

## Quadruple Band 2-Way SMT Power Divider

1700~2500MHz USPCS & PCS, WCDMA & TD-SCDMA, WiBro

### Device Features and Description

- 23dB Typical Isolation
- 0.5dB Typical Insertion Loss
- Small Size and Low Profile
- MSL 1 moisture rating
- Lead-free/Green/RoHS compliant package
- Application: commercial, space, military wireless system
- Industry Standard SOIC-8 SMT Plastic Package with exposed back side ground pad
- Chip is fully passivated for enhanced performance and reliability
- Can be used without back side ground soldering  
(This may degrade the performance at the high frequency edge. Refer to the following typical test data)



### Electrical specifications

Parameters	Unit	Min	Typ	Max
Frequency Range	MHz	1700		2500
Insertion Loss	dB		0.5	0.8
Isolation	dB	15	23	
IRL(S11)	dB		-20	-15
ORL(S22,S33)	dB		-23	-15
Amplitude Balance	dB		0.05	0.2
Phase Balance	deg		1.0	2.0

All specifications apply with the following test conditions,

1. Device performance is measured on BeRex evaluation board at 25C, 50 ohm system
2. Insertion Loss: Above 3.0dB
3. Back side ground was soldered

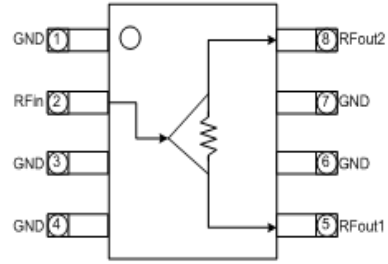
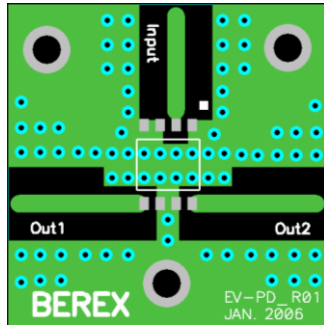
### Absolute Maximum Ratings

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

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

### Function Block Diagram

**Evaluation Board Drawing**



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

**Typical Test Data**

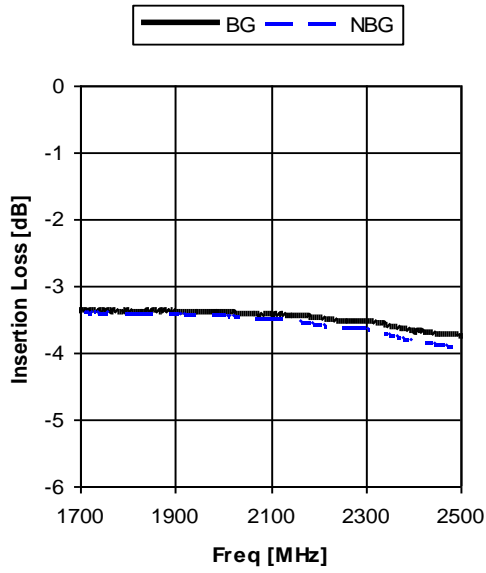
**With Back Side Ground Soldering**

Parameters	Unit	USPCS & PCS			TD-SCDMA WCDMA			WiBro		
		1700	1800	1900	1900	2075	2250	2200	2350	2500
Frequency Range	MHz	1700	1800	1900	1900	2075	2250	2200	2350	2500
Insertion Loss	dB	0.37	0.38	0.38	0.38	0.42	0.53	0.48	0.60	0.75
Isolation	dB	19.6	20.8	21.9	21.9	25.7	28.9	30.6	22.2	15.5
IRL(S11)	dB	-21.3	-23.7	-25.4	-25.4	-22.0	-17.3	-18.5	-15.2	-12.6
ORL(S22,S33)	dB	-24.4	-32.2	-33.9	-33.9	-24.7	-22.4	-22.6	-22.5	-22.7
Phase Diff.	deg	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.7	0.7
Amplitude Balance	dB	0.07	0.07	0.07	0.08	0.09	0.10	0.10	0.12	0.10

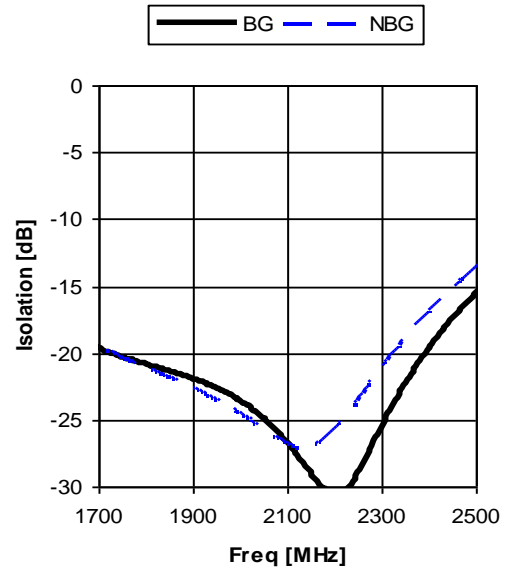
**Without Back Side Ground Soldering**

Parameters	Unit	USPCS & PCS			TD-SCDMA WCDMA			WiBro		
		1700	1800	1900	1900	2075	2250	2200	2350	2500
Frequency Range	MHz	1700	1800	1900	1900	2075	2250	2200	2350	2500
Insertion Loss	dB	0.40	0.41	0.42	0.42	0.49	0.64	0.59	0.75	0.94
Isolation	dB	19.5	21.1	22.7	22.7	26.3	23.6	25.7	19.0	13.7
IRL(S11)	dB	-20.8	-21.7	-21.1	-21.1	-17.8	-14.3	-15.2	-12.4	-10.2
ORL(S22,S33)	dB	-25.9	-37.8	-31.5	-31.5	-22.8	-20.3	-20.6	-19.9	-19.4
Phase Diff.	deg	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	2.0
Amplitude Balance	dB	0.08	0.08	0.09	0.09	0.11	0.10	0.11	0.10	0.08

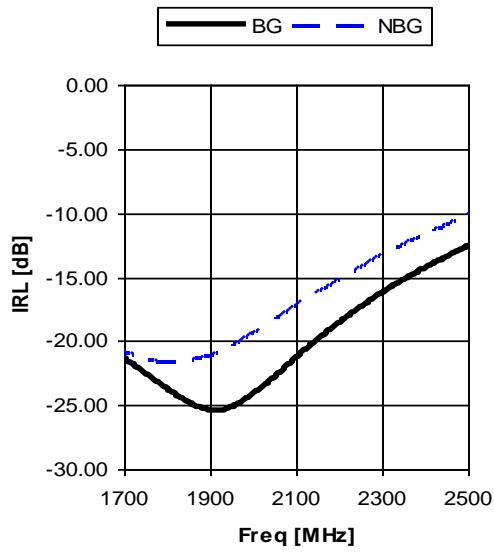
**Insertion Loss vs. Frequency**



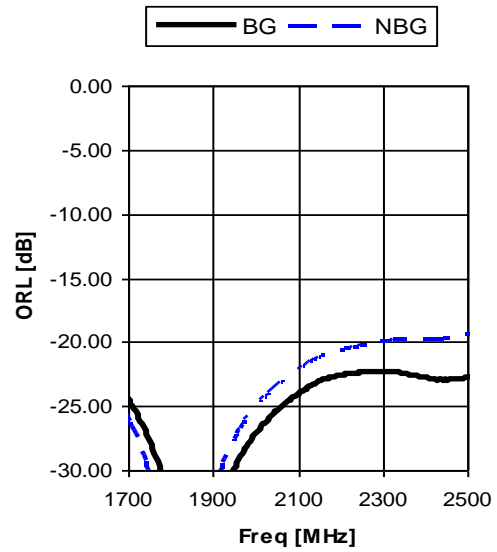
**Isolation vs. Frequency**



**IRL vs. Frequency**



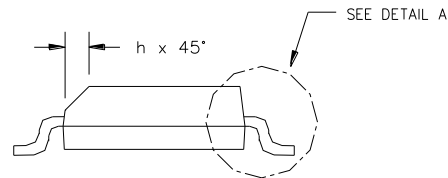
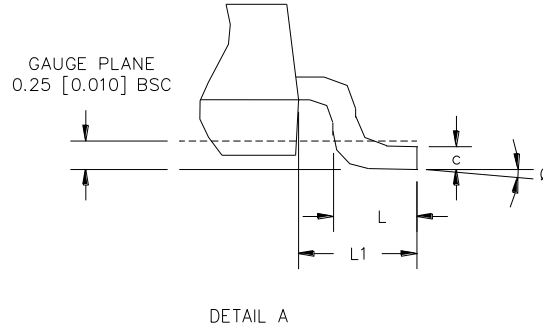
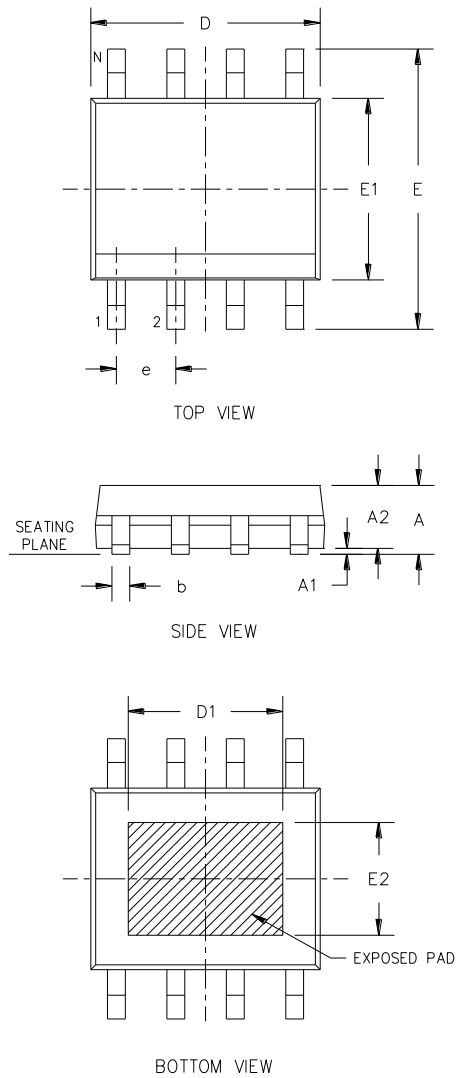
**ORL vs. Frequency**



Notes)

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

### Package Drawing

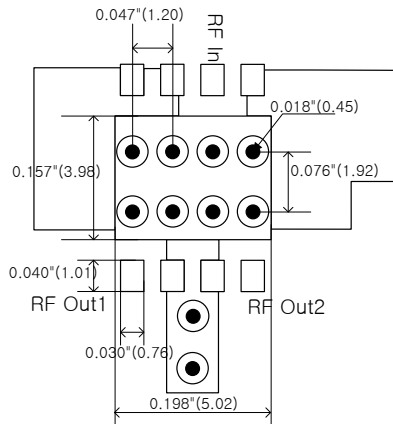


SYM	DIMENSION IN INCHES			DIMENSION IN MM		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.056	0.058	0.061	1.42	1.47	1.55
A1	0.001	0.004	0.005	0.025	0.102	0.127
A2	0.051	0.054	0.057	1.30	1.37	1.45
b	0.014	0.016	0.020	0.36	0.41	0.51
c	0.007	0.008	0.010	0.18	0.20	0.25
D	0.191	0.193	0.195	4.85	4.90	4.95
E1	0.151	0.153	0.155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

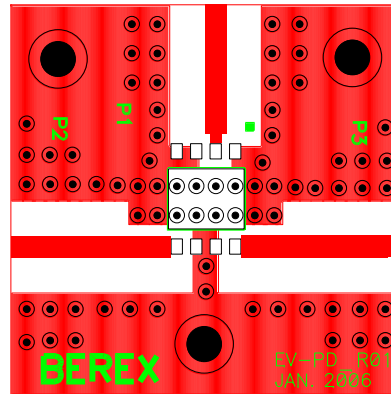
- NOTES:
1. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
  2. COPLANARITY APPLIES TO THE TERMINALS.  
COPLANARITY SHALL NOT EXCEED 0.003" [0.08 mm].
  3. BASED FROM JEDEC MS-012 VARIATION AA.

## Suggested PCB Land Pattern and PAD Layout

### PCB Land Pattern

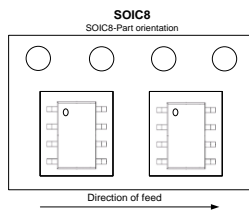


### PCB Mounting



Visit <http://www.berex.com> for PCB layout

### 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
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### NOTICE

BeRex Corporation reserves the right to make changes of product specification or to discontinue product at any time without notice.