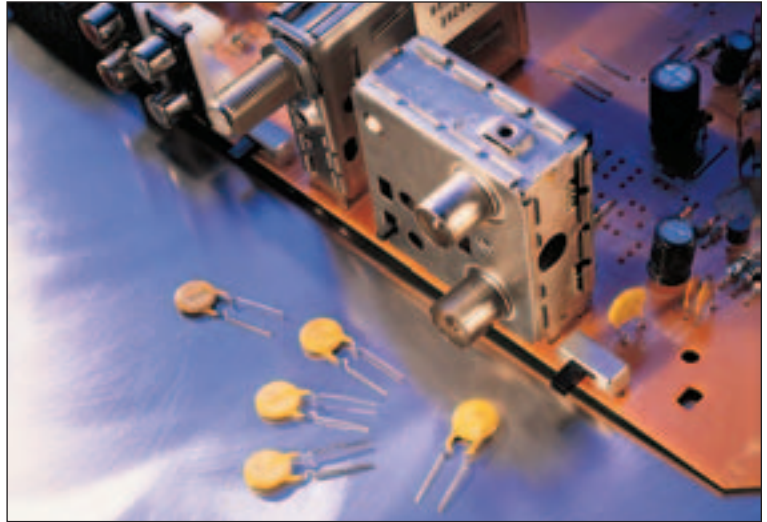
## Application Overview

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### Problem/Solution

DBS-1 and DBS-2 satellites transmit Left-Hand Circular Polarization (LHCP) and Right-Hand Circular Polarization (RHCP) respectively. Although using both LHCP and RHCP increases the complexity of the home receiving antennas, it allows more channels to be broadcast in the same frequency band without interference. Even numbered channels are transmitted using LHCP, and odd numbered channels with RHCP. The LNB is an electronic unit mounted on the satellite dish. It receives the signals reflected by the dish and converts them to signals that can be used by the receiver. The power supply in the receiver provides +13V at the RHCP and +18V at the LHCP input for the LNB. Typical specifications for the dual LNB are  $13V \pm 5\%$ ,  $18V \pm 5\%$  maximum, both at 400mA operating current.

Coaxial cable is used to carry both signals from the satellite



dish LNB to the receiver unit, and DC power from the receiver's power supply to the LNB. A short-circuit overload to the power supply can occur if the central pin in the coaxial cable connection to the receiver is bent or crushed against the connector during installation; it can also occur any time the user disconnects

the antenna from the receiver. Thus, the LNB circuit should be protected.

### Technology Comparison

Fuses have been used in these applications. But fuses need to be replaced when blown, frequently leading to expensive service calls. Fuses that are user accessible can be incorrectly replaced, leading to nuisance blowing if too small a fuse is used, or to system damage if too large a fuse is used. PolySwitch resettable devices latch into a high-resistance state when a fault occurs. Once the fault and power to the circuit are removed, the device automatically resets and is ready for normal operation.

### Device Selection

Devices typically used in this application are the miniSMD, SMD, RXE, and RUE series.

Figure 1. Application Schematic

