

Confidential

SOSHIN LTCC FILTER

- DBF List for CSR -

Division of LTCC Development

Approved by	Confirmed by	Prepared by
T. Hirai	T.Haketa	M.Urano

Specification mentioned in this Data Sheet are subject to change without notice.
This Data Sheet supersedes and replaces all information previously supplied.

Contributing to Electronics in the future

DBF List for BlueCore

Parts No. of DBF	Size Dimensions (L x W x H mm Max.)	Specification / dB							Futures
		IL	GSM	DCS	PCS	UMTS	2nd Harmonic	3rd Harmonic	
DBF71B101-CSR	2.5 x 2.0x 1.2	3.0	48	48	40	25	30	30	High attenuation on GSM & UMTS bands
DBF71B105-CSR	2.5 x 2.0x 1.2	3.5	48	48	40	35	30	30	Higher attenuation at UMTS than DBF71B101
DBF81F101-1-CSR	2.0 x 1.25 x 1.0	3.5	48	48	40	13	25	25	Small size, High attenuation on GSM & UMTS bands
DBF81F102-1-CSR	2.0 x 1.25 x 1.0	3.5	48	48	40	13	25	25	Small size, High attenuation on GSM & UMTS bands
DBF81F106-CSR	2.0 x 1.25 x 1.0	3.5	48	48	40	-	32	15	Small size, No spec for UMTS of DBF81F105
DBF81F105-CSR	2.0 x 1.25 x 1.0	3.5	48	48	40	20	32	15	Small size, High attenuation on GSM & UMTS bands better attenuation of 2nd harmonics
DBF81F104-CSR	2.0 x 1.25 x 0.8	2.5	35	25	-	-	20	20	Small size & thinner thickness, Low insertion loss
HMD971U	1.6 x 0.8 x 0.6	1.5	-	-	-	-	-	-	Small size balun matched to Bluecore

Parts No. of DBF	Correspond to CSR IC					Sample	M.P.
	BC02-BGA	BC03-BGA	BC03-CSP	BC04-BGA	BC04-CSP		
DBF71B101-CSR						Available	Available
DBF71B105-CSR						Available	Available
DBF81F101-1-CSR						Available	Available
DBF81F102-1-CSR						Available	Available
DBF81F106-CSR						Available	Available
DBF81F104-CSR						Available	Available
DBF81F105-CSR						Available	'06/05
HMD972U						Available	06/10

DBF71B101-CSR

Product Information

Control No. : ARL-462101-E 1

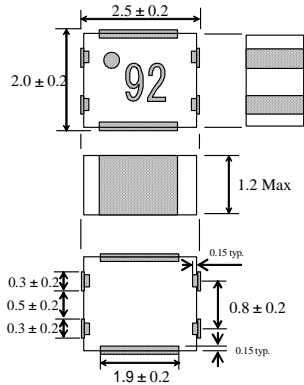
Established on February 3, 2006

Application : Balance Filter for Bluetooth

1. Type No.
DBF71B101 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	Balance
④	Balance
⑤	GND
⑥	GND

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2450	-	MHz	
Pass band frequency	2400-2500	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.0	2.41	dB	
Insertion Loss at -45 to +85degC.	3.3	-	dB	
Insertion Loss at +85 to	3.4	-	dB	
Unbalance port VSWR in BW	2.0	1.25	-	
Ripple	1.0	0.28	dB	
Amplitude balance	1.0	0.25	dB	
Phase differential at 25degC.	180±5	181.78	deg	
Phase differential at -45 to	180±8	-	deg	
Phase differential at +85 to	180±9	-	deg	

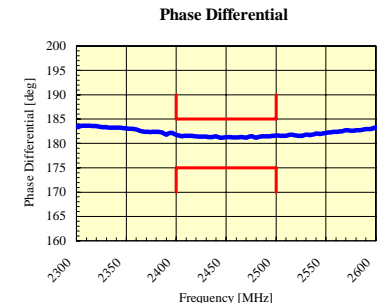
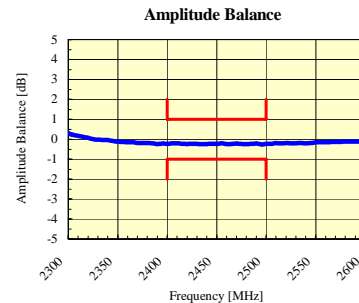
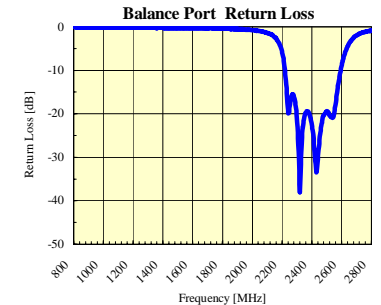
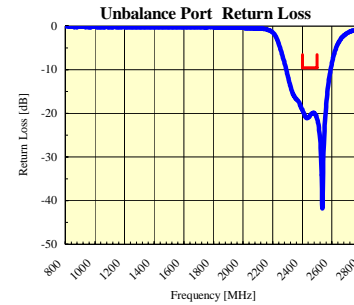
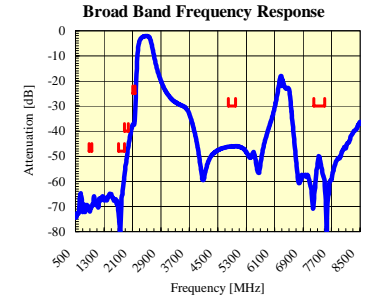
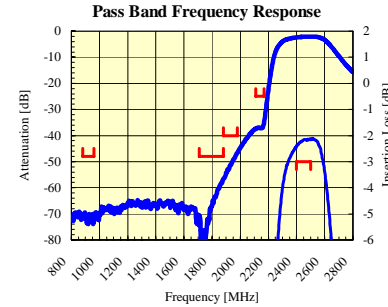
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	48	70.76	dB	
1710 MHz - 1880 MHz	48	56.56	dB	
1880 MHz - 1980 MHz	40	46.49	dB	
2110 MHz - 2170 MHz	25	34.71	dB	
4800 MHz - 5000 MHz	30	46.05	dB	2*fc
7200 MHz - 7500 MHz	30	49.92	dB	3*fc (Reference)

*1) Conjugate match to BC02 series of Cambridge Silicon Radio Ltd.

4. Note

- 4.1 Operating Temperature Range : -40 to +105 deg.C
- 4.2 Storage Temperature Range before soldering in taping package : -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



DBF71B105-CSR

Tentative Specification

(Under development)

Control No. : ARL-462105-C 1

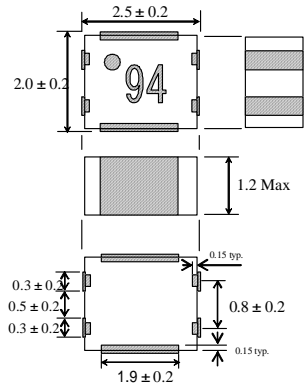
Established on February 3, 2006

Application : Balance Filter for Bluetooth

1. Type No.
DBF71B105 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	Balance
④	Balance
⑤	GND
⑥	GND

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.5	2.69	dB	
Insertion Loss at -45 to +85degC.	3.8	-	dB	
Insertion Loss at +85 to	3.9	-	dB	
Unbalance port VSWR in BW	2.0	1.14	-	
Ripple	1.0	0.43	dB	
Amplitude balance	1.0	0.47	dB	
Phase differential at 25degC.	180±6	178.81	deg	
Phase differential at -45 to	180±9	-	deg	
Phase differential at +85 to	180±10	-	deg	

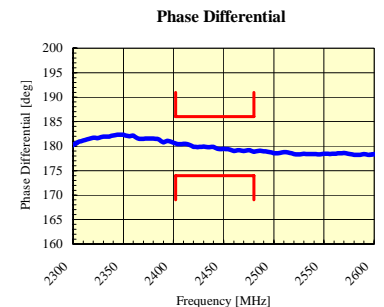
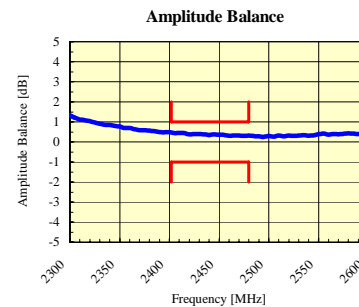
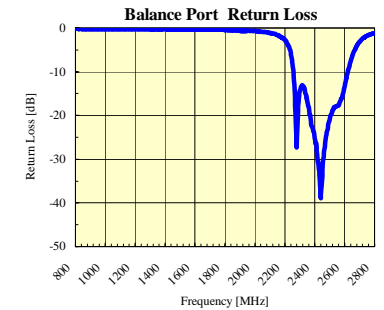
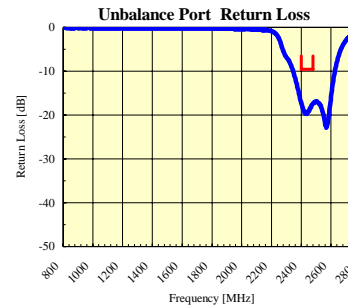
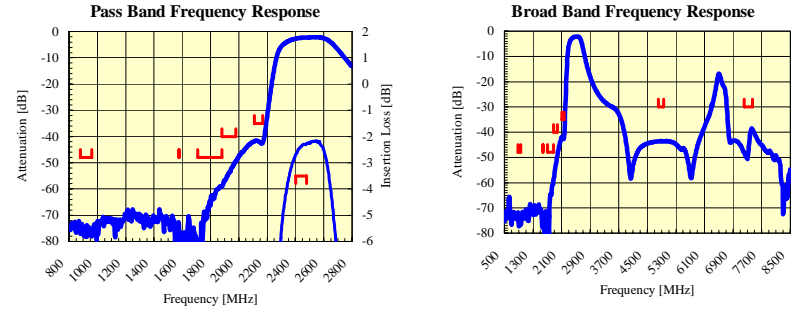
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	48	77.01	dB	
1573 MHz - ##### MHz	48	72.67	dB	
1710 MHz - 1880 MHz	48	59.12	dB	
1880 MHz - 1980 MHz	40	48.27	dB	
2110 MHz - 2170 MHz	35	41.84	dB	
4804 MHz - 4960 MHz	30	43.61	dB	2*fc
7206 MHz - 7440 MHz	30	39.82	dB	3*fc (Reference)

*1) Conjugate match to BC03 series of Cambridge Silicon Radio Ltd.

4. Note

- 4.1 Operating Temperature Range : -40 to +105 deg.C
- 4.2 Storage Temperature Range before soldering in taping package: -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



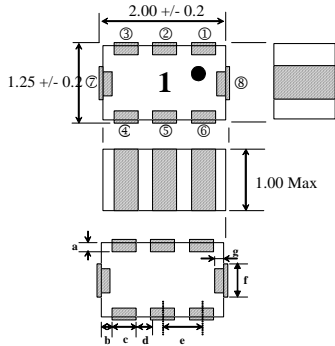
DBF81F101-1-CSR

Product Information	Control No. : ARL-566101-B 1
	Established on February 3, 2006

Application : Balance Filter for Bluetooth

1. Type No. DBF81F101 - 1 - CSR - T RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	NC
④	Balance
⑤	GND
⑥	Balance
⑦	GND
⑧	GND

Terminal Dimensions	
a	0.15 Typ.
b	0.20 +/- 0.15
c	0.30 +/- 0.10
d	0.35 +/- 0.10
e	0.65 +/- 0.10
f	0.50 +/- 0.10
g	0.15 Typ.

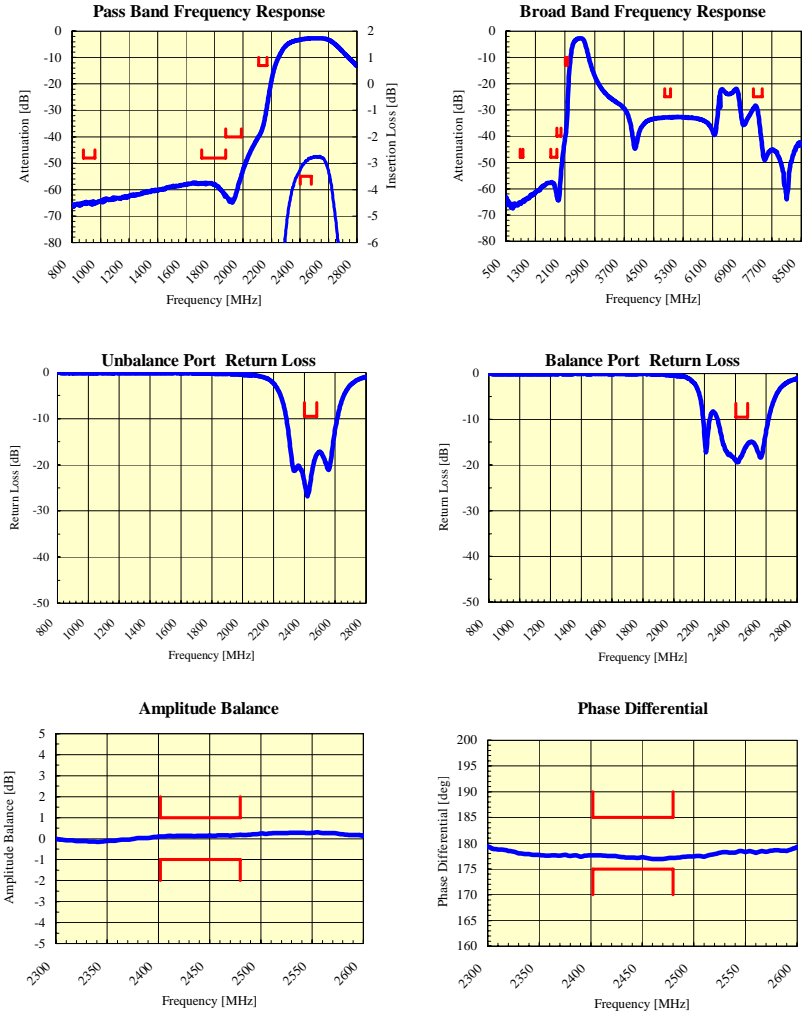
3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.5 Max.	3.25	dB	
Insertion Loss at -40 to +85degC.	3.8 Max.	-	dB	
Insertion Loss at -55 to +125degC.	4.0 Max.	-	dB	
Unbalance port VSWR in BW	2.0 Max.	1.29	-	
Balance port VSWR in BW	2.0 Max.	1.41	-	
Ripple	1.0 Max.	0.46	dB	
Amplitude balance	1.0 Max.	0.18	dB	
Phase differential at 25degC.	180±5	176.90	deg	
Phase differential at -40 to +85degC.	180±9	-	dB	
Phase differential at -55 to +125degC.	180±10	-	deg	

Attenuation	Specification	Typical	Unit	Remark
880 MHz	- 960 MHz	48 Min.	65.45	dB
1710 MHz	- 1880 MHz	48 Min.	57.52	dB
1880 MHz	- 1990 MHz	40 Min.	54.44	dB
2110 MHz	- 2170 MHz	13 Min.	28.14	dB
4804 MHz	- 4960 MHz	25 Min.	32.82	dB
7206 MHz	- 7440 MHz	25 Min.	29.44	dB

4. Note
- 4.1 Operating Temperature Range : -55 to +125 deg.C
 - 4.2 Storage Temperature Range before soldering in taping package : -20 to +35 deg.C
 - 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



DBF81F102-1-CSR

Product Information

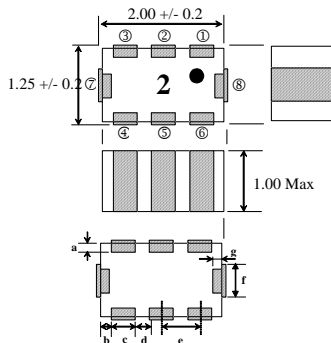
Control No. : ARL-566102-B 1
Established on February 3, 2006

Application : Balance Filter for Bluetooth

1. Type No.
DBF81F102 - 1 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	NC
④	Balance
⑤	GND
⑥	Balance
⑦	GND
⑧	GND

Terminal Dimensions	
a	0.15 Typ.
b	0.20 +/- 0.15
c	0.30 +/- 0.10
d	0.35 +/- 0.10
e	0.65 +/- 0.10
f	0.50 +/- 0.10
g	0.15 Typ.

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.5 Max.	3.43	dB	
Insertion Loss at -40 to +85degC.	3.8 Max.	-	dB	
Insertion Loss at -55 to +125degC.	4.0 Max.	-	dB	
Unbalance port VSWR in BW	2.0 Max.	1.55	-	
Balance port VSWR in BW	2.0 Max.	1.27	-	
Ripple	1.0 Max.	0.55	dB	
Amplitude balance	1.0 Max.	0.17	dB	
Phase differential at 25degC.	180±5	180.15	deg	
Phase differential at -40 to	180±9	-	dB	
Phase differential at -55 to	180±10	-	deg	

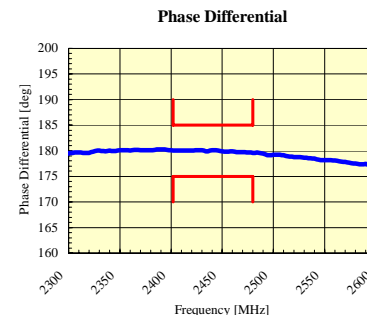
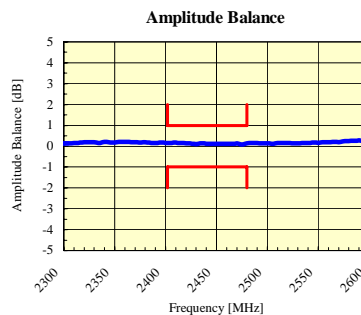
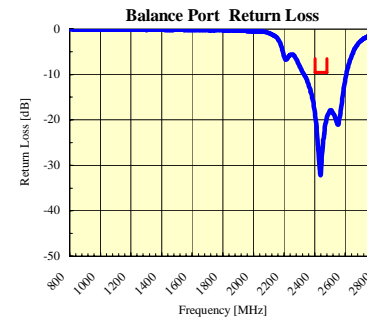
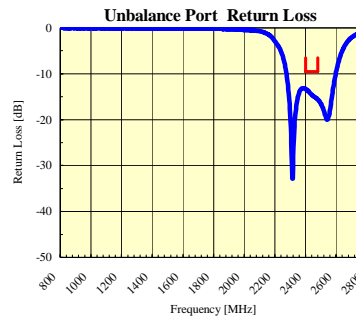
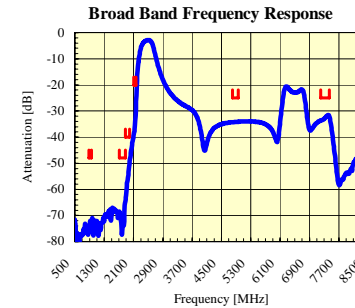
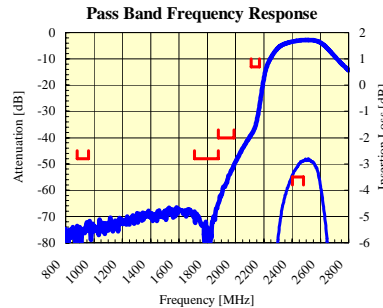
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	48 Min.	73.64	dB	
1710 MHz - 1880 MHz	48 Min.	64.97	dB	
1880 MHz - 1990 MHz	40 Min.	50.32	dB	
2110 MHz - 2170 MHz	13 Min.	27.79	dB	
4804 MHz - 4960 MHz	25 Min.	34.19	dB	2*fc
7206 MHz - 7440 MHz	25 Min.	31.92	dB	3*fc

*1) Conjugate match to BC03-CSP of Cambridge Silicon Radio Co., Ltd Nominal

4. Note

- 4.1 Operating Temperature Range : -55 to +125 deg.C
- 4.2 Storage Temperature Range before soldering in taping package : -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



DBF81F106-CSR

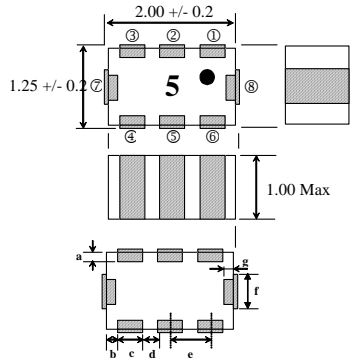
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	Established on February 3, 2006

Application : Balance Filter for Bluetooth

1. Type No.
DBF81F106 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	NC
④	Balance
⑤	GND
⑥	Balance
⑦	GND
⑧	GND

Terminal Dimensions	
a	0.15 Typ.
b	0.20 +/- 0.15
c	0.30 +/- 0.10
d	0.35 +/- 0.10
e	0.65 +/- 0.10
f	0.50 +/- 0.10
g	0.15 Typ.

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.5 Max.	3.06	dB	
Insertion Loss at -40 to +85degC.	3.8 Max.	-	dB	
Insertion Loss at -55 to +125degC.	4.0 Max.	-	dB	
Unbalance port VSWR in BW	2.0 Max.	1.43	-	
Balance port VSWR in BW	2.0 Max.	1.29	-	
Ripple	1.0 Max.	0.39	dB	
Amplitude balance	1.0 Max.	0.43	dB	
Phase differential at 25degC.	180±5	180.86	deg	
Phase differential at -40 to	180±9	-	dB	
Phase differential at -55 to	180±10	-	deg	

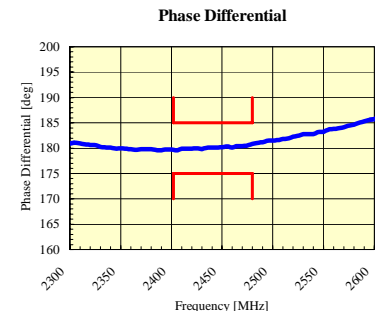
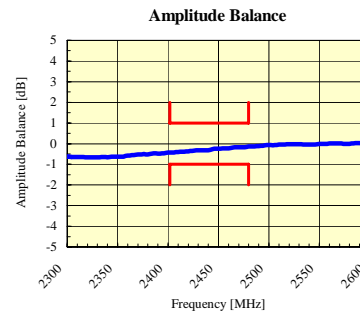
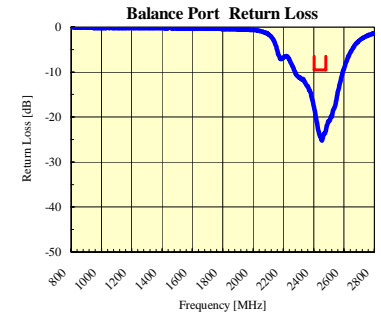
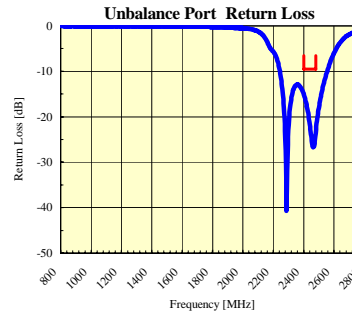
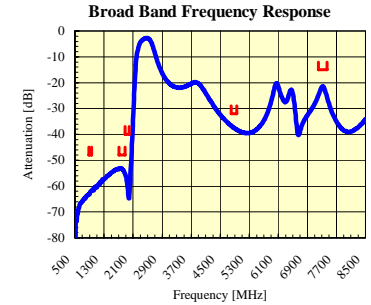
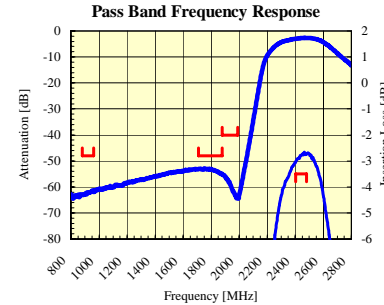
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	48 Min.	61.32	dB	
1710 MHz - 1880 MHz	48 Min.	52.85	dB	
1880 MHz - 1990 MHz	40 Min.	55.25	dB	
4804 MHz - 4960 MHz	32 Min.	36.67	dB	2*fc
7206 MHz - 7440 MHz	15 Min.	21.43	dB	3*fc

*1) Conjugate match to BC03&BC04-BGA of Cambridge Silicon Radio.Co.,Ltd Nominal

4. Note

- 4.1 Operating Temperature Range : -55 to +125 deg.C
- 4.2 Storage Temperature Range before soldering in taping package : -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



DBF81F104-CSR

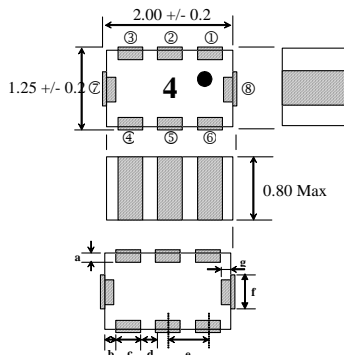
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	Established on January 20, 2006

Application : Balance Filter for Bluetooth

1. Type No.
DBF81F104 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	NC
④	Balance
⑤	GND
⑥	Balance
⑦	GND
⑧	GND

Terminal Dimensions	
a	0.15 Typ.
b	0.20 +/- 0.15
c	0.30 +/- 0.10
d	0.35 +/- 0.10
e	0.65 +/- 0.10
f	0.50 +/- 0.10
g	0.15 Typ.

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	2.5 Max.	1.85	dB	
Insertion Loss at -40 to +85degC.	2.7 Max.	-	dB	
Insertion Loss at -55 to +125degC.	2.8 Max.	-	dB	
Unbalance port VSWR in BW	2.0 Max.	1.23	-	
Balance port VSWR in BW	2.0 Max.	1.26	-	
Ripple	1.0 Max.	0.29	dB	
Amplitude balance	1.0 Max.	0.04	dB	
Phase differential	180±5	182.78	deg	

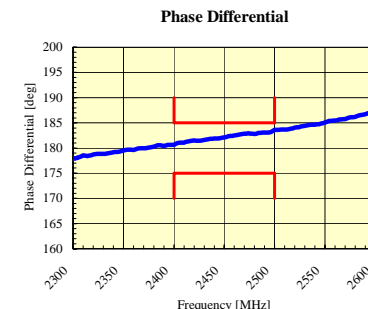
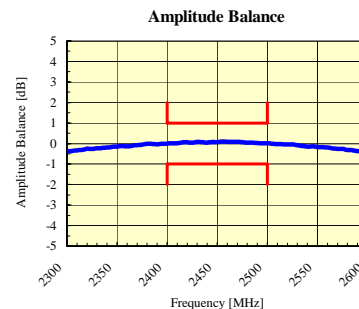
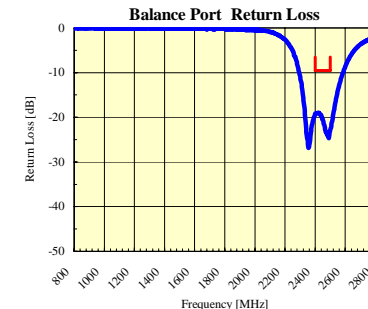
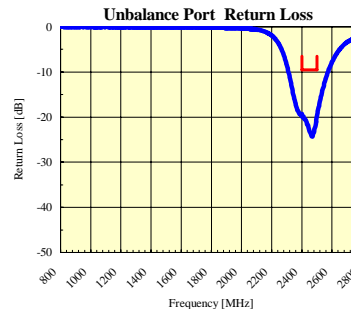
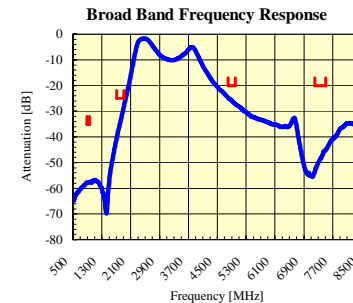
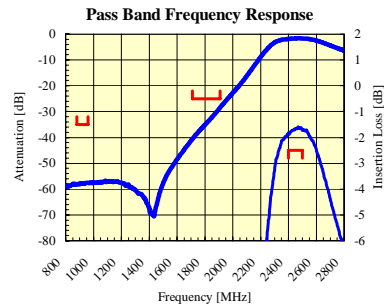
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	35 Min.	57.60	dB	
1710 MHz - 1910 MHz	25 Min.	28.36	dB	
4800 MHz - 5000 MHz	20 Min.	24.81	dB	2*fc
7200 MHz - 7500 MHz	20 Min.	45.74	dB	3*fc

*1) Conjugate match to BC03&BC04-BGA, CSP of Cambridge Silicon Radio.Co.,Ltd Nominal

4. Note

- 4.1 Operating Temperature Range : -55 to +125 deg.C
- 4.2 Storage Temperature Range before soldering in taping package : -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



DBF81F105-CSR

Tentative Specification

(Under development)

Control No. : ARL-466105-C 1

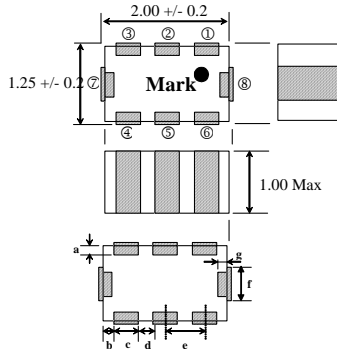
Established on January 16, 2005

Application : Balance Filter for Bluetooth

1. Type No.
DBF81F105 - CSR - T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



Terminal	
①	Unbalance
②	DC
③	NC
④	Balance
⑤	GND
⑥	Balance
⑦	GND
⑧	GND

Terminal Dimensions	
a	0.15 Typ.
b	0.20 +/- 0.15
c	0.30 +/- 0.10
d	0.35 +/- 0.10
e	0.65 +/- 0.10
f	0.50 +/- 0.10
g	0.15 Typ.

3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2441	-	MHz	
Pass band frequency	2402-2480	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	3.5	3.29	dB	
Insertion Loss at -40 to +85degC.	3.8	-	dB	
Insertion Loss at -55 to +125degC.	4.0	-	dB	
Unbalance port VSWR in BW	2.0	1.33	-	
Balance port VSWR in BW	2.0	1.18	-	
Ripple	1.0	0.49	dB	
Amplitude balance	1.0	0.41	dB	
Phase differential at 25degC.	180±5	181.43	deg	
Phase differential at -40 to	180±9	-	deg	
Phase differential at -55 to	180±10	-	deg	

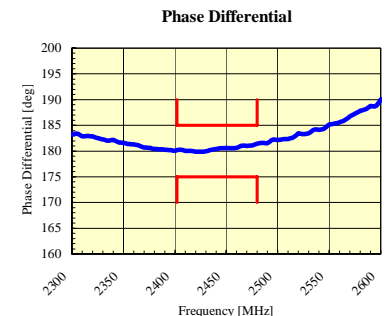
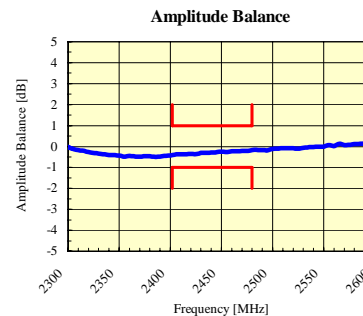
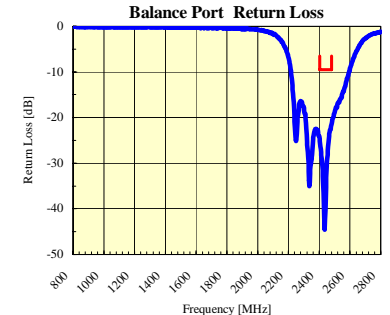
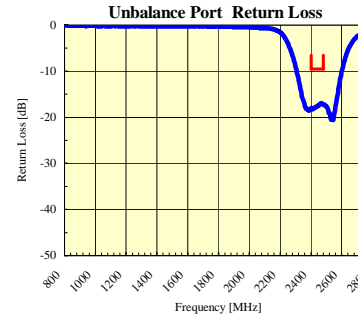
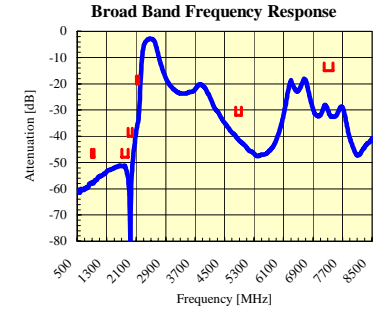
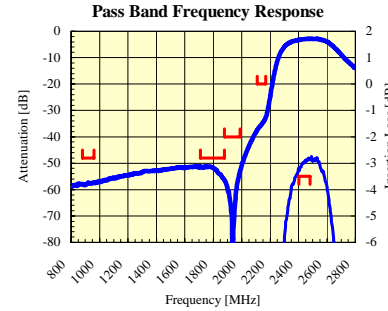
Attenuation	Specification	Typical	Unit	Remark
880 MHz - 960 MHz	48	57.36	dB	
1710 MHz - 1880 MHz	48	51.09	dB	
1880 MHz - 1990 MHz	40	52.62	dB	
2110 MHz - 2170 MHz	20	32.61	dB	
4804 MHz - 4960 MHz	32	40.05	dB	2*fc
7206 MHz - 7440 MHz	15	28.08	dB	3*fc

*1) Conjugate match to BC04-CSP of Cambridge Silicon Radio

4. Note

- 4.1 Operating Temperature Range : -55 to +125 deg.C
- 4.2 Storage Temperature Range before soldering in taping package: -20 to +35 deg.C
- 4.3 Minimum Ordering Quantity : 2,000 pcs (per reel, per bag)

5. Representative characteristics



HMD971U

Tentative Specification

(Under development)

Control No. : ARP-497100-B 1

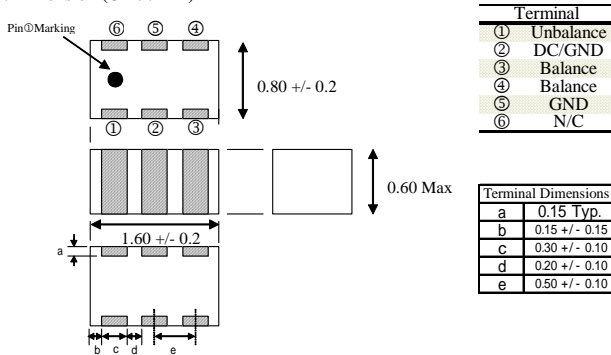
Established on January 20, 2006

Application : Balun for Bluetooth

1. Type No.
HMD971U-T

RoHS Compliant Parts & Lead Free

2. Dimension (Unit : mm)



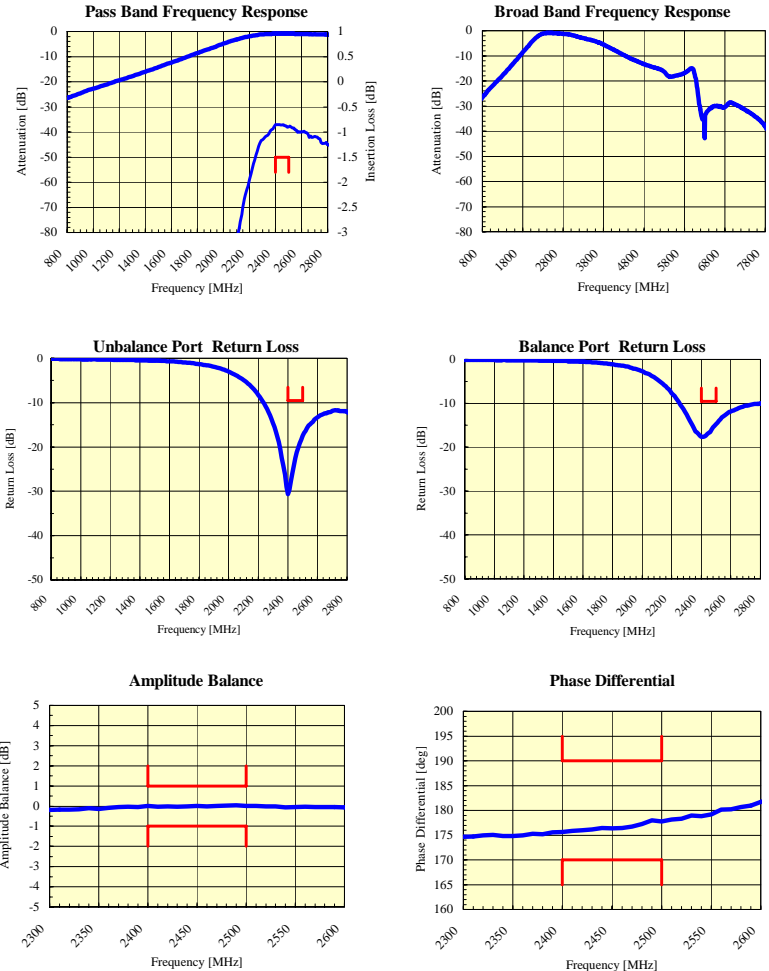
3. Electrical characteristics

Pass band	Specification	Typical	Unit	Remark
fc (Center frequency)	2450	-	MHz	
Pass band frequency	2400-2500	-	MHz	
Unbalance Port Impedance at fc	50	-	ohm	Nominal
Balance Port Impedance at fc	*1)	-	ohm	Nominal
Insertion Loss at 25degC.	1.5	0.90	dB	
Unbalance port VSWR in BW	2.0	1.31	-	
Balance port VSWR in BW	2.0	1.45	-	
Ripple	1.0	0.05	dB	
Amplitude balance	1.0	0.05	dB	
Phase differential at 25degC.	180±10	175.80	deg	

*1) Conjugate match to BC03 series Cambridge Silicon Radio Ltd

4. Minimum Ordering Quantity : 3,000 pcs (per reel, per bag)

5. Representative characteristics



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该套课程全面讲授了当前手机天线相关设计技术,内容涵盖了早期的外置螺旋手机天线设计,最常用的几种手机内置天线类型——如 monopole 天线、PIFA 天线、Loop 天线和 FICA 天线的设计,以及当前高端智能手机中较常用的金属边框和全金属外壳手机天线的设计;通过该套课程的学习,可以帮助您快速、全面、系统地学习、了解和掌握各种类型的手机天线设计,以及天线及其匹配电路的设计和调试...

课程网址: <http://www.edatop.com/peixun/antenna/133.html>



WiFi 和蓝牙天线设计培训课程

该套课程是李明洋老师应邀给惠普 (HP)公司工程师讲授的 3 天员工内训课程录像,课程内容是李明洋老师十多年工作经验积累和总结,主要讲解了 WiFi 天线设计、HFSS 天线设计软件的使用,匹配电路设计调试、矢量网络分析仪的使用操作、WiFi 射频电路和 PCB Layout 知识,以及 EMC 问题的分析解决思路等内容。对于正在从事射频设计和天线设计领域工作的您,绝对值得拥有和学习! ...

课程网址: <http://www.edatop.com/peixun/antenna/134.html>



CST 学习培训课程套装

该培训套装由易迪拓培训联合微波 EDA 网共同推出,是最全面、系统、专业的 CST 微波工作室培训课程套装,所有课程都由经验丰富的专家授课,视频教学,可以帮助您从零开始,全面系统地学习 CST 微波工作的各项功能及其在微波射频、天线设计等领域的设计应用。且购买该套装,还可超值赠送 3 个月免费学习答疑...

课程网址: <http://www.edatop.com/peixun/cst/24.html>



HFSS 学习培训课程套装

该套课程套装包含了本站全部 HFSS 培训课程,是迄今国内最全面、最专业的 HFSS 培训教程套装,可以帮助您从零开始,全面深入学习 HFSS 的各项功能和在多个方面的工程应用。购买套装,更可超值赠送 3 个月免费学习答疑,随时解答您学习过程中遇到的棘手问题,让您的 HFSS 学习更加轻松顺畅...

课程网址: <http://www.edatop.com/peixun/hfss/11.html>

ADS 学习培训课程套装

该套装是迄今国内最全面、最权威的 ADS 培训教程,共包含 10 门 ADS 学习培训课程。课程是由具有多年 ADS 使用经验的微波射频与通信系统设计领域资深专家讲解,并多结合设计实例,由浅入深、详细而又全面地讲解了 ADS 在微波射频电路设计、通信系统设计和电磁仿真设计方面的内容。能让您在最短的时间内学会使用 ADS,迅速提升个人技术能力,把 ADS 真正应用到实际研发工作中去,成为 ADS 设计专家...

课程网址: <http://www.edatop.com/peixun/ads/13.html>



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- ※ 一直致力并专注于微波射频和天线设计工程师的培养,更了解该行业对人才的要求
- ※ 经验丰富的一线资深工程师讲授,结合实际工程案例,直观、实用、易学

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