BD09B

Dedicated Band 2-Way SMT Power Divider

700~1000MHz Cellular & GSM900

Device Features

- Typical Isolation = 23 dB
- Typical Insertion Loss = 0.5 dB
- MSL 3 moisture rating
- Lead-free/RoHS-compliant SOIC-8 Plastic Package
  With exposed back side ground pad

Product Description

BeRex's Divider BD09B is designed for Cellular & GSM 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	700		1000	MHz
Insertion Loss		0.5	0.8	dB
Isolation	15	23		dB
IRL(S11)		-20	-15	dB
ORL(S22/S33)		-23	-15	dB
Amplitude Balance		0.05	0.2	dB
Phase Balance		0.2	0.5	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

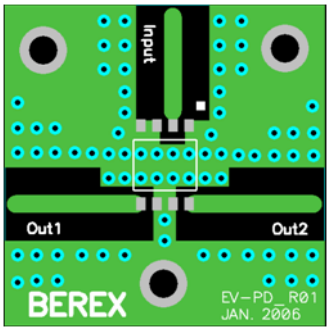
- Base station Infrastructure
- Commercial/Industrial/Military wireless system

Absolute Maximum Ratings

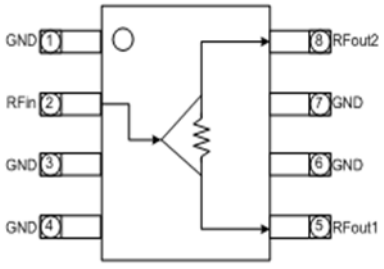
Parameter	Rating
Input Power	1W CW dBm
Storage Temperature	-55 to +155°C
Operating Temperature	-40 to +85°C

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

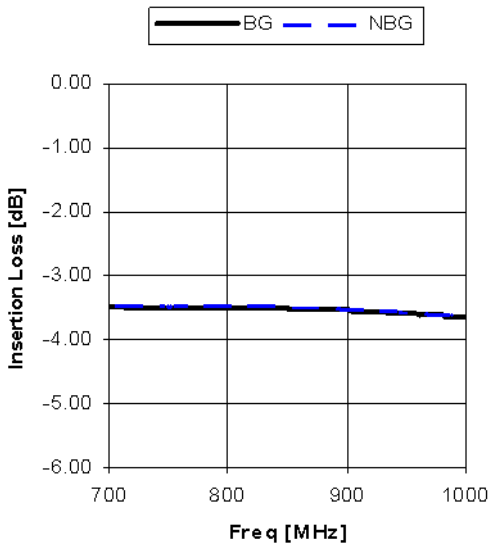
With Back Side Ground Soldering

Parameters	Unit	*Cellular & GSM900*						
Frequency Range	MHz	700	750	800	850	900	950	1000
Insertion Loss	dB	0.48	0.50	0.49	0.52	0.54	0.59	0.65
Isolation	dB	16.7	20.6	25.4	27.0	22.9	19.5	17.1
IRL(S11)	dB	-19.5	-21.8	-23.8	-24.2	-22.0	-19.2	-16.8
ORL(S22,S33)	dB	-21.9	-25.4	-28.1	-26.2	-22.8	-20.0	-17.9
Phase Diff.	deg	0.1	0.2	0.2	0.2	0.3	0.4	0.4
Amplitude Balance	dB	0.00	0.00	0.01	0.01	0.02	0.01	0.01

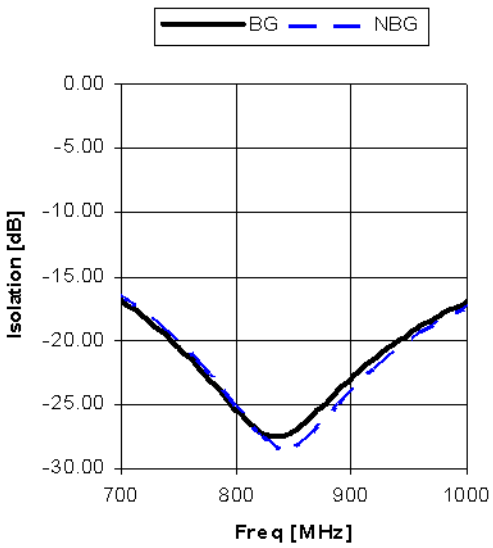
Without Back Side Ground Soldering

Parameters	Unit	*Cellular & GSM900*						
Frequency Range	MHz	700	750	800	850	900	950	1000
Insertion Loss	dB	0.46	0.49	0.48	0.49	0.52	0.58	0.64
Isolation	dB	16.4	20.2	25.1	28.3	23.9	20.1	17.5
IRL(S11)	dB	-19.6	-21.8	-23.8	-23.5	-21.2	-18.5	-16.1
ORL(S22,S33)	dB	-21.8	-25.3	-28.3	-26.5	-22.9	-20.1	-17.9
Phase Diff.	deg	0.4	0.5	0.6	0.5	0.7	0.6	0.6
Amplitude Balance	dB	0.01	0.02	0.02	0.02	0.02	0.03	0.03

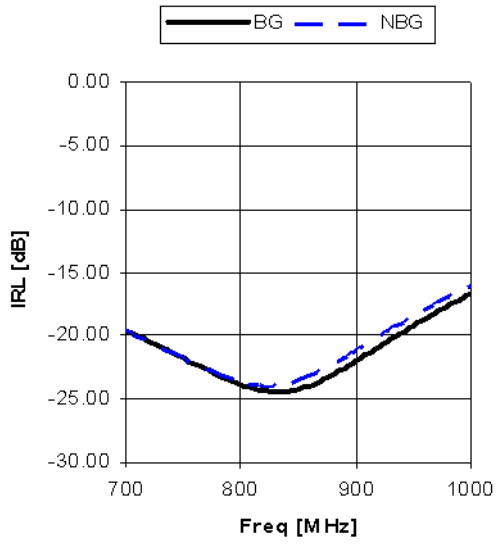
Insertion Loss vs. Frequency



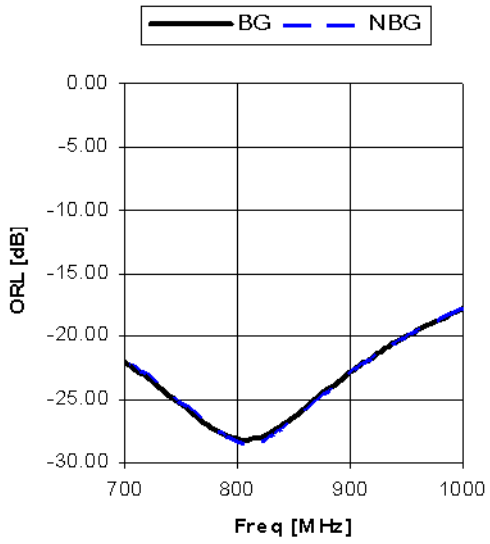
Isolation vs. Frequency



IRL vs. Frequency



ORL vs. Frequency

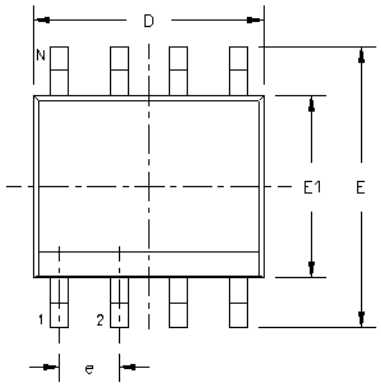


Notes)

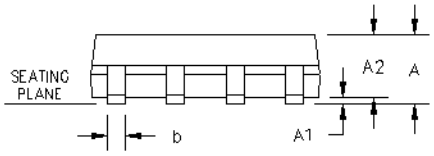
- BG: Data taken with backside ground soldering

- NBG: Data taken without backside ground soldering

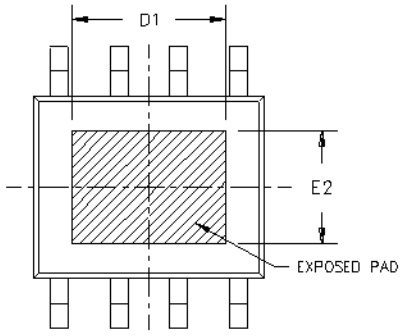
Package Outline Drawing



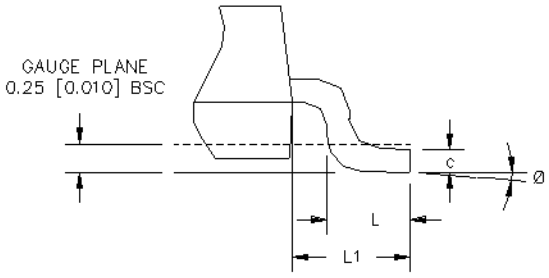
TOP VIEW



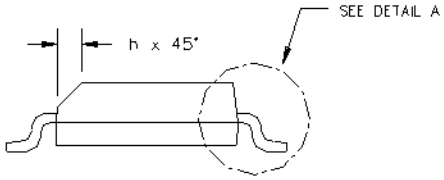
SIDE VIEW



BOTTOM VIEW



DETAIL A

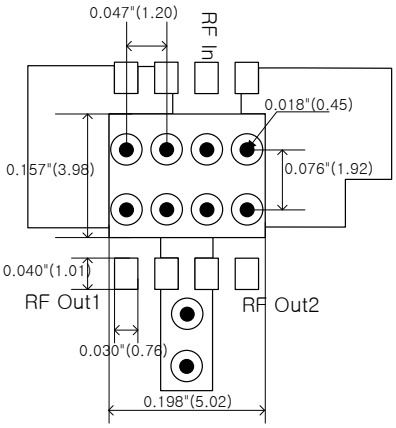


	DIMENSION IN INCHES			DIMENSION IN MM		
SYM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.056	0.058	0.061	1.42	1.47	1.55
A1	0.001	0.004	0.005	0.025	0.102	0.127
A2	0.051	0.054	0.057	1.30	1.37	1.45
b	0.014	0.016	0.020	0.36	0.41	0.51
c	0.007	0.008	0.010	0.18	0.20	0.25
D	0.191	0.193	0.195	4.85	4.90	4.95
E1	0.151	0.153	0.155	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

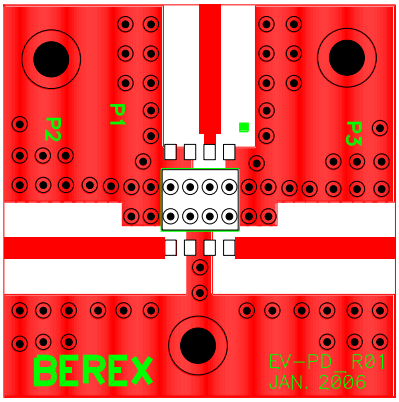
NOTES:
1. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
2. COPLANARITY APPLIES TO THE TERMINALS COPLANARITY SHALL NOT EXCEED 0.003" [0.08 mm].
3. BASED FROM JEDEC MS-012 VARIATION AA.

Suggested PCB Land Pattern and PAD Layout

PCB Land Pattern



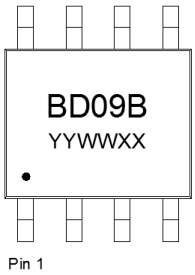
PCB Mounting



Note : All dimension _ millimeters

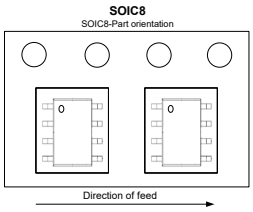
PCB lay out _ on BeRex website

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

Proper ESD procedures should be followed when handling this device.

NATO CAGE code:

2	N	9	6	F