

# BD23B

## Dual Band 2-Way SMT Power Divider

1900~2500MHz PCS, WCDMA & TD-SCDMA, WiBro



### Device Features

- Typical Isolation = 25 dB
- Typical Insertion Loss = 0.4 dB
- MSL 1 moisture rating
- Lead-free/RoHS-compliant SOIC-8 Plastic Package  
With exposed back side ground pad



### Product Description

BeRex's Divider BD23B is designed for PCS, WCDMA & TD-SCDMA and WiBro band with low Insertion Loss and Isolation. This chip is fully passivated for enhanced performance and reliability and packaged in RoHS-compliant with SOIC-8 surface mount package. It can be used without back side ground soldering. (This may degrade the performance at the high frequency edge.)

### Typical Performance<sup>1</sup>

| Parameter         | Min  | Typical | Max  | Unit |
|-------------------|------|---------|------|------|
| Frequency Range   | 1900 |         | 2500 | MHz  |
| Insertion Loss    |      | 0.4     | 0.8  | dB   |
| Isolation         | 15   | 25      |      | dB   |
| IRL(S11)          |      | -23     | -15  | dBm  |
| ORL(S22/S33)      |      | -25     | -15  | dBm  |
| Amplitude Balance |      | 0.05    | 0.2  | dB   |
| Phase Balance     |      | 0.5     | 1.0  | deg  |

\*All specifications apply to the following test conditions,

1. Device performance \_ measured on BeRex E/B at 25°C, 50ohm system.
2. Insertion Loss: Above 3.0dB.
3. Back side ground \_ soldered.

### Applications

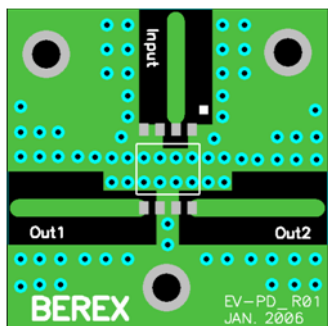
- Base station Infrastructure
- Commercial/Industrial/Military wireless system

### Absolute Maximum Ratings

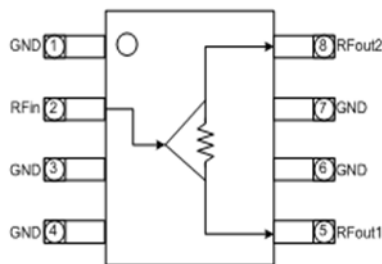
| Parameter             | Rating        |
|-----------------------|---------------|
| Input Power           | 1W CW dBm     |
| Storage Temperature   | -55 to +155°C |
| Operating Temperature | -40 to +85°C  |

Operation of this device above any of these parameters may result in permanent damage.

### Evaluation Board Drawing



### Function Block Diagram



Pins 1,3,4,6 and 7 must be DC and RF grounded.

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### Typical Test Data

#### With Back Side Ground Soldering

| Parameters        | Unit | WCDMA & TD-SCDMA |       |       | WiBro |       |       |
|-------------------|------|------------------|-------|-------|-------|-------|-------|
| Frequency Range   | MHz  | 1900             | 2075  | 2250  | 2200  | 2350  | 2500  |
| Insertion Loss    | dB   | 0.38             | 0.39  | 0.44  | 0.42  | 0.46  | 0.54  |
| Isolation         | dB   | 18.7             | 21.6  | 25.8  | 24.2  | 28.5  | 23.8  |
| IRL(S11)          | dB   | -21.4            | -26.7 | -25.2 | -27.0 | -21.6 | -17.4 |
| ORL(S22,S33)      | dB   | -20.9            | -24.5 | -23.0 | -23.7 | -21.6 | -20.8 |
| Phase Diff.       | deg  | 0.0              | 0.2   | 0.3   | 0.3   | 0.5   | 0.7   |
| Amplitude Balance | dB   | 0.03             | 0.04  | 0.06  | 0.05  | 0.06  | 0.09  |

#### Without Back Side Ground Soldering

| Parameters        | Unit | WCDMA & TD-SCDMA |       |       | WiBro |       |       |
|-------------------|------|------------------|-------|-------|-------|-------|-------|
| Frequency Range   | MHz  | 1900             | 2075  | 2250  | 2200  | 2350  | 2500  |
| Insertion Loss    | dB   | 0.36             | 0.38  | 0.45  | 0.42  | 0.49  | 0.6   |
| Isolation         | dB   | 19.2             | 22.2  | 25.7  | 24.7  | 25.8  | 20.5  |
| IRL(S11)          | dB   | -24.2            | -26.0 | -20.4 | -22.1 | -17.6 | -14.2 |
| ORL(S22,S33)      | dB   | -22.3            | -25.0 | -21.9 | -22.8 | -20.4 | -19.3 |
| Phase Diff.       | deg  | 1.7              | 1.6   | 1.7   | 1.7   | 1.7   | 1.8   |
| Amplitude Balance | dB   | 0.07             | 0.06  | 0.07  | 0.07  | 0.06  | 0.06  |

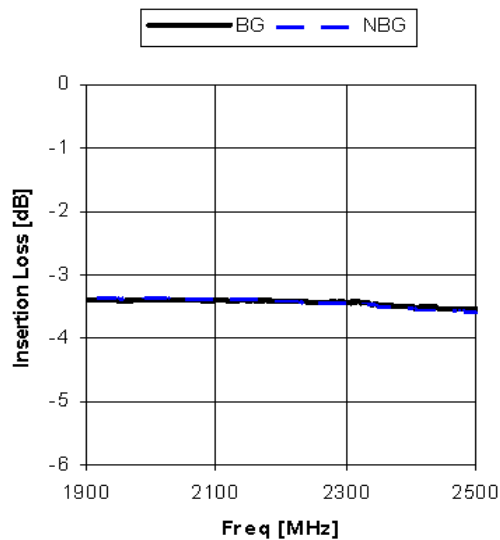
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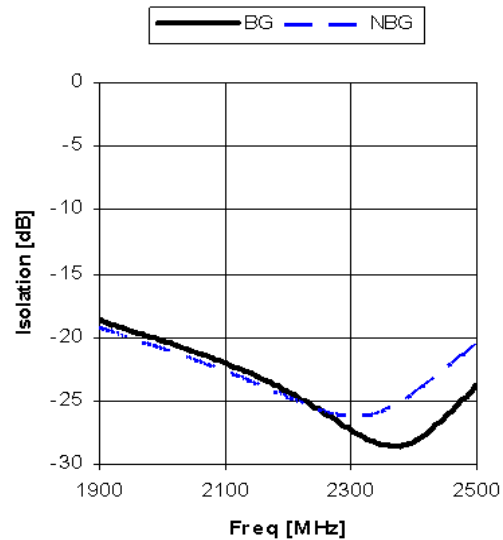
1900~2500MHz PCS, WCDMA & TD-SCDMA, WiBro



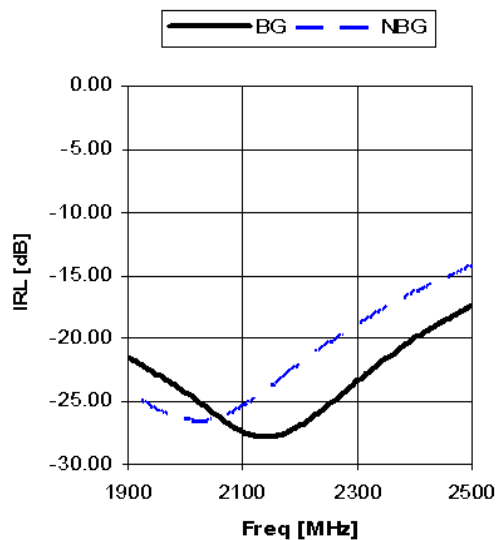
Insertion Loss vs. Frequency



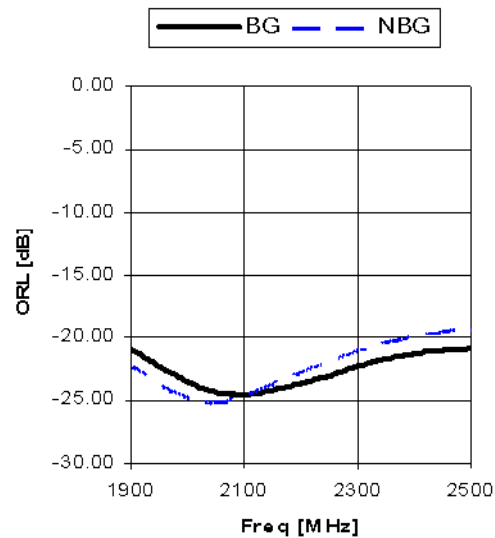
Isolation vs. Frequency



IRL vs. Frequency



ORL vs. Frequency



### Notes)

- BG: Data taken with backside ground soldering
- NBG: Data taken without backside ground soldering

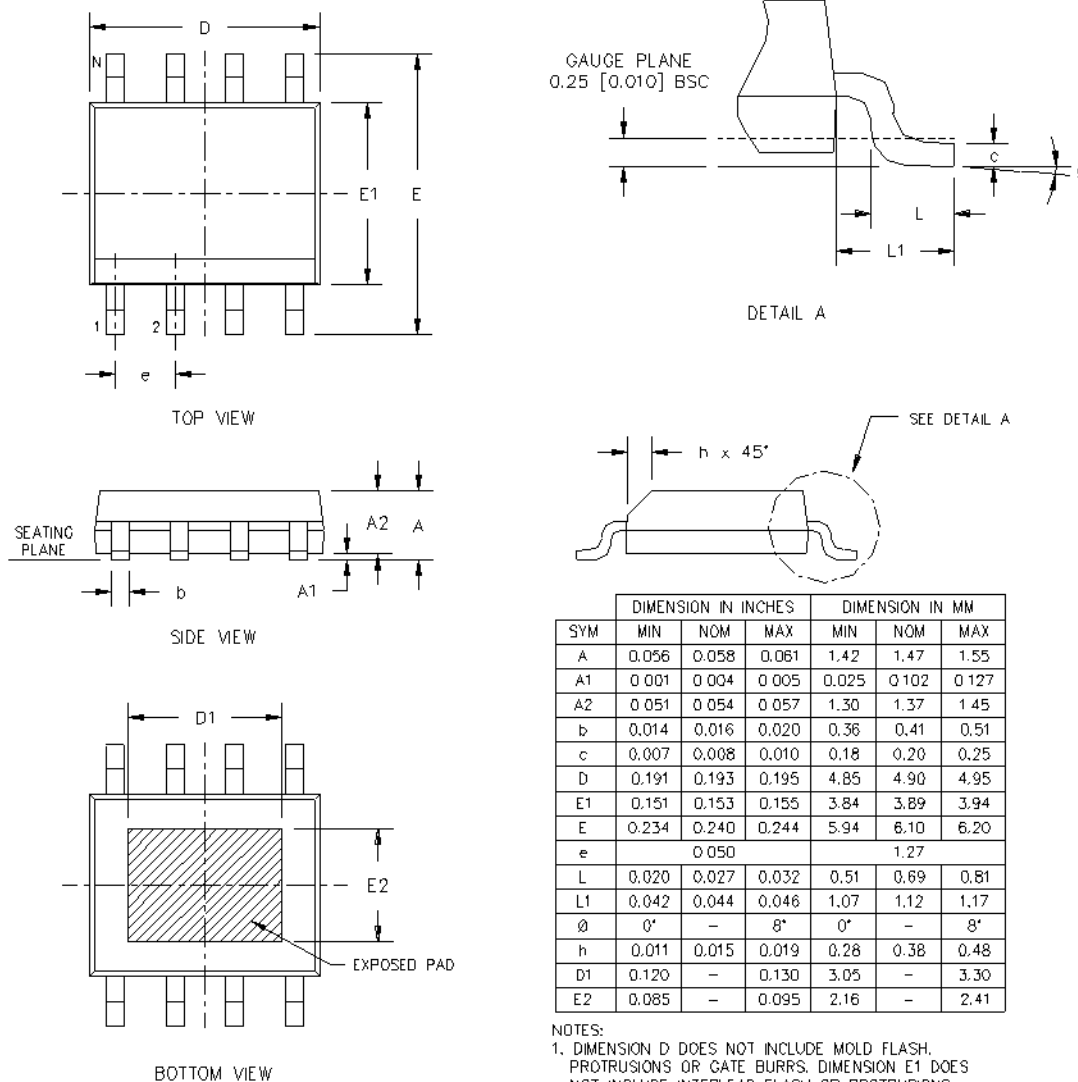
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### Package Outline Drawing



- NOTES:
1. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
  2. COPLANARITY APPLIES TO THE TERMINALS  
COPLANARITY SHALL NOT EXCEED 0.003" [0.08 mm].
  3. BASED FROM JEDEC MS-012 VARIATION AA.

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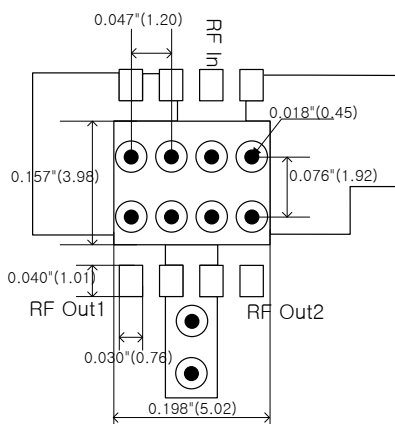


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### Suggested PCB Land Pattern and PAD Layout

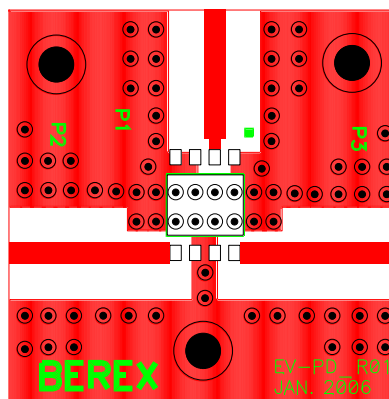
#### PCB Land Pattern



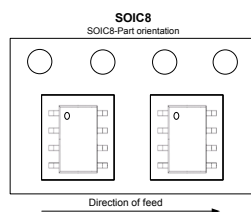
Note : All dimension \_ millimeters

PCB lay out \_ on BeRex website

#### PCB Mounting



### Tape & Reel



Packaging information:

Tape Width (mm): 12

Reel Size (inches): 7

Device Cavity Pitch (mm): 8

Devices Per Reel: 1000

### Lead plating finish

#### 100% Tin Matte finish

(All BeRex products undergoes a 1 hour, 150 degree C, Anneal bake to eliminate thin whisker growth concerns.)

### MSL / ESD Rating

MSL Rating: Level 3 at +265°C convection reflow

Standard: JEDEC Standard J-STD-020

### NATO CAGE code:

|   |   |   |   |   |
|---|---|---|---|---|
| 2 | N | 9 | 6 | F |
|---|---|---|---|---|