

# Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.

## REMINDERS

- Product information in this catalog is as of October 2010. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or usage of the Products.

Please note that Taiyo Yuden Co., Ltd. shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this catalog or individual specification.

- Please contact Taiyo Yuden Co., Ltd. for further details of product specifications as the individual specification is available.
- Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.
- All electronic components or functional modules listed in this catalog are developed, designed and intended for use in general electronics equipment.(for AV, office automation, household, office supply, information service, telecommunications, (such as mobile phone or PC) etc.). Before incorporating the components or devices into any equipment in the field such as transportation,( automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network (telephone exchange, base station) etc. which may have direct influence to harm or injure a human body, please contact Taiyo Yuden Co., Ltd. for more detail in advance. Do not incorporate the products into any equipment in fields such as aerospace, aviation, nuclear control, submarine system, military, etc. where higher safety and reliability are especially required.

In addition, even electronic components or functional modules that are used for the general electronic equipment, if the equipment or the electric circuit require high safety or reliability function or performances, a sufficient reliability evaluation check for safety shall be performed before commercial shipment and moreover, due consideration to install a protective circuit is strongly recommended at customer's design stage.

- The contents of this catalog are applicable to the products which are purchased from our sales offices or distributors (so called "TAIYO YUDEN' s official sales channel"). It is only applicable to the products purchased from any of TAIYO YUDEN' s official sales channel.
- Please note that Taiyo Yuden Co., Ltd. shall have no responsibility for any controversies or disputes that may occur in connection with a third party's intellectual property rights and other related rights arising from your usage of products in this catalog. Taiyo Yuden Co., Ltd. grants no license for such rights.
- Caution for export**  
Certain items in this catalog may require specific procedures for export according to "Foreign Exchange and Foreign Trade Control Law" of Japan, "U.S. Export Administration Regulations", and other applicable regulations. Should you have any question or inquiry on this matter, please contact our sales staff.

# SAW Filter / SAW Duplexer



REFLOW

## FEATURES

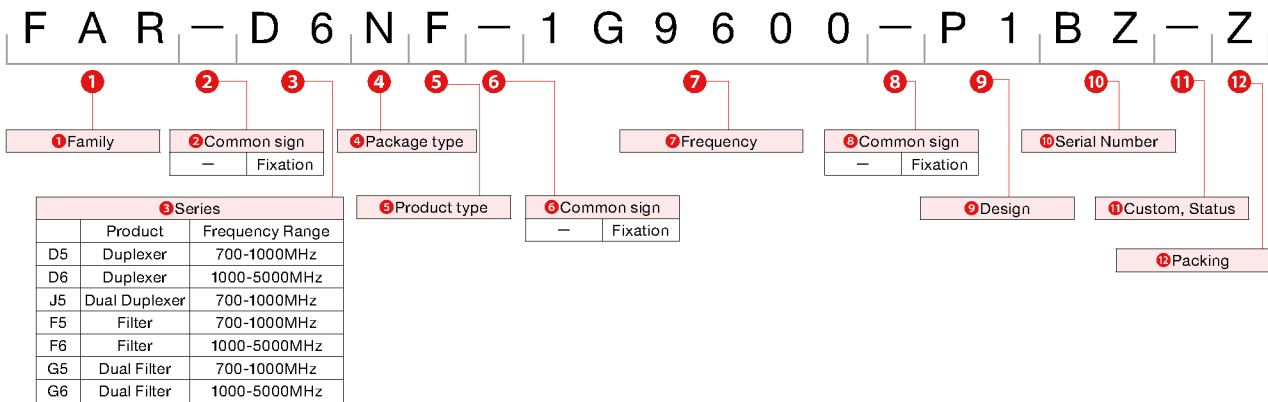
- Low Insertion Loss
- High Attenuation
- Small Size Package
- High Reliability with Hermetic Sealing (MSL1)
- Environmentally Conscious

## APPLICATIONS

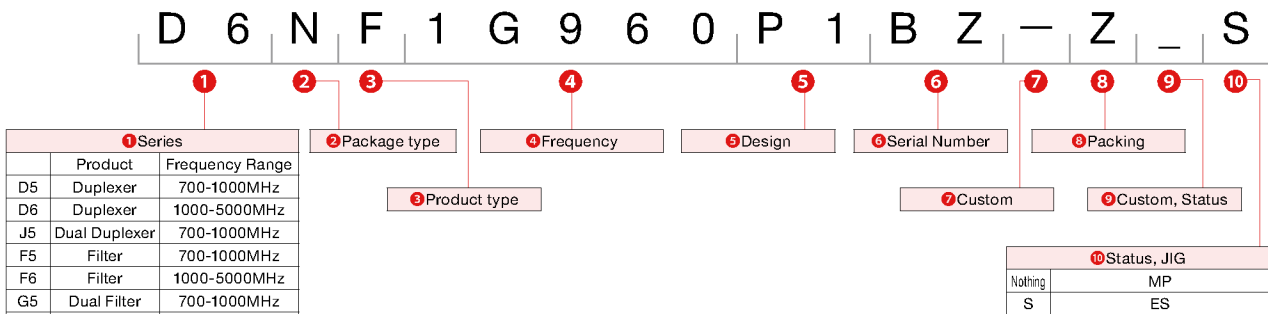
- UMTS (W-CDMA)
- GSM
- CDMA
- LTE
- GPS
- Other

## ORDERING CODE

(A) Previous Rule (applied to products registered on March 31, 2010 or before.)

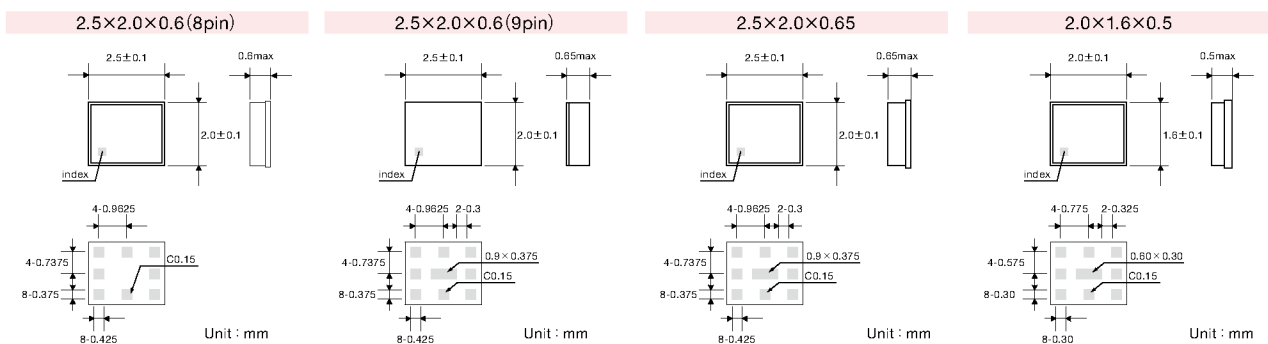


(B) New Rule (applied to products registered on April 1, 2010 or later.)

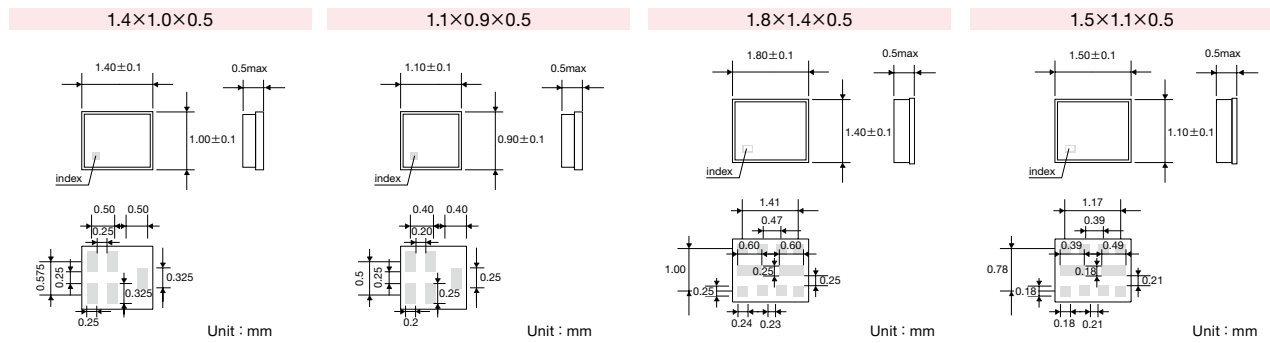


\* For further details, please contact to TAIYO YUDEN Co.,Ltd.

## EXTERNAL DIMENSIONS/STANDARD QUANTITY



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● 2G Frequency Allocation

GSM

GSM Band	3GPP Band	Name	Region	Use	Tx (MHz)	Rx (MHz)
850	V	GSM850	US	GPRS, EDGE	824-849	869-894
900	VIII	EGSM	CN/EU	GPRS, EDGE	880-915	925-960
1800	III	DCS	CN/EU	GPRS, EDGE	1710-1785	1805-1880
1900	II	GSM1900	US	GPRS, EDGE	1850-1910	1930-1990

● 3G Frequency Allocation

3GPP/FDD (W-CDMA/LTE)

3GPP Band	3GPP2 Band Class	Name (Block)	Region	Use (Status)	Tx (MHz)	Rx (MHz)
I	6	2G	EU, JP, CN	W-CDMA	1920-1980	2110-2170
II	1, (14)	1.9G	US	W-CDMA	1850-1910	1930-1990
III	8	1800	EU	LTE	1710-1785	1805-1880
IV	15	—	US	W-CDMA	1710-1755	2110-2155
V	0	850	US	W-CDMA	824-849	869-894
VI	—	800	JP	W-CDMA	830-840	875-885
VII	13	2.5G	EU	LTE	2500-2570	2620-2690
VIII	9	900	EU	W-CDMA	880-915	925-960
IX	—	1.7G	JP	W-CDMA	1750-1785	1845-1880
X	—	—	US	W-CDMA	1710-1770	2110-2170
XI	—	1.5G	JP	W-CDMA/LTE	1427.9-1452.9 (1427.9-1447.9)	1475.9-1500.9 (1475.9-1495.9)
XII	—	Lower 700 (A,B,C)	US	LTE	698-716	728-746
XIII	—	Upper 700 (C)	US	LTE	777-787	746-756
XIV	—	Upper 700 (D)	US	LTE	788-798	758-768
XV	—	—	—	—	1900-1920	2600-2620
XVI	—	—	—	—	2010-2025	2585-2600
XVII	—	Lower 700 (B,C)	US	LTE	704-716	734-746
XVIII	0-3	New 800	JP	CDMA2000 or LTE	815-830	860-875
XIX	—	Extended 800	JP	W-CDMA or LTE	830-845	875-890
XX	—	—	EU	LTE	832-862	791-821
XXI	—	Extended 1.5G	JP	LTE	1447.9-1462.9	1495.9-1510.9

3GPP/TDD

3GPP Band	3GPP2 Band Class	Name	Region	Use (Status)	Tx (MHz)	Rx (MHz)
33	—	—	—	—	1900-1920	1900-1920
34	—	—	—	—	2010-2025	2010-2025
35	—	—	—	—	1850-1910	1850-1910
36	—	—	—	—	1930-1990	1930-1990
37	—	—	—	—	1910-1930	1910-1930
38	—	—	—	—	2570-2620	2570-2620
39	—	—	—	—	1880-1920	1880-1920
40	—	—	—	—	2300-2400	2300-2400

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● 3G Frequency Allocation

3GPP2(CDMA2000)

3GPP2 Band Class	3GPP Band	Name	Region	Use	Tx(MHz)	Rx (MHz)
0	V	CDMA	US, CN, KR	CDMA2000	824-849	869-894
0-2	(V)	J-CDMA (6MHz)	JP	CDMA2000	824-830	869-875
0-3	—	J-CDMA (Plan)	JP	CDMA2000 or LTE	815-824	860-869
1	II	PCS	US	CDMA2000	1850-1910	1930-1990
2	—	—	—	—	872-909, 880-915	917-954, 925-960
3	—	J-CDMA (27MHz)	JP	CDMA2000	887-925	832-870
4	—	K-PCS	KR	CDMA2000	1750-1780	1840-1870
5	—	CDMA450	EU	CDMA2000	452-484	462-494
6	I	J-CDMA (IMT)	JP	CDMA2000	1920-1980	2110-2170
7	—	—	—	—	776-794	746-764
8	III	—	—	—	1710-1785	1805-1880
9	VIII	—	—	—	880-915	925-960
10	—	Secondary	US	CDMA2000	817-824	862-869
11	—	—	—	—	452-484	462-494
12	—	—	—	—	870-876	915-921
13	VII	—	—	—	2500-2570	2620-2690
14	(II)	PCS (G-Band)	US	CDMA2000	1850-1915	1930-1995
15	IV	AWS	US	CDMA2000	1710-1755	2110-2155

TD-SCDMA, PHS

3GPP Band	3GPP2 Band Class	Name	Region	Use	Tx(MHz)	Rx (MHz)
—	—	2G	CN	TD-SCDMA	2010-2025	2010-2025
—	—	1.9G	CN	TD-SCDMA	1880-1920	1880-1920
—	—	CORE XGP	JP	PHS	2545-2575	2545-2575

● OTHERS

Wireless LAN, Bluetooth, GPS

System	Name(Block)	Frequency(MHz)
Wireless LAN	IEEE 802.11	2400-2483.5
Wireless LAN	IEEE 802.11a	5150-5350
Bluetooth	IEEE 802.15.1	2400-2483.5
GPS	—	1574.42-1576.42

■ PART NUMBERS

● Duplexers

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
W-CDMA I (2G)	FAR-D6JG-2G1400-D3FZ	2.5×2.0×0.65	1.4/1.7	54/47	9 Pin, B Type
	FAR-D6JH-2G1400-B1BT	2.5×2.0×0.65	1.4/1.7	58/48	9 Pin, B Type Rx : Bal.100ohm STD
CDMA/W-CDMA V (850)	FAR-D5NC-881M50-M11A	2.5×2.0×0.6	1.5/1.9	61/52	8 Pin, A Type, New
	FAR-D5NC-881M50-M11B	2.5×2.0×0.6	1.5/1.9	61/52	8 Pin, B Type, New
	FAR-D5NG-881M50-M11Z	2.5×2.0×0.6	1.45/1.8	66/52	9 Pin, B Type, New
	FAR-D5PF-881M50-M3E7	2.0×1.6×0.5	1.5/1.8	58/51	9 Pin, A Type
	FAR-D5NA-881M50-P1A2	2.5×2.0×0.6	1.7/2.0	57/52	8 Pin, B Type Rx : Bal.100ohm
	FAR-D5NE-881M50-P1A9	2.5×2.0×0.6	1.6/1.8	57/51	9 Pin, B Type Rx : Bal.100ohm
	FAR-D5NE-881M50-P1A6Q	2.5×2.0×0.6	1.6/1.7	60/53	9 Pin, B Type 100ohm, New
J-CDMA (BW:27MHz)	FAR-D5PE-881M50-P3EZ	2.0×1.6×0.5	1.4/1.7	59/52	9 Pin, B Type Rx : Bal.100ohm
	FAR-D5PF-911M50-M3J7	2.0×1.6×0.5	1.5/1.8	61/44	9 Pin, A Type
W-CDMA VIII (900)	FAR-D5NH-942M50-M1Y9	2.5×2.0×0.65	1.8/2.3	58/50	9 Pin, B Type
	FAR-D5NF-942M50-P1GZ	2.5×2.0×0.65	1.9/2.3	58/50	9 Pin, B Type 100ohm, STD
	FAR-D5NF-942M50-P1GWQ	2.5×2.0×0.65	1.9/2.3	59/54	9 Pin, B Type 100ohm, GPS High Att.
PCS/W-CDMA II (1.9G)	FAR-D6NH-1G9600-M1Z9	2.5×2.0×0.65	2.2/3.1	55/50	9 Pin, B Type
	FAR-D6NF-1G9600-P1BZ	2.5×2.0×0.65	2.4/3.4	58/52	9 Pin, B Type 100ohm, STD
	FAR-D6NF-1G9600-P1BT	2.5×2.0×0.65	2.5/2.8	54/55	9 Pin, B Type 100ohm, Low Rx IL
W-CDMA IV (DCS/2G)	FAR-D6JH-2G1325-B1YZ	2.5×2.0×0.65	1.5/1.7	57/51	9 Pin B Type Rx : Bal.100ohm

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## PART NUMBERS

### CDMA/GSM850

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
CDMA Tx	FAR-F5KB-836M50-B4ER	1.4×1.0×0.5	1.7	44	100ohm input
	FAR-F5KB-836M50-B4EG	1.4×1.0×0.5	1.6	42	200ohm input
CDMA/GSM850 Tx	FAR-F5KA-836M50-D4DF	1.4×1.0×0.5	1.9	44	High Att. type
GSM850/CDMA Tx	FAR-F5KA-836M50-D4CM	1.4×1.0×0.5	1.8	35	-
CDMA Rx	FAR-F5KB-881M50-B4ED	1.4×1.0×0.5	1.5	61	100ohm output
	FAR-F5KY-881M50-B4UZ	1.4×1.0×0.5	1.5	61	100ohm, High Att.
	FAR-F5KB-881M50-B4EJ	1.4×1.0×0.5	1.4	64	200ohm output
GSM850/CDMA Rx	FAR-F5KA-881M50-D4DB	1.4×1.0×0.5	1.7	56	High Att. type
GSM850 Rx	FAR-F5KB-881M50-B4EA	1.4×1.0×0.5	1.7	53	150ohm output
	FAR-F5QB-881M50-P2BA	1.1×0.9×0.5	1.3	63	150ohm output

### EGSM

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
EGSM Tx	FAR-F5KA-897M50-D4DC	1.4×1.0×0.5	2.2	16	High Att. type
	FAR-F5KA-942M50-D4DD	1.4×1.0×0.5	2.0	34	High Att. type
EGSM Rx	FAR-F5KB-942M50-B4EB	1.4×1.0×0.5	1.6	26	150ohm output
	FAR-F5QB-942M50-P2BB	1.1×0.9×0.5	1.6	28	150ohm output

### DCS

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
DCS Tx	FAR-F6KA-1G7475-D4CY	1.4×1.0×0.5	2.5	30	
DCS Rx	FAR-F6KA-1G8425-D4CK	1.4×1.0×0.5	2.1	20	
	FAR-F6KB-1G8425-B4GA	1.4×1.0×0.5	1.5	14	150ohm output

### US-PCS/GSM1900

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
US-PCS Tx	FAR-F6KA-1G8800-L4AF	1.4×1.0×0.5	2.4	35	Full band, High Att.
	FAR-F6KB-1G8800-B4GS	1.4×1.0×0.5	2.3	28	100ohm input
	F6KB1G880B4GH	1.4×1.0×0.5	2.4	42	200ohm input
US-PCS Rx	FAR-F6KA-1G9600-D4DQ	1.4×1.0×0.5	3.4	44	High Att.
	FAR-F6KA-1G9600-D4MT	1.4×1.0×0.5	3.4	43	High Att./New
	FAR-F6KB-1G9600-B4GP	1.4×1.0×0.5	2.1	23	100ohm output
	FAR-F6KY-1G9600-B4UU	1.4×1.0×0.5	2.6	50	100ohm, High Att.
GSM1900/US-PCS Rx	FAR-F6KA-1G9600-D4CR	1.4×1.0×0.5	2.0	18	
	F6KA1G960D4CZ	1.4×1.0×0.5	1.8	18	Low loss type
GSM1900 Rx	FAR-F6KB-1G9600-B4GB	1.4×1.0×0.5	1.6	18	150ohm output

### GSM Dual

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
EGSM+DCS Rx	FAR-G6KZ-1G8425-Y4WZ	1.8×1.4×0.5	1.8/1.6	31/16	EGSM 150ohm output DCS 150ohm output
DCS+EGSM Rx	FAR-G6KZ-1G8425-Y4WY	1.8×1.4×0.5	1.6/1.8	16/31	DCS 150ohm output EGSM 150ohm output
	G6QF1G842N2GC	1.5×1.1×0.5	1.6/1.6	17/31	DCS 150ohm output EGSM 150ohm output
GSM850+EGSM Rx	FAR-G5QC-942M50-N2FB	1.5×1.1×0.5	1.5/1.8	50/29	GSM850 150ohm output EGSM 150ohm output
GSM850+EGSM Rx (Common Input)	FAR-G5KT-942M50-Y4RW	1.8×1.4×0.5	1.9/2.2	50/25	GSM850 150ohm output EGSM 150ohm output
EGSM+GSM850 Rx	FAR-G5KC-942M50-Y4YW	1.8×1.4×0.5	1.8/1.4	31/54	EGSM 150ohm output GSM850 150ohm output
	FAR-G5QC-942M50-N2CD	1.5×1.1×0.5	1.7/1.4	29/51	EGSM 150ohm output GSM850 150ohm output
EGSM+GSM850 Rx (Common Input)	FAR-G5KT-942M50-Y4RZ	1.8×1.4×0.5	2.2/1.9	25/52	EGSM 150ohm output GSM850 150ohm output
	FAR-G5QD-942M50-N2DB	1.5×1.1×0.5	2.5/2.0	25/55	EGSM 150ohm output GSM850 150ohm output
EGSM+GSM850 Rx (Common Output)	G5KW942M5Y4YF	1.8×1.4×0.5	2.3/1.8	35/40	EGSM 150ohm output GSM850 150ohm output
	G5QE942M5N2ED	1.5×1.1×0.5	2.4/1.9	32/37	EGSM 150ohm output GSM850 150ohm output
DCS+GSM1900 Rx	FAR-G6QC-1G9600-N2FA	1.5×1.1×0.5	1.9/1.7	17/13	DCS 150ohm output GSM1900 150ohm output
GSM1900+DCS Rx	FAR-G6KC-1G9600-Y4YY	1.8×1.4×0.5	1.6/1.6	13/15	GSM1900 150ohm output DCS 150ohm output
	FAR-G6QC-1G9600-N2CB	1.5×1.1×0.5	1.7/1.7	15/16	GSM1900 150ohm output DCS 150ohm output
GSM1900+DCS Rx (Common Input)	FAR-G6KT-1G9600-Y4RY	1.8×1.4×0.5	1.9/1.8	13/18	GSM1900 150ohm output DCS 150ohm output
	G6QD1G960N2DA	1.5×1.1×0.5	1.9/1.8	15/18	GSM1900 150ohm output DCS 150ohm output
GSM1900+DCS Rx (Common Output)	G6KW1G960Y4YE	1.8×1.4×0.5	2.5/2.5	20/12	GSM1900 150ohm output DCS 150ohm output
	G6QE1G960N2EC	1.5×1.1×0.5	2.5/2.5	18/13	GSM1900 150ohm output DCS 150ohm output
GSM1900+850 Rx	FAR-G6KG-1G9600-Y4ZF	1.8×1.4×0.5	1.6/1.5	15/58	GSM1900 150ohm output GSM850 150ohm output

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## PART NUMBERS

### GPS

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
GPS	FAR-F6KA-1G5754-L4AA	1.4×1.0×0.5	0.9	—	Low loss type
	FAR-F6KA-1G5754-L4AJ	1.4×1.0×0.5	0.9	—	Low loss/High Att.
	FAR-F6KA-1G5754-L4AB	1.4×1.0×0.5	0.44	—	Ultra Low loss type
	FAR-F6QA-1G5754-H2JC	1.1×0.9×0.5	1.11	—	High Att.
	FAR-F6KB-1G5754-B4GE	1.4×1.0×0.5	1.1	—	100ohm/Low loss
	FAR-F6KB-1G5754-B4GU	1.4×1.0×0.5	1.2	—	100ohm/High Att.
GPS (GNSS)	FAR-F6KA-1G5859-D4MS	1.4×1.0×0.5	1.0(1.2)	—	—
	FAR-F6KB-1G5859-B4HR	1.4×1.0×0.5	1.1(1.4)	—	100ohm output

### J-CDMA

System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
J-CDMA (B.W.32MHz) Rx	FAR-F5KB-859M00-B4EE	1.4×1.0×0.5	1.8	35	100ohm output
J-CDMA (B.W.27+6MHz) Tx	FAR-G5KL-911M50-D4XA	1.8×1.4×0.5	2.2/2.2	54/46	1 input/2 output
J-CDMA (B.W.27+25MHz) Tx	FAR-G5KK-911M50-D4KE	1.8×1.4×0.5	2.0/2.0	62/44	2 input/2 output
	FAR-G5KL-911M50-D4XC	1.8×1.4×0.5	2.2/2.0	49/43	1 input/2 output

### W-CDMA

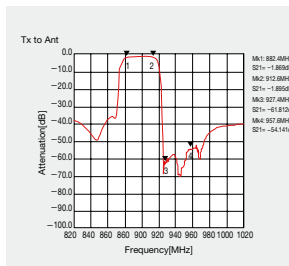
System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
W-CDMA I (2G) Tx	FAR-F6KA-1G9500-D4CD	1.4×1.0×0.5	2.2	36	
	FAR-F6KA-1G9500-D4DG	1.4×1.0×0.5	1.6	38	Low loss, High Att.
	FAR-F6KB-1G9500-B4GJ	1.4×1.0×0.5	2.1	34	100ohm input
W-CDMA I (2G) Rx	FAR-F6KA-2G1400-D4CG	1.4×1.0×0.5	1.9	39	
	FAR-F6KB-2G1400-B4GC	1.4×1.0×0.5	1.7	39	100ohm output
	FAR-F6KY-2G1400-B4UY	1.4×1.0×0.5	1.8	64	100ohm, High Att.
	FAR-F6KB-2G1400-B4GD	1.4×1.0×0.5	1.5	47	200ohm output
J-CDMA (2G/B.W.20MHz) Rx	FAR-F6KB-2G1200-B4GQ	1.4×1.0×0.5	1.4	44	100ohm output
W-CDMA IV (1.7G/2G) Tx	FAR-F6KA-1G7400-D4DE	1.4×1.0×0.5	1.5	48	
	FAR-F5KA-897M50-D4VW	1.4×1.0×0.5	2.6	38	High Att.
W-CDMA VIII (EGSM) Tx	FAR-F5KB-897M50-B4EQ	1.4×1.0×0.5	2.4	28	100ohm input
	FAR-F5KB-942M50-B4ES	1.4×1.0×0.5	2.4	29	100ohm output
W-CDMA VIII (EGSM) Rx	FAR-F5KY-942M50-B4UW	1.4×1.0×0.5	2.0	57	100ohm, High Att.
	FAR-F6KA-1G7675-D4CT	1.4×1.0×0.5	1.8	31	
W-CDMA IX (1.7G) Tx	FAR-F6KB-1G8625-B4GT	1.4×1.0×0.5	2.1	40	100ohm output
W-CDMA IX (1.7G) Rx	FAR-F6KB-1G8625-B4GT	1.4×1.0×0.5	2.1	40	100ohm output
W-CDMA V (850) + I (2G) Tx	FAR-G6KG-1G9500-Y4PG	1.8×1.4×0.5	1.9/2.4	42/43	V (850) 200ohm in I (2G) 200ohm in
W-CDMA I (2G) + V (850) Rx	FAR-G6KG-2G1400-Y4SH	1.8×1.4×0.5	1.6/1.5	42/64	I (2G) 200ohm out V (850) 200ohm out
LTE XIII (Upper C) Tx	FAR-F5KA-782M00-D4VP	1.4×1.0×0.5	1.5	55	
LTE XIII (Upper C) Rx	FAR-F5KY-751M00-B4UQ	1.4×1.0×0.5	1.6	50	100ohm output
LTE XVII (Lower B,C) Tx	FAR-F5KA-710M00-D4VQ	1.4×1.0×0.5	1.2	32	
LTE XVII (Lower B,C) Rx	FAR-F5KY-740M00-B4UR	1.4×1.0×0.5	1.4	60	100ohm output

### Other

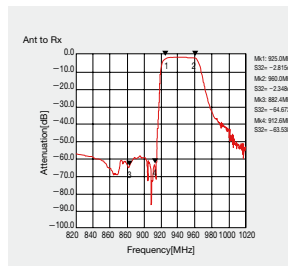
System	Part number	Package Size (mm)	Insertion Loss (dB)	Isolation (dB)	Remarks
ISM900 (B.W.26MHz)	FAR-F5QA-915M00-M2AK	1.1×0.9×0.5	1.8	—	
TD-SCDMA	FAR-F6KA-2G0175-D4DR	1.4×1.0×0.5	1.8	—	High Att
	FAR-F6KA-1G9000-D4DS	1.4×1.0×0.5	1.6	—	
	FAR-F6KA-1G9000-D4MZ	1.4×1.0×0.5	1.4	—	Low IL
TD-SCDMA (2G+1.9G)	FAR-G6QJ-2G0175-M2MD	1.5×1.1×0.5	1.3/1.4	—	2 IN/2 OUT
Wireless LAN	FAR-F6KA-2G4418-D4CU	1.4×1.0×0.5	2.6	—	+10dBm
	FAR-F6KA-2G4418-A4VA	1.4×1.0×0.5	3.0	—	+23dBm

## ELECTRICAL CHARACTERISTICS

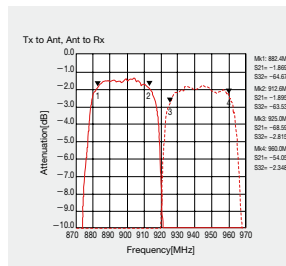
### FAR-D5NF-942M50-P1GWQ



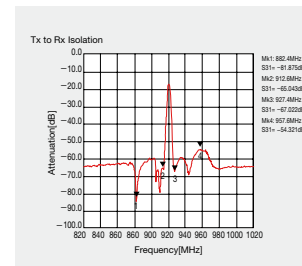
Pass-band (Tx to Ant)



Pass-band (Ant to Rx)



In-band Characteristic

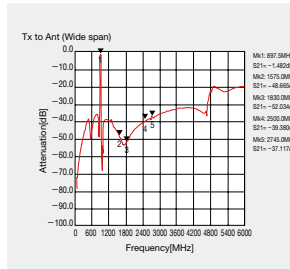


Tx to Rx Isolation

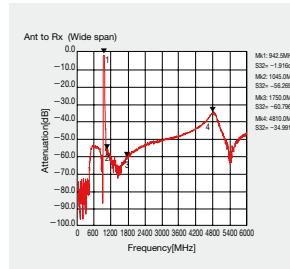
\* These data include loss that comes from the test board. (Approximately 0.05dB)

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FAR-D5NF-942M50-P1GWQ

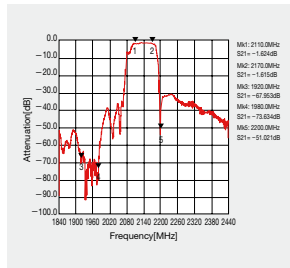


Wide-band (Tx to Ant)

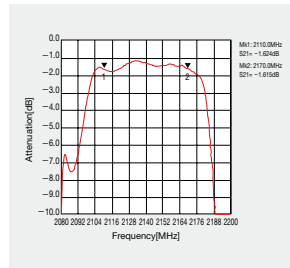


Wide-band (Ant to Rx)

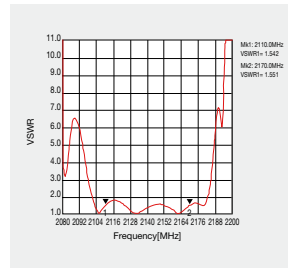
FAR-F6KY-2G1400-B4UY



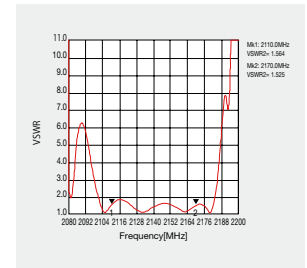
Pass-band Characteristic



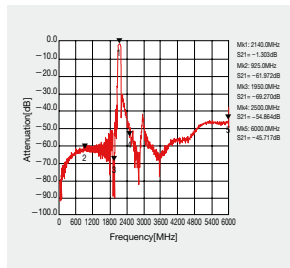
In-band Characteristic



VSWR(INPUT)



VSWR(OUTPUT)



Wide-band Characteristic

HIGH FREQUENCY DEVICE

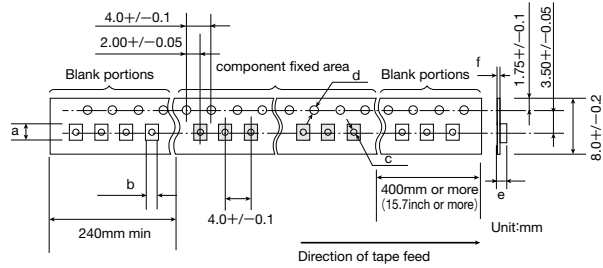
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# PACKAGING

## ① Minimum Quantity

Type	Size (mm)	Code&Quantity (Pieces)							
Duplexer	3.0×2.5	Z	3000			U	10000		
	2.5×2.0	Z	3000			U	10000		
	2.0×1.6	Z	3000					Y	15000
Single Filter	2.0×1.6	Z	3000					Y	15000
	1.4×1.0	Z	3000					Y	15000
	1.1×0.9			J	5000			Y	15000
Dual Filter	2.0×1.6	Z	3000					Y	15000
	1.8×1.4	Z	3000					Y	15000
	1.5×1.1			J	5000			Y	15000

## ② Tape material



## ● Taping dimensions

Type	Size (mm)	a	b	c	d	e	f
Duplexer	3.0×2.5	3.4±0.1	2.85±0.1	1.05±0.05	1.55±0.05	1.0±0.1	0.25±0.05
	2.5×2.0	2.8±0.1	2.3±0.1	1.5±0.1/-0	1.5±0.1/-0	1.0±0.1/-0.0	0.25±0.05
	2.0×1.6	2.4±0.1	2.0±0.1	1.05±0.05	1.5±0.1/-0	0.90 - 0.05	0.25±0.05
Single Filter	2.0×1.6	2.4±0.1	2.0±0.1	1.05±0.05	1.5±0.1/-0	0.90 - 0.05	0.25±0.05
	1.4×1.0	1.7±0.1	1.3±0.1	0.5±0.05	1.5±0.1/-0	0.63±0.05	0.20±0.05
	1.1×0.9	1.3±0.1	1.1±0.1	0.5±0.05	1.55±0.05	0.63±0.05	0.20±0.05
Dual Filter	2.0×1.6	2.4±0.1	2.0	1.05±0.05	1.5±0.1/-0	0.90 - 0.05	0.25±0.05
	1.8×1.4	2.2±0.1	1.8	0.5±0.05	1.55±0.05	0.8±0.1	0.30±0.05
	1.5×1.1	1.8±0.1	1.4	0.5±0.05	1.5±0.1/-0	0.7±0.1	0.25±0.05

Unit : mm

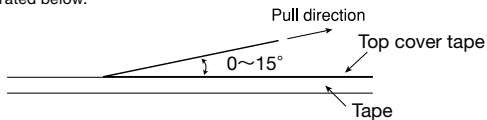
## ● Material of Tape (Conductive)

Tape : Polystyrene

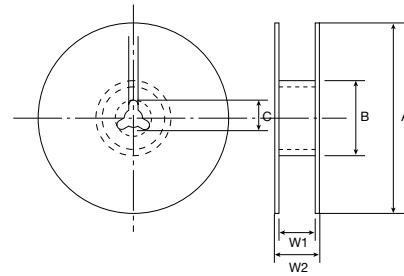
Top cover tape : Polyethylene terephthalate (PET) and Polyethylene

## ③ Top Tape Strength

The top tape requires a peel-off force of 0.1 to 1.0N in the direction of the arrow as illustrated below.



## ④ Reel size



## ● Material of Reel

Material : Polystyrene+Carbon

Characteristics : Conform to EIAJ-ET-7200A

Color : Black

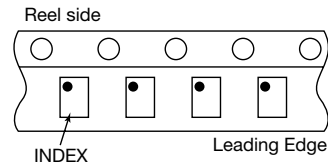
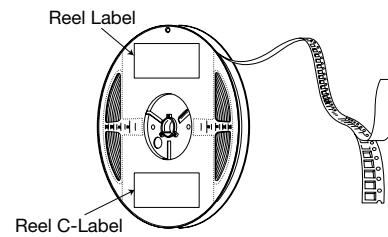
Surface resistance (reference value) :  $10^9 \Omega/\text{sq Max.}$

Code	Quantity	A	B	C	W1	W2
Z	3,000 pcs	$\phi 180.0 \pm 0.0 / -1.5$	$\phi 66.0 \pm 0.5$	$\phi 13.0 \pm 0.2$	$9.0 \pm 1.0 / -0.0$	$11.4 \pm 1.0$
J	5,000 pcs	$\phi 180.0 \pm 0.0 / -1.5$	$\phi 66.0 \pm 0.5$	$\phi 13.0 \pm 0.2$	$9.0 \pm 1.0 / -0.0$	$11.4 \pm 1.0$
U	10,000 pcs	$\phi 330.0 \pm 2.0$	$\phi 100.0 \pm 1.0$	$\phi 13.0 \pm 0.2$	$9.4 \pm 1.0$	$13.4 \pm 1.0$
Y	15,000 pcs	$\phi 330.0 \pm 2.0$	$\phi 100.0 \pm 1.0$	$\phi 13.0 \pm 0.2$	$9.4 \pm 1.0$	$13.4 \pm 1.0$

Unit : mm

## ⑤ Reel label and Reel C-Label sticking and Winding method

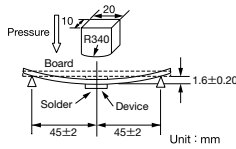
### ● Surface



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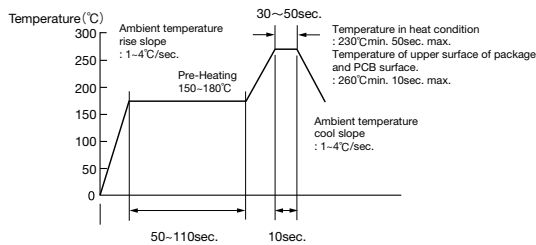


Filter

<b>1. Terminal strength</b>	
Specifications	No damage to be found.
Conditions	Bending Test. according to IEC60068-2-21(JISC60068-2-21)
	
<b>2. Mechanical shock</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Apply 14700m/s <sup>2</sup> for 0.5ms 5 times for each of 6 directions. according to IEC68-2-27(JISC60068-2-27).
<b>3. Vibration</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	With 1.5 mm of whole amplitude at 10 to 55 Hz of frequency, and 98m/s <sup>2</sup> of acceleration at 55 to 500Hz, apply a vibration for 2 hours for each of 3 directions, period is 15 minutes(10 to 500 to 10Hz)
<b>4. Drop 1</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Drop 3 times onto concrete floor from the height of 1.0m.
<b>5. Drop 2</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Drop with 150g weight 3 times in each 6 direction onto concrete floor from the height of 1.8m.
<b>6. Temperature cycling</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Temp. range -40 to +100°C. 500cycle.
<b>7. Static humidity</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	+85°C, 90% to 95%RH, apply DC5V, 1000hours.
<b>8. High temperature storage life</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	+100°C, 1000hours.
<b>9. Low temperature storage life</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	-40°C, 1000hours.
<b>10. Solderability 1</b>	
Specifications	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Conditions	Lead-free Solder paste, Reflow : Peak temperature 245°C
<b>11. Solderability 2</b>	
Specifications	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Conditions	Sn-Pb Solder paste, Reflow : Peak temperature 235°C
<b>12. Solder heat resistance</b>	
Specifications	After testing, meet the specified characteristics at a room temperature. A change of the remarkable appearance do not have it.
Conditions	Temperature profile of reflow soldering is as follows (Figure).

◆ Recommended temperature profile of reflow soldering

Figure shows recommended temperature profile of reflow soldering in the case of lead-free solder alloy Sn3.0Ag0.5Cu.  
Suitable condition for solder heating is differed depending on composition and manufacturing method.  
Please contact to solder manufacturer for the details.



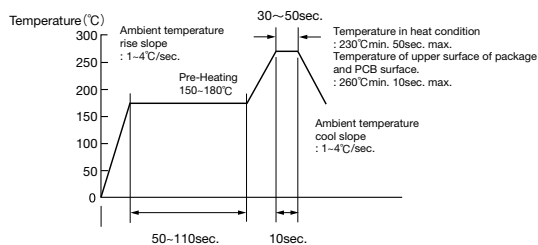
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Duplexer

<b>1. Terminal strength</b>	
Specifications	No damage to be found.
Conditions	Bend width 4mm, hold for 5+/-1 sec. according to IEC60068-2-21(JISC60068-2-21)
<b>2. Mechanical shock</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Apply 14700m/s <sup>2</sup> for 0.5ms 5 times for each of 6 directions. according to IEC68-2-27(JISC60068-2-27).
<b>3. Vibration</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	With 1.5 mm of whole amplitude at 10 to 55 Hz of frequency, and 98m/s <sup>2</sup> of acceleration at 55 to 500Hz, apply a vibration for 2 hours for each of 3 directions, period is 15 minutes(10 to 500 to 10Hz)
<b>4. Drop 1</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Drop 3 times onto concrete floor from the height of 1.0m.
<b>5. Drop 2</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Drop with 150g weight 3 times in each 6 direction onto concrete floor from the height of 1.8m.
<b>6. Temperature cycling</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	Temp. range -40 to +100°C. 500cycle.
<b>7. Static humidity</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	+85°C, 90% to 95%RH, apply DC5V, 1000hours.
<b>8. High temperature storage life</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	+100°C, 1000hours.
<b>9. Low temperature storage life</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	-40°C, 1000hours.
<b>10. High Temperature Bias</b>	
Specifications	After testing, meet the specified characteristics at a room temperature.
Conditions	+50°C, +29dBm, 50000hours.
<b>11. Solderbility 1</b>	
Specifications	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Conditions	Lead-free Solder paste, Reflow : Peak temperature 245°C
<b>12. Solderbility 2</b>	
Specifications	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Conditions	Sn-Pb Solder paste, Reflow ; Peak temperature 235°C
<b>13. Solder heat resistance</b>	
Specifications	After testing, meet the specified characteristics at a room temperature. A change of the remarkable appearance do not have it.
Conditions	Temperature profile of reflow soldering is as follows (Figure).

◆Recommended temperature profile of reflow soldering

Figure shows recommended temperature profile of reflow soldering in the case of lead-free solder alloy Sn3.0Ag0.5Cu. Suitable condition for solder heating is differed depending on composition and manufacturing method. Please contact to solder manufacturer for the details.



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