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 3 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[1]

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

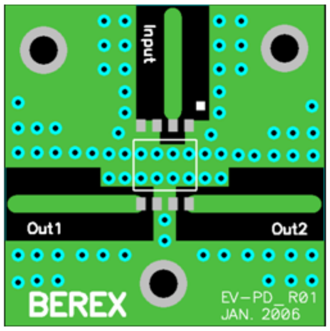
- Base station Infrastructure
- Commercial/Industrial/Military wireless system

Absolute Maximum Ratings

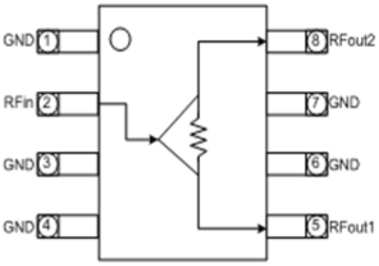
Parameter	Rating
Input Power	1W CW dBm
Storage Temperature	-55 to +155°C
Operating Temperature	-40 to +85°C

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.

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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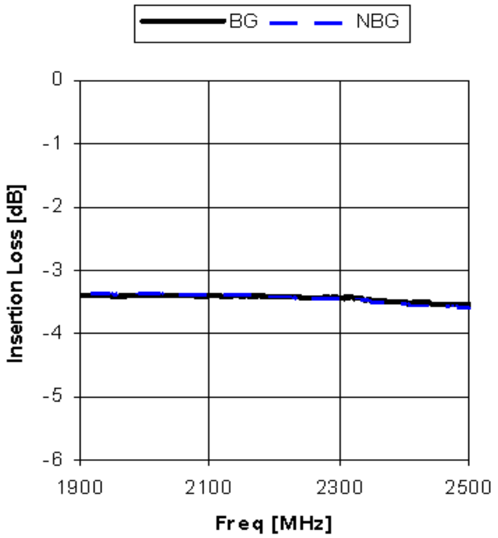
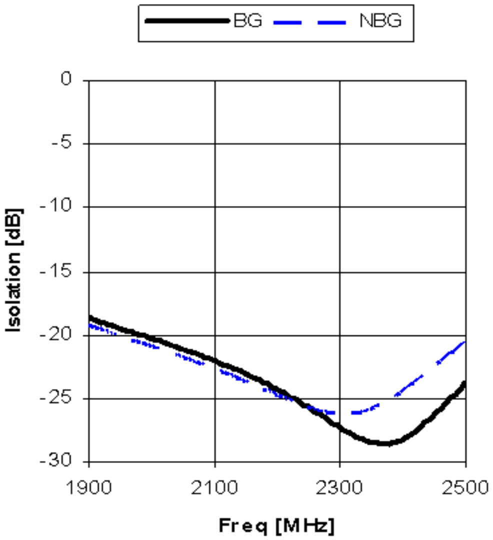
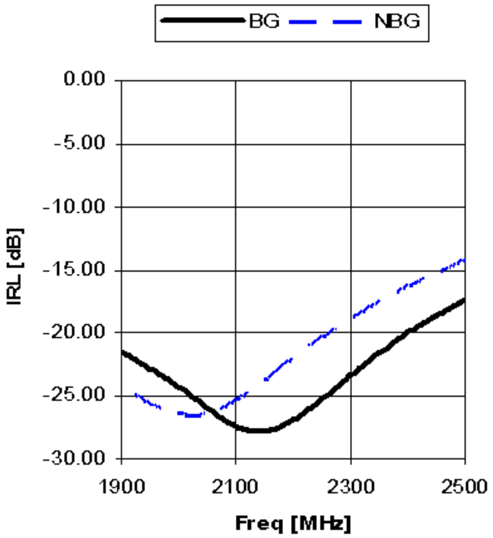
Insertion Loss vs. Frequency



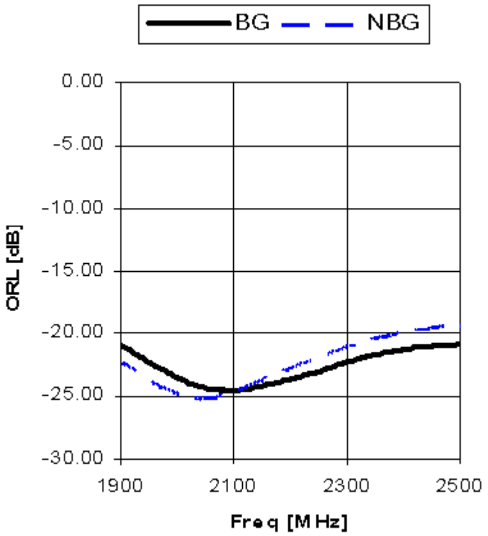
Isolation vs. Frequency



IRL vs. Frequency



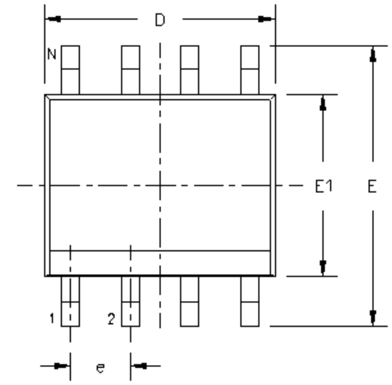
ORL vs. Frequency



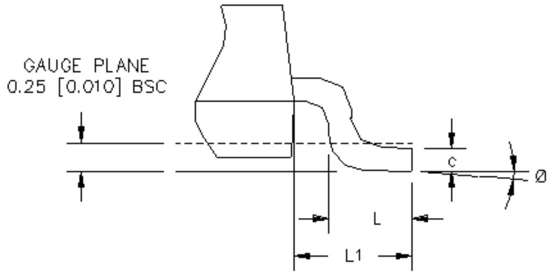
Notes)

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

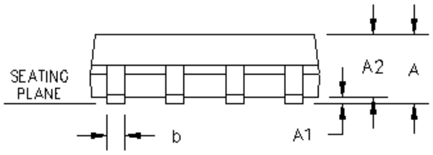
Package Outline Drawing



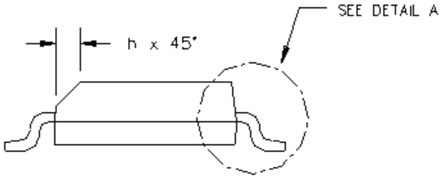
TOP VIEW

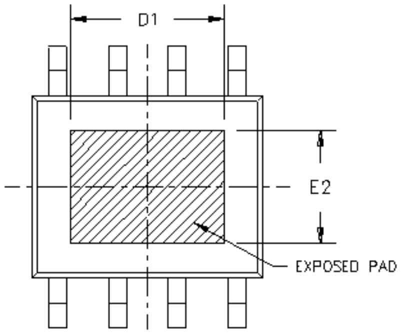


DETAIL A



SIDE VIEW





BOTTOM VIEW

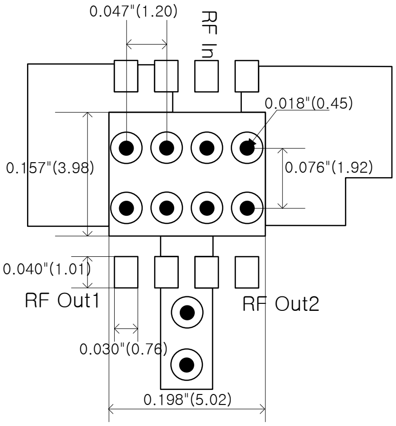
	DIMENSION IN INCHES			DIMENSION IN MM		
SYM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.056	0.058	0.061	1.42	1.47	1.55
A1	0.001	0.004	0.005	0.025	0.102	0.127
A2	0.051	0.054	0.057	1.30	1.37	1.45
b	0.014	0.016	0.020	0.36	0.41	0.51
c	0.007	0.008	0.010	0.18	0.20	0.25
D	0.191	0.193	0.195	4.85	4.90	4.95
E1	0.151	0.153	0.155	3.84	3.89	3.94
E	0.234	0.240	0.244	5.94	6.10	6.20
e		0.050			1.27	
L	0.020	0.027	0.032	0.51	0.69	0.81
L1	0.042	0.044	0.046	1.07	1.12	1.17
Ø	0°	–	8°	0°	–	8°
h	0.011	0.015	0.019	0.28	0.38	0.48
D1	0.120	–	0.130	3.05	–	3.30
E2	0.085	–	0.095	2.16	–	2.41

NOTES:

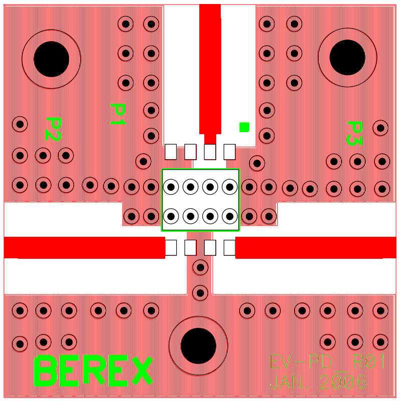
1. DIMENSION D DOES NOT INCLUDE MOLD FLASH. PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
2. COPLANARITY APPLIES TO THE TERMINALS COPLANARITY SHALL NOT EXCEED 0.003" [0.08 mm].
3. BASED FROM JEDEC MS–012 VARIATION AA.

Suggested PCB Land Pattern and PAD Layout

PCB Land Pattern



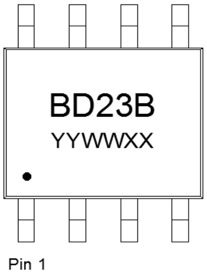
PCB Mounting



Note : All dimension _ millimeters

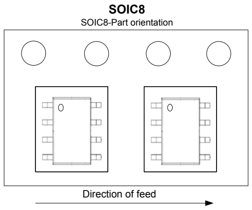
PCB lay out _ on BeRex website

Package Marking



YY = Year, WW = Working Week,
XX = Wafer No.

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