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# Agilent HFBR-2412TC and HFBR-2416TC Conductive Port Option for Low Cost Miniature Link Components

## Technical Data

**HFBR-2412TC**
**HFBR-2416TC**

### Features

- **Significantly Decreases Effect of Electromagnetic Interference (EMI) on Receiver Sensitivity**
- **Available with Threaded ST Styled Port Receivers**
- **Allows the Designer to Separate the Signal and Conductive Port Grounds**

### Description

The conductive port option for the Low Cost Miniature Link component family consists of a grounding path from the conductive port to four grounding pins as shown in the package outline drawing. Signal ground is separate from the four grounding pins to give the designer more flexibility. This option is available with all Threaded ST panel mount styled port receivers. Electrical/optical performance of the receivers is not affected by the conductive port. Refer to the HFBR-2412TC and HFBR-2416TC data sheets for more information.

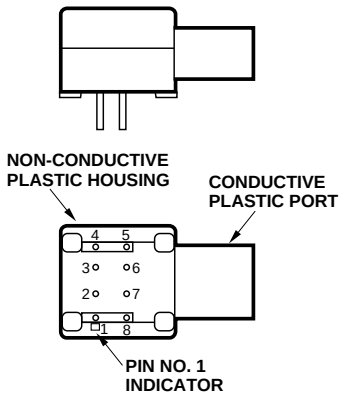
### Applications

Agilent recommends that the designer use separate ground paths for the signal ground and the conductive port ground in order to minimize the effects of coupled noise on the receiver circuitry. If the designer notices that extreme noise is present on the system chassis, care should be taken to electrically isolate the conductive port from the chassis.

In the case of ESD, the conductive port option does not alleviate the need for system recovery procedures. A 15 kV ESD event

entering through the port will not cause catastrophic failure for any HFBR-2412TC and HFBR-2416TC receivers, but may cause soft errors. The conductive port option can reduce the amount of soft errors due to ESD events, but does not guarantee error-free performance.

### Package Outline




| Pin | Function |
|---|---|
| 1 | Port Ground Pin |
| 2 | Part Dependent |
| 3 | Part Dependent |
| 4 | Port Ground Pin |
| 5 | Port Ground Pin |
| 6 | Part Dependent |
| 7 | Part Dependent |
| 8 | Port Ground Pin |

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## Reliability Information

Low Cost Miniature Link components with the Conductive Port Option are as reliable as standard HFBR-2412TC and HFBR-2416TC components. The following tests were performed to verify the mechanical reliability of this option.

## Ordering Information

HFBR-2412TC-820 nm Receiver, ST housed, 5 MBd, TTL Output, Conductive Port.

HFBR-2416TC-820 nm Receiver, ST housed, 125 MHz, Analog Output, Conductive Port.

## Mechanical and Environmental Tests [1]

| Test | MIL-STD-883/ Other Reference | Test Conditions | Units Tested | Total Failed |
|---|---|---|---|---|
| Temperature Cycling | 1010 Condition B | -55°C to +125°C<br>15 min. dwell/5 min. transfer<br>100 cycles | 70 | 0 |
| Thermal Shock | 1011 Condition B | -55°C to +125°C<br>5 min. dwell/10 sec. transfer<br>500 cycles | 45 | 0 |
| High temp. Storage | 1008 Condition B | $T_A$ = 125°C<br>1000 hours | 50 | 0 |
| Mechanical Shock | 2002 Condition B | 1500 g/0.5 ms<br>5 impacts each axis | 40 | 0 |
| Seal Dye Penetrant (Zyglo) | 1014 Condition D | 45 psi, 10 hours<br>No leakage into microelectronic cavity | 15 | 0 |
| Solderability | 2003 | 245°C | 10 | 0 |
| Resistance to Solvents | 2015 | 3 one min. immersion brush after solvent | 13 | 0 |
| Chemical Resistance | – | 5 minutes in Acetone, Methanol, Boiling Water | 12 | 0 |
| Temperature-Humidity | – | $T_A$ = 85°C, RH = 85%<br>Biased, 500 hours | 30 | 0 |
| Lead Integrity | 2004 Condition B2 | 8 oz. wt. to each lead tested for three 90° arcs of the case | 16 | 0 |
| Electrostatic Discharge (ESD) | IEC-801-2 | Direct contact discharge to port, 0-15 kV [2] | 16 | 0 |

**Notes:**

1. Tests were performed on ST products with the conductive port option.
2. Agilent has previously used an air discharge method to measure ESD; results using this method vary with air temperature and humidity. The direct contact discharge method is perferred due to better repeatability and conformance with IEC procedures. ESD immunity measured with the air discharge method is generally higher than with the direct contact discharge method.

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