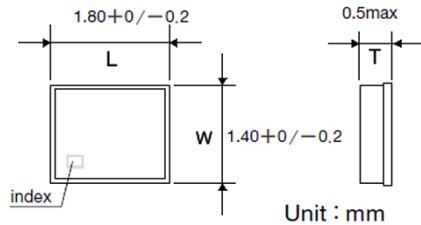# FBAR/SAW Devices (SAW Duplexers)

D5DA782M0K2J6

Features

– Item Summary

SAW, Duplexer, 1.8x1.4x0.5mm

Band13

– Lifecycle Stage

Mass Production

– Standard packaging quantity (minimum)

Taping Embossed 3000 , 15000pcs

1.80＋0/－0.2

L

0.5max

T

W 1.40＋0/－0.2

index

Unit：mm

Products characteristics table

System	LTE
Type	SAW
Function	Duplexer
band	Band13
Insertion Loss (typ) (Tx-ANT/ANT-Rx)	1.9/1.7 dB
Isolation (typ)	58/61 dB
Operating Temp. Range	-20 to +85 ℃
RoHS2 Compliance (10 subst.)	Yes
REACH Compliance (173 subst.)	Yes
Halogen Free	Yes
Soldering	Reflow

External Dimensions

Dimension L	1.8 + 0/- 0.20 mm
Dimension W	1.4 + 0/- 0.20 mm
Dimension T	Max 0.5 mm

2017.05.01

The data is reference only. Electrical characteristics vary depending on environment or measurement condition.
TAIYO YUDEN reserves the right to make change to the Date at any time without notice.
Before making final selection, please check product specification.

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Pb-free
* Pb Free Part

(RoHS) MSL1

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Table 1.   Electrical Specification

| Item		Condition (MHz)	Specification			Unit	Remarks
			Min	Typ	Max		
Tx to ANT	Insertion loss	777 - 787	-	1.9	2.5	dB (*1)	
	Ripple	777 - 787	-	0.8	1.6	dB	
	VSWR Tx	777 - 787	-	1.6	2.0	-	
	VSWR Ant	777 - 787	-	1.6	2.0		
	Input Power	777 - 787	+29dBm Ta=+50deg.C ,50kh,CW			-	
	Absolute attenuation	746 - 756	44	51	-	dB	
		758 - 768	10	32	-	dB	
		768 - 775	1	2.5	-	dB	
		1554 - 1565	41	46	-	dB	
		1565 - 1607	41	46	-	dB	
		2331 - 2361	35	53	-	dB	
		2400 - 2484	40	50	-	dB	
		3108 - 3148	23	28	-	dB	
		4900 - 5950	8	12	-	dB	
ANT to Rx	Insertion loss	746 - 756	-	1.7	2.3	dB (*1)	
	Ripple	746 - 756	-	0.4	1.0	dB	
	VSWR Ant	746 - 756	-	1.4	2.0	-	
	VSWR Rx	746 - 756	-	1.5	2.0	-	
	Absolute attenuation	777 - 787	50	62	-	dB	
		2400 - 2500	40	45	-	dB	
		787 - 6000	23	28	-	dB	
Tx to Rx	Isolation	746 - 756	52	58	-	dB	
		777 - 787	56	61	-	dB	
Terminating Impedance		Tx port	50			Ohm	Single-ended
		Rx port	50			Ohm	Single-ended
		Ant port	50 // 12nH (Q=∞)			Ohm	Single-ended
Operating Temperature			-20 to +85			oC	
Device size (L max. x W max. x H max.)			1.8 x 1.4 x 0.5			mm	

(*1) Specification of insertion loss excludes loss that comes from the test board.

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Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
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Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Dimensions

< Top View >   < Side View >   < Bottom View >   Unit: mm
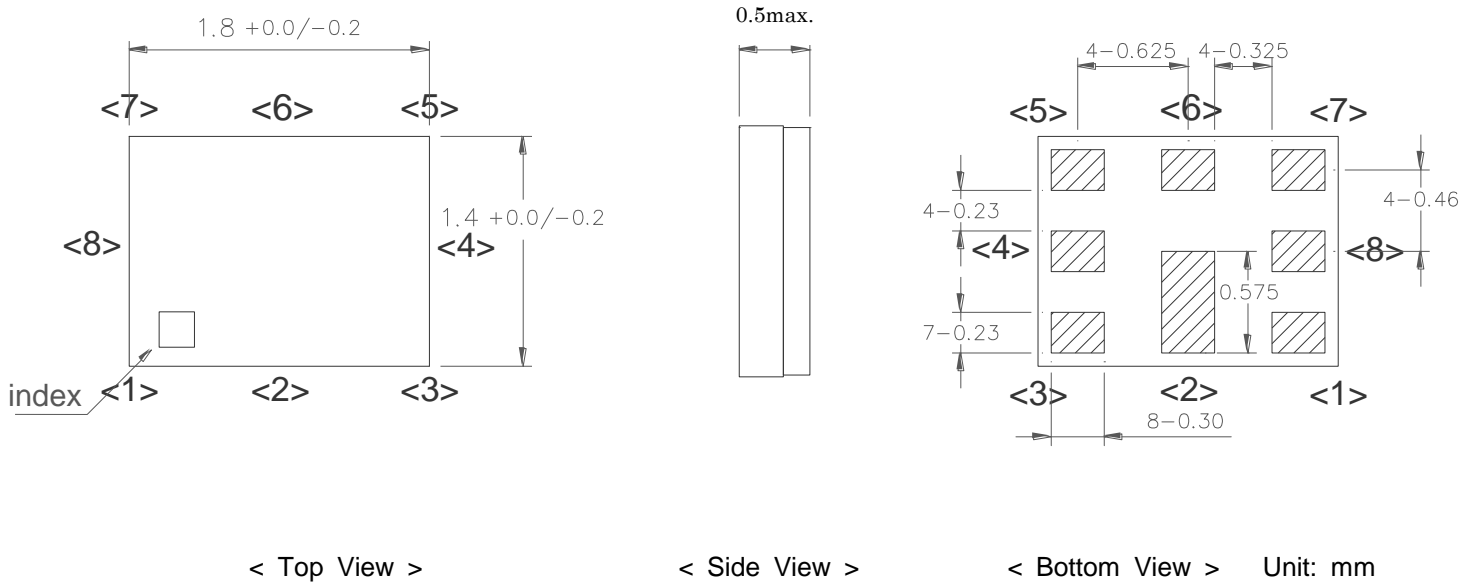
Pin Configuration

Pin No.	Pin name	Description
1	Rx	Receiver Pin
2	GND	Ground Pin
3	Tx	Transmitter Pin
4	GND	Ground Pin
5	GND	Ground Pin
6	ANT	Antenna Pin
7	GND	Ground Pin
8	GND	Ground Pin

Figure 1. Dimensions and Pin assignment

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Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Evaluation Circuit

ANT
(50ohm)

L=12 nH
(Q=∞)

6

RX   1   3   TX
(50ohm)

2,4,5,7,8

Recommended foot print pattern

Common GND

External appearance
in Chip carrier

0.30   0.30
0.35   0.27
0.38
0.12
0.35
0.12
0.30   0.30
0.22   0.22
0.28   0.28
0.73   0.38
0.35   0.36
0.45   0.45   0.45
0.43   0.43
0.20   0.20

:Pad pattern
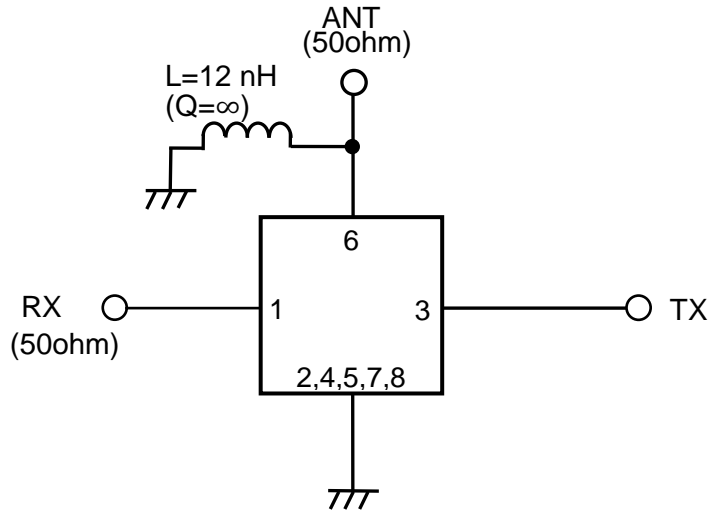
:Resist pattern
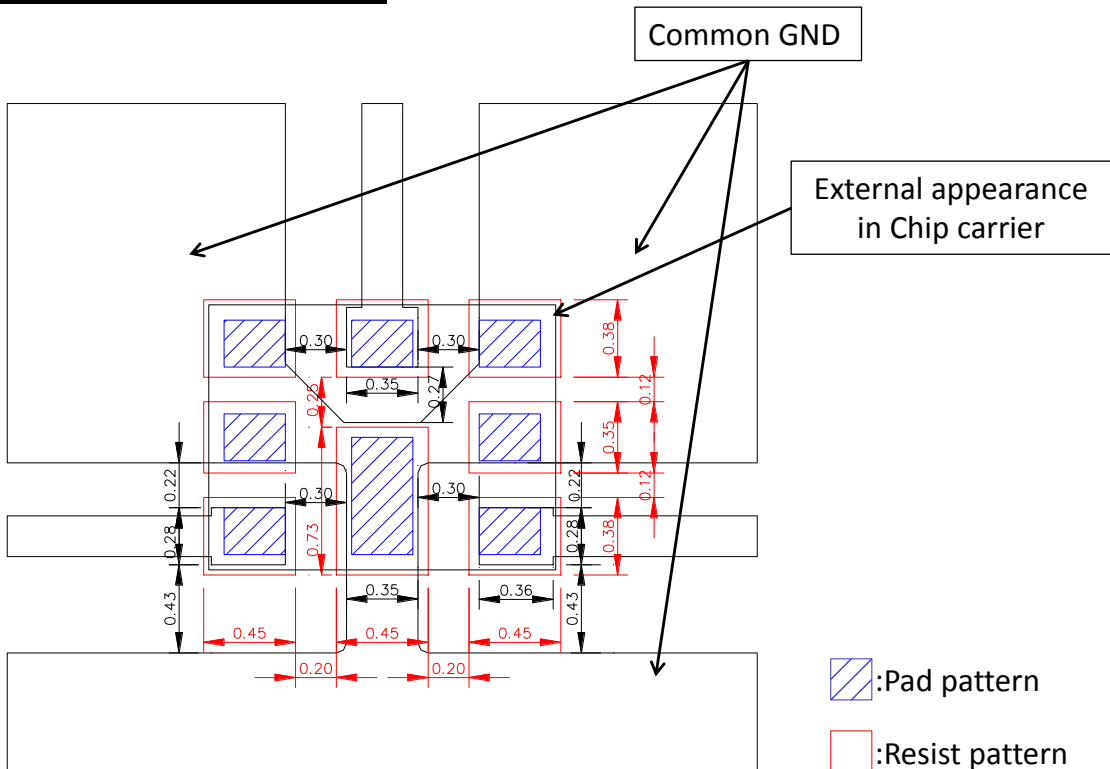
Figure 2. Recommended foot print pattern

TAIYO YUDEN

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Tx to Ant

Mk1: 777.0MHz
S21=-1.678dB

Mk2: 787.0MHz
S21=-1.076dB

Mk3: 746.0MHz
S21=-57.340dB

Mk4: 756.0MHz
S21=-49.132dB

Ant to Rx

Mk1: 777.0MHz
S31=-69.115dB

Mk2: 787.0MHz
S31=-64.102dB

Mk3: 746.0MHz
S31=-1.436dB

Mk4: 756.0MHz
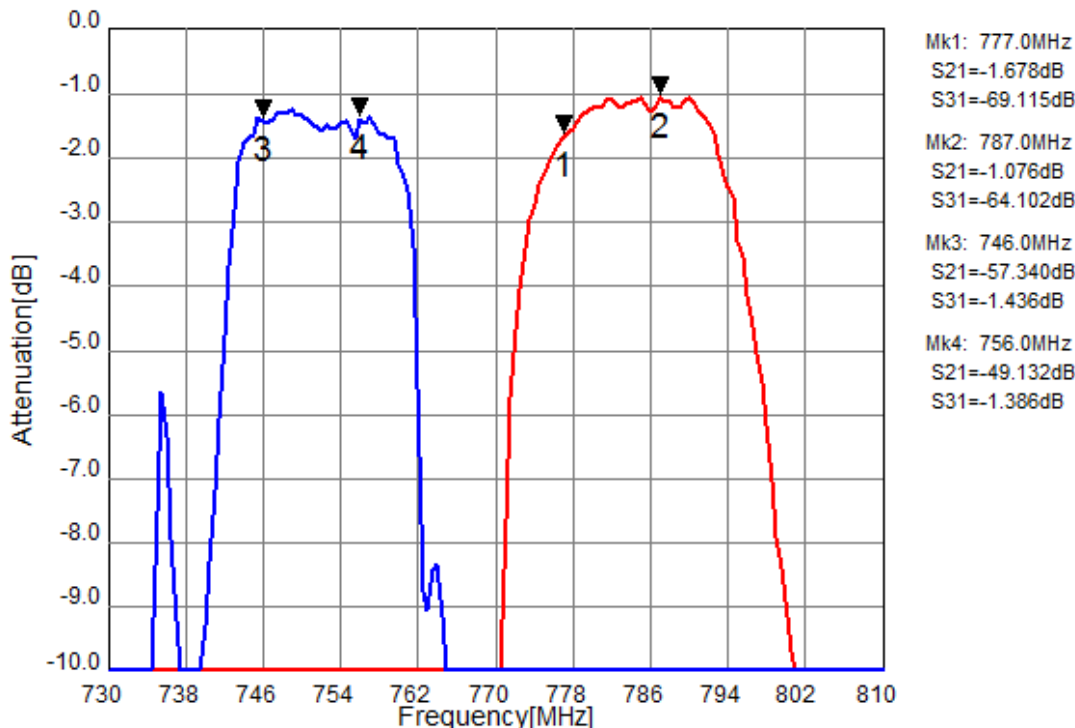S31=-1.386dB
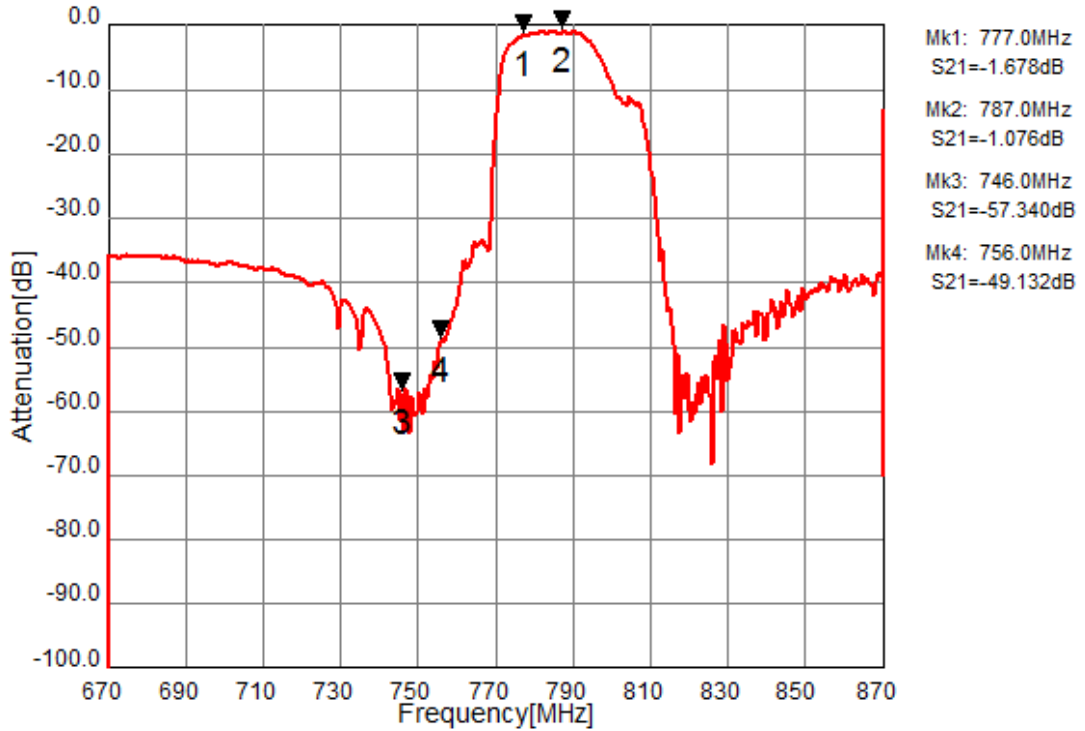
Figure 3-1. Electrical Characteristics

These data **exclude** loss that comes from the test board.

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Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Tx to Ant, Ant to Rx

Mk1: 777.0MHz
S21=-1.678dB
S31=-69.115dB

Mk2: 787.0MHz
S21=-1.076dB
S31=-64.102dB

Mk3: 746.0MHz
S21=-57.340dB
S31=-1.436dB

Mk4: 756.0MHz
S21=-49.132dB
S31=-1.386dB

Tx to Rx Isolation

Mk1: 777.0MHz
S32=-72.918dB

Mk2: 787.0MHz
S32=-68.193dB

Mk3: 746.0MHz
S32=-69.444dB

Mk4: 756.0MHz
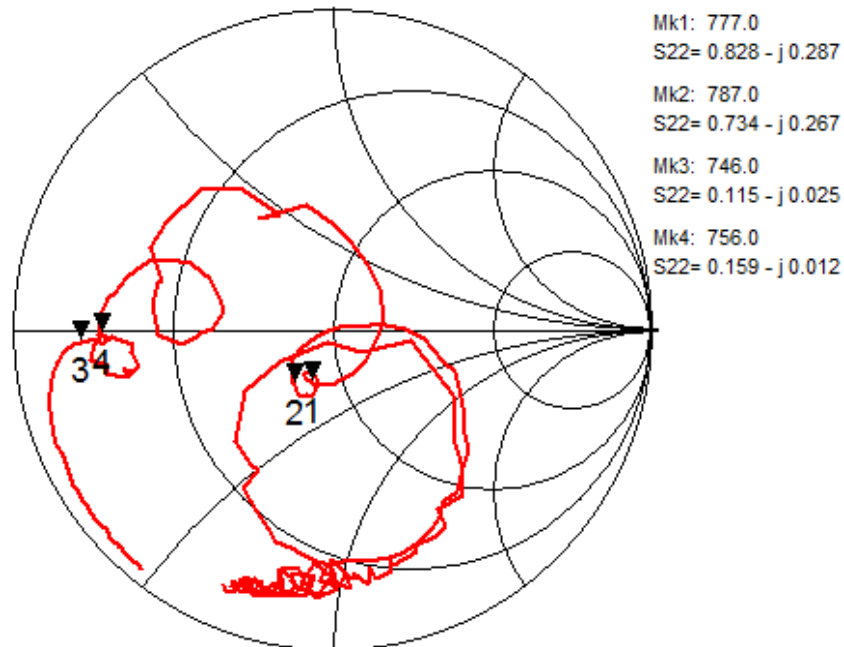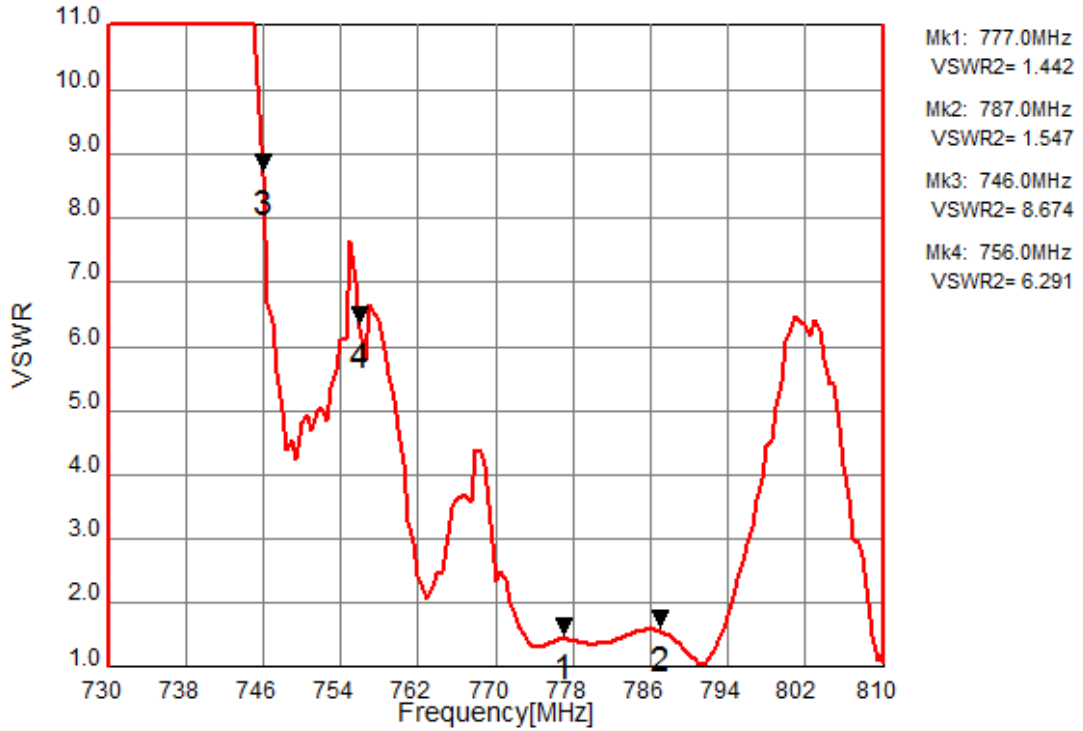S32=-67.997dB
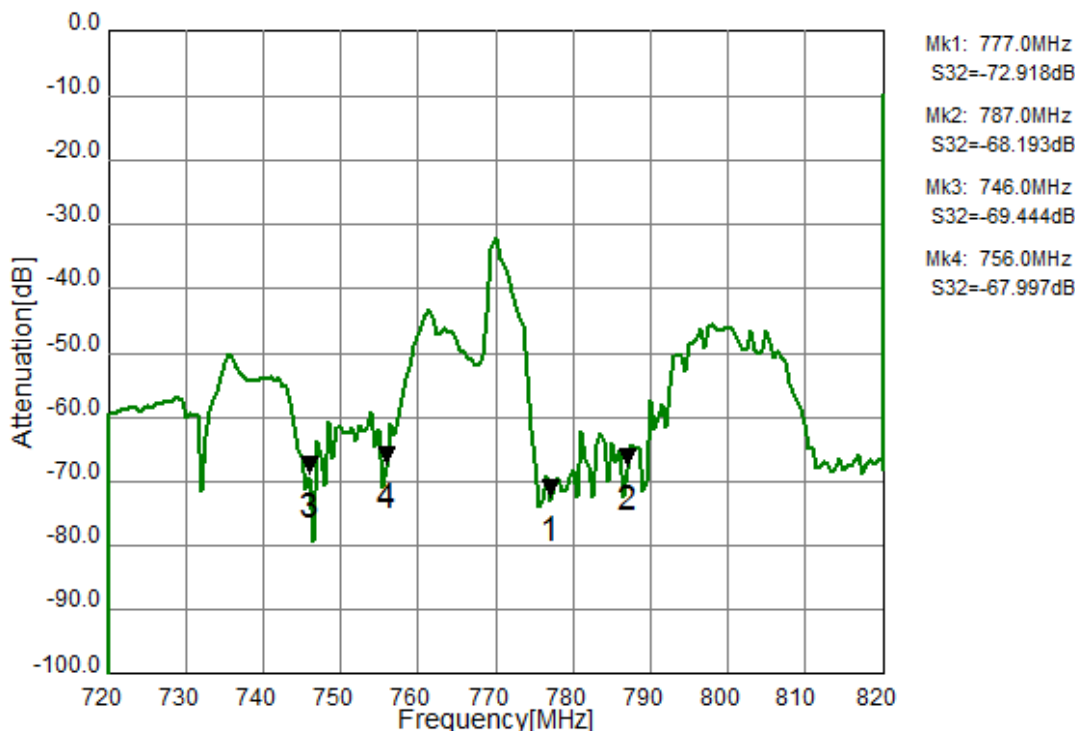
Figure 3-2. Electrical Characteristics

These data **exclude** loss that comes from the test board.

TAIYO YUDEN

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Tx Port

Mk1: 777.0MHz
VSWR2= 1.442

Mk2: 787.0MHz
VSWR2= 1.547

Mk3: 746.0MHz
VSWR2= 8.674

Mk4: 756.0MHz
VSWR2= 6.291

Mk1: 777.0
S22= 0.828 - j 0.287

Mk2: 787.0
S22= 0.734 - j 0.267

Mk3: 746.0
S22= 0.115 - j 0.025

Mk4: 756.0
S22= 0.159 - j 0.012

Figure 3-3. Electrical Characteristics

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(**RoHS**) MSL1

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Rx Port

Mk1: 777.0MHz
VSWR3=69.125

Mk2: 787.0MHz
VSWR3=46.564

Mk3: 746.0MHz
VSWR3= 1.293

Mk4: 756.0MHz
VSWR3= 1.178

Mk1: 777.0
S33= 0.830 - j 7.464

Mk2: 787.0
S33= 0.341 - j 3.846

Mk3: 746.0
S33= 0.913 - j 0.230

Mk4: 756.0
S33= 0.872 - j 0.085
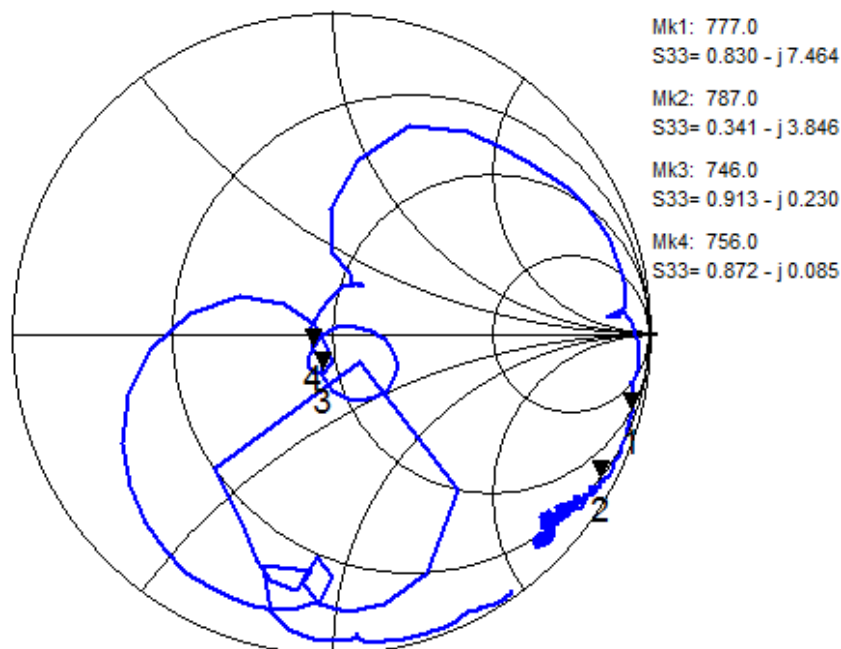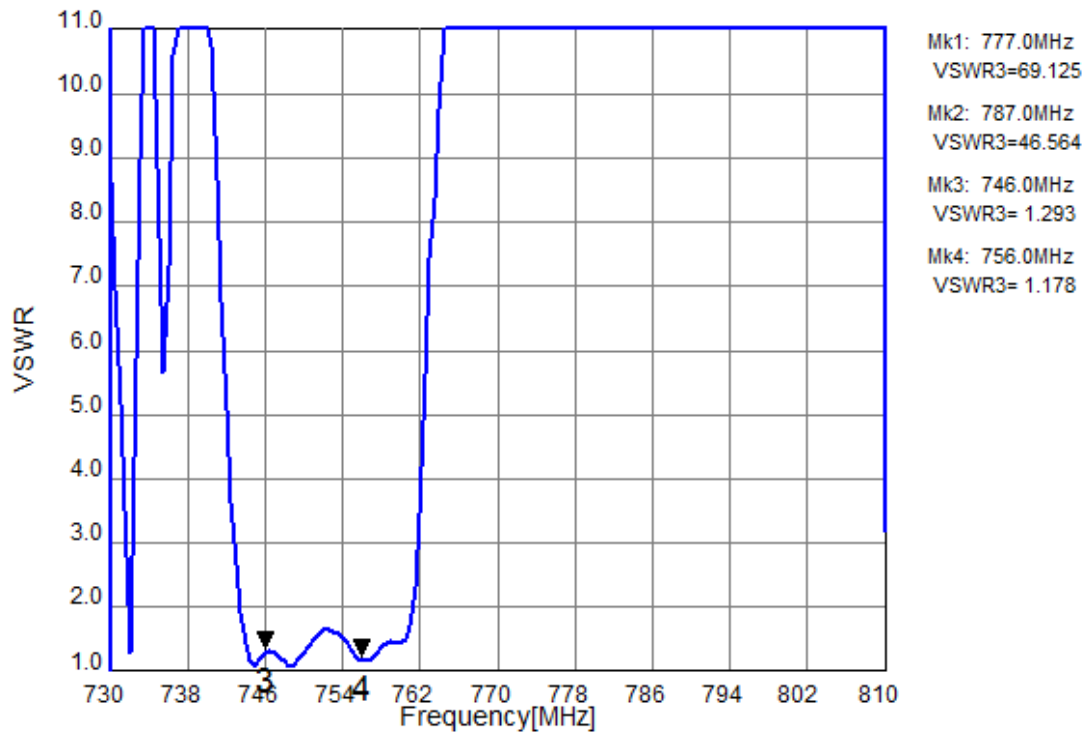
Figure 3-4. Electrical Characteristics

TAIYO YUDEN

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Ant Port

Mk1: 777.0MHz
VSWR1= 1.473

Mk2: 787.0MHz
VSWR1= 1.381

Mk3: 746.0MHz
VSWR1= 1.255

Mk4: 756.0MHz
VSWR1= 1.215

Mk1: 777.0
S11= 1.016 - j 0.393

Mk2: 787.0
S11= 1.303 + j 0.213

Mk3: 746.0
S11= 0.969 - j 0.222

Mk4: 756.0
S11= 0.985 - j 0.193
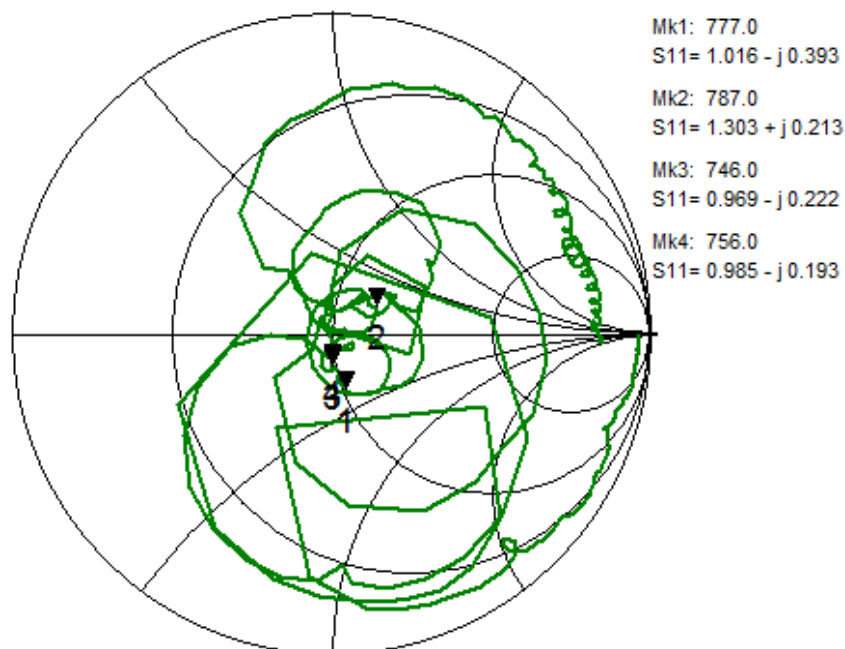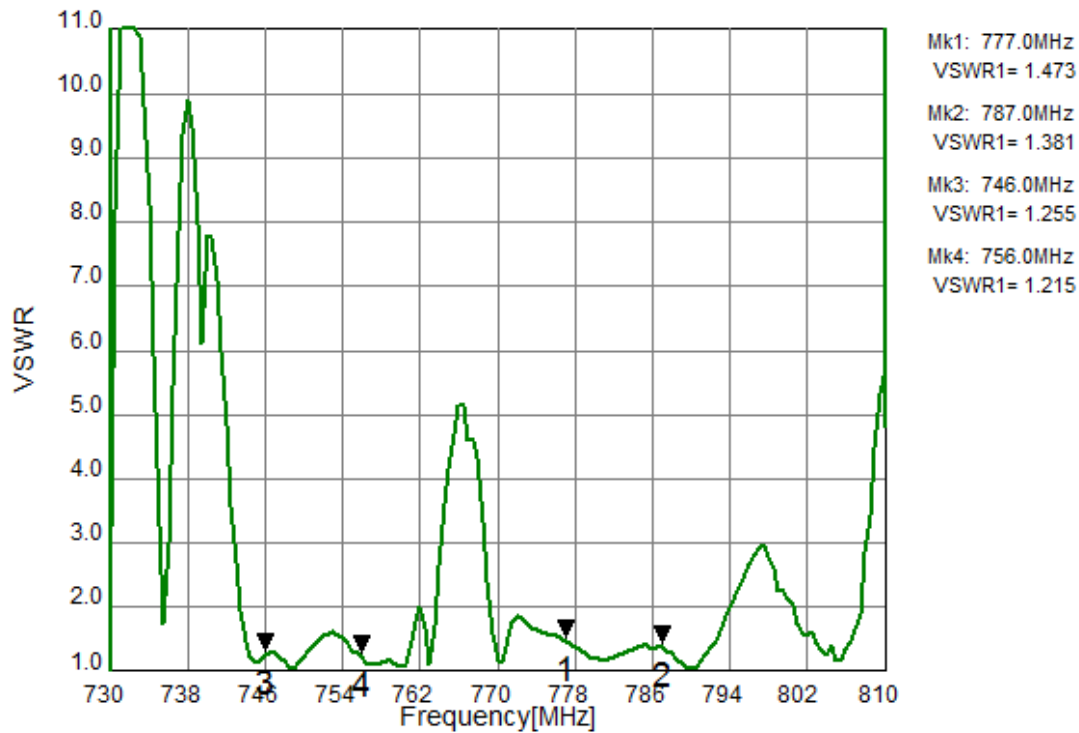
Figure 3-5. Electrical Characteristics

TAIYO YUDEN

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Tx to Ant (Wide span)

Mk1: 782.0MHz
S21=-1.109dB

Mk2: 1564.0MHz
S21=-46.581dB

Mk3: 2346.0MHz
S21=-61.060dB

Mk4: 3128.0MHz
S21=-28.396dB

Ant to Rx (Wide span)

Mk1: 751.0MHz
S31=-1.474dB

Mk2: 1502.0MHz
S31=-50.583dB

Mk3: 2253.0MHz
S31=-46.328dB

Mk4: 3004.0MHz
S31=-46.511dB
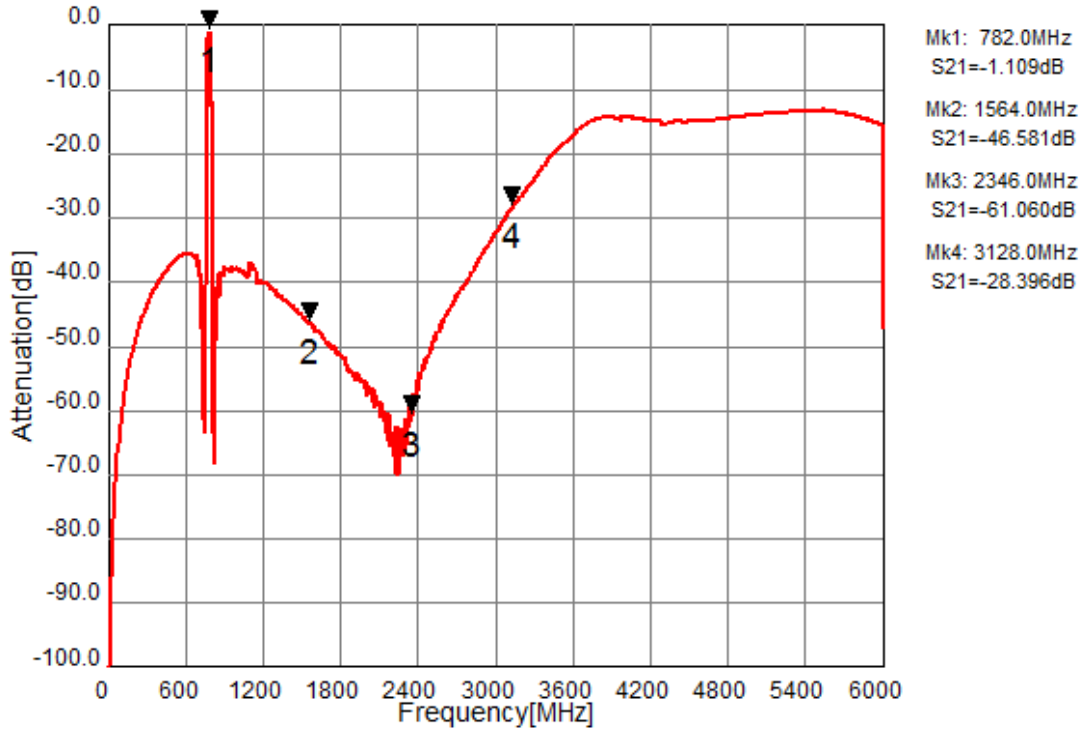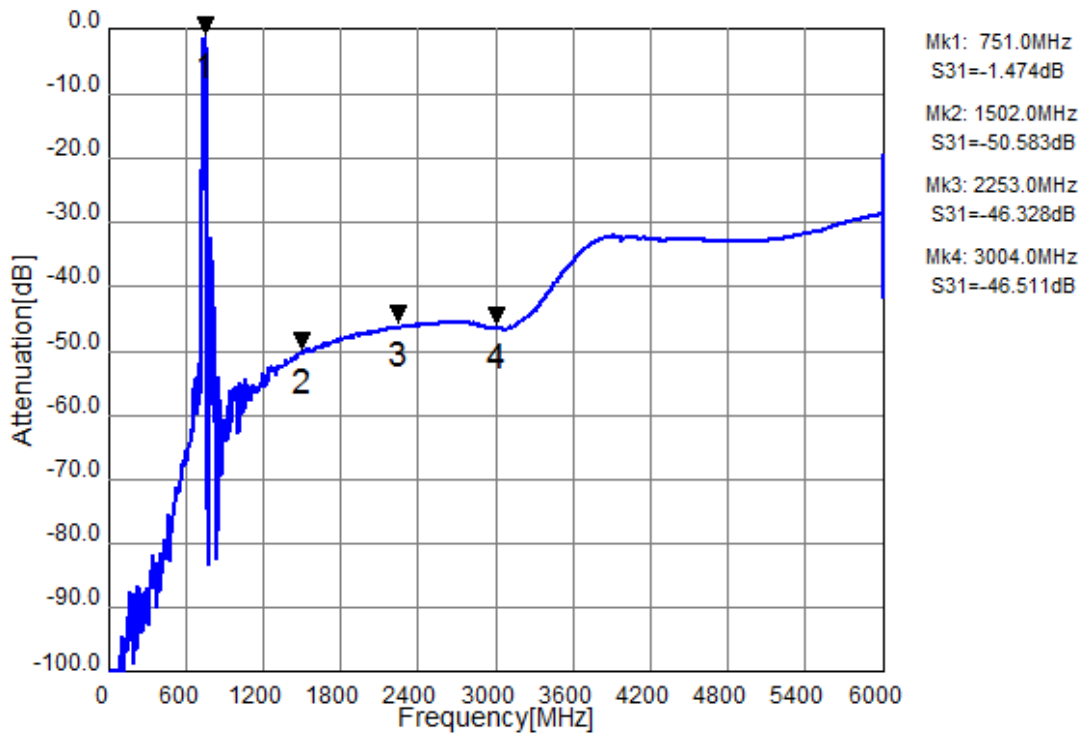
Figure 3-6. Electrical Characteristics

TAIYO YUDEN

Customer Name	Standard	TAIYO YUDEN Mobile Technology Co.,Ltd.	
System	Band 13 Duplexer	DATE	Jun.11, 2015
Part Number	D5DA782M0K2J6	Version 2.1igC	Final

Ordering Code

Ordering Code	Packing	Reel size	Status
D5DA782M0K2J6-Z	Tape & Reel	3,000 pcs.	MP
D5DA782M0K2J6-ZA	Tape & Reel	less than 3,000 pcs.	MP
D5DA782M0K2J6-Y	Tape & Reel	15,000 pcs.	MP
D5DA782M0K2J6-YA	Tape & Reel	less than 15,000 pcs.	MP
D5DA782M0K2J6-Q	Bulk	few pcs.	MP

*Minimum order quantity (MOQ) is assigned for each inquiry, Please contact to Sales Representatives.
*MP : Mass Production

Notice

All of the contents specified herein are subject to change without notice due to technical improvements, etc.
Please contact Taiyo Yuden Co., Ltd. for further details of product specifications.

Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.

This product is for general electronics equipment such as Audio-Visual equipment, household electronics, office supplies, information services and telecommunications; therefore, in case this product is used for any medical equipment, space equipment, nuclear equipment or disaster prevention equipment, please contact Taiyo Yuden in advance.
In case this product is used for general electronics equipment or circuits which require high safety and high reliability, thoroughly evaluate on safety and add a protection circuit if necessary.

TAIYO YUDEN