Notice for TAIYO YUDEN Products

Please read this notice before using the TAIYO YUDEN products.

⚠ REMINDERS

Product Information in this Catalog

Product information in this catalog is as of March 2023. All of the contents specified herein and production status of the products listed in this catalog are subject to change without notice due to technical improvement of our products, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

Approval of Product Specifications

Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available. When using our products, please be sure to approve our product specifications or make a written agreement on the product specification with TAIYO YUDEN in advance.

Pre-Evaluation in the Actual Equipment and Conditions

Please conduct validation and verification of our products in actual conditions of mounting and operating environment before using our products.

Limited Application

1. Equipment Intended for Use

The products listed in this catalog are intended for general-purpose and standard use in general electronic equipment for consumer (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and other equipment specified in this catalog or the individual product specification sheets, or the equipment approved separately by TAIYO YUDEN.
TAIYO YUDEN has the product series intended for use in the following equipment. Therefore, when using our products for these equipment, please check available applications specified in this catalog or the individual product specification sheets and use the corresponding products.

Application	Product Series		Quality Grade *3
	Equipment *1	Category (Part Number Code *2)	
Automotive	Automotive Electronic Equipment (POWERTRAIN, SAFETY)	A	1
	Automotive Electronic Equipment (BODY & CHASSIS, INFOTAINMENT)	C	2
Industrial	Telecommunications Infrastructure and Industrial Equipment	B	2
Medical	Medical Devices classified as GHTF Class C (Japan Class III)	M	2
	Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)	L	3
Consumer	General Electronic Equipment	S	3
	Only for Mobile Devices *4	E	4

*Notes: 1. Based on the general specifications required for electronic components for such equipment, which are recognized by TAIYO YUDEN, the use of each product series for the equipment is recommended. Please be sure to contact TAIYO YUDEN before using our products for equipment other than those covered by the product series.
2. On each of our part number, the 2nd code from the left is a code indicating the “Category” as shown in the above table. For details, please check the explanatory materials regarding the part numbering system of each of our products.
3. Each product series is assigned a “Quality Grade” from 1 to 4 in order of higher quality. Please do not incorporate a product into any equipment with a higher Quality Grade than the Quality Grade of such product without the prior written consent of TAIYO YUDEN.
4. The applications covered by this product series are limited to mobile devices (smartphone, tablet PC, smartwatch, handheld game console, etc.) among general electronic equipment for consumer. The design, specifications and operating environment, etc. differ from those of the product series for "General Electronic Equipment" (Category: S), so please check the individual product specification sheets for details. The product series for "General Electronic Equipment" (Category: S) can also be used for mobile devices.

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our product specification sheets. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our website (http://www.ty-top.com/) .

2. Equipment Requiring Inquiry

Please be sure to contact TAIYO YUDEN for further information before using the products listed in this catalog for the following equipment (excluding intended equipment as specified in this catalog or the individual product specification sheets) which may cause loss of human life, bodily injury, serious property damage and/or serious public impact due to a failure or defect of the products and/or malfunction attributed thereto.

(1) Transportation equipment (automotive powertrain control system, train control system, and ship control system, etc.)
(2) Traffic signal equipment
(3) Disaster prevention equipment, crime prevention equipment
(4) Medical devices classified as GHTF Class C (Japan Class III)
(5) Highly public information network equipment, data-processing equipment (telephone exchange, and base station, etc.)
(6) Any other equipment requiring high levels of quality and/or reliability equal to the equipment listed above

3. Equipment Prohibited for Use

Please do not incorporate our products into the following equipment requiring extremely high levels of safety and/or reliability.

(1) Aerospace equipment (artificial satellite, rocket, etc.)
(2) Aviation equipment *1
(3) Medical devices classified as GHTF Class D (Japan Class IV), implantable medical devices *2
(4) Power generation control equipment (nuclear power, hydroelectric power, thermal power plant control system, etc.)
(5) Undersea equipment (submarine repeating equipment, etc.)
(6) Military equipment
(7) Any other equipment requiring extremely high levels of safety and/or reliability equal to the equipment listed above

*Notes: 1. There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.
2. Implantable medical devices contain not only internal unit which is implanted in a body, but also external unit which is connected to the internal unit.

4. Limitation of Liability

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the products listed in this catalog for any equipment that is not intended for use by TAIYO YUDEN, or any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

Safety Design

When using our products for high safety and/or reliability-required equipment or circuits, please fully perform safety and/or reliability evaluation. In addition, please install (i) systems equipped with a protection circuit and a protection device and/or (ii) systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault for a failsafe design to ensure safety.

Intellectual Property Rights

Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.

Limited Warranty

Please note that the scope of warranty for our products is limited to the delivered our products themselves conforming to the product specifications specified in the individual product specification sheets, and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a failure or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement, provided, however, that our products shall be used for general-purpose and standard use in the equipment specified in this catalog or the individual product specification sheets.

TAIYO YUDEN's Official Sales Channel

The contents of this catalog are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter "TAIYO YUDEN's official sales channel"). Please note that the contents of this catalog are not applicable to our products purchased from any seller other than TAIYO YUDEN's official sales channel.

Caution for Export

Some of our products listed in this catalog may require specific procedures for export according to "U.S. Export Administration Regulations", "Foreign Exchange and Foreign Trade Control Law" of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our product specification sheets. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our website (http://www.ty-top.com/) .

FBAR/SAW Devices for Communications for General Electronic Equipment for Consumer

REFLOW

■PART NUMBER

F	S	D	C	S	R	8	M	1	G	8	4	K	2	C	7	–	A	Y
①				②	③	④	⑤	⑥				⑦				⑧		⑨

①Series

Code (1)(2)(3)(4)	
FSDC	SAW Device for Communication for General, Duplexer
FSSC	SAW Device for Communication for General, Single Filter
FSGC	SAW Device for Communication for General, Dual Filter
FSHC	SAW Device for Communication for General, Triple Filter
FSKC	SAW Device for Communication for General, Quadplexer
FSWC	FBAR Device for Communication for General, Duplexer
FSFC	FBAR Device for Communication for General, Single Filter
FSJC	SAW Device for Communication for General, Multiplexer

(1) Product Group

Code	
F	FBAR/SAW Devices for Communications

(2) Category

Code	Recommended equipment	Quality Grade
S	General Electronic Equipment for Consumer	3

(3) Type

Code	
D	Duplexer (SAW)
S	Single Filter (SAW)
G	Dual Filter (SAW)
H	Triple Filter (SAW)
K	Quadplexer (SAW)
W	Duplexer (FBAR)
F	Single Filter (FBAR)
J	Multiplexer

(4) Features, Characteristics

Code	
C	CSSD (Use HTCC)

②Series name

Code	Series name
A	AEC-Q200 Qualified
S	Standard

③Operating temperature, Input power

Code	Operating temperature [℃]	Input power[dBm]
L	95	+32 or higher
M	95	+30 or higher and lower than +32
N	95	Lower than +30
P	85	+32 or higher
Q	85	+30 or higher and lower than +32
R	85	Lower than +30

④Dimensions (L×W)

Code	Dimensions (L×W) [mm]
1	1.1×0.9
4	1.4×1.0
5	1.5×1.1
6	1.6×1.2
7	1.7×1.3
8	1.8×1.4
Y	2.5×2.0

⑤Thickness

Code	Thickness[mm]
M	0.38 max.
N	0.44 max.
T	0.50 max.
H	0.60 max.
R	0.80 max.

⑥Frequency

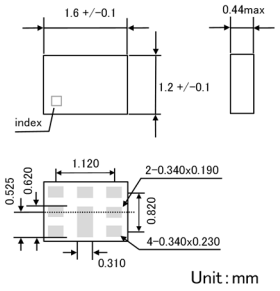
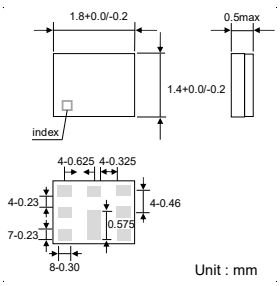
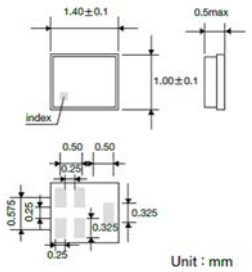
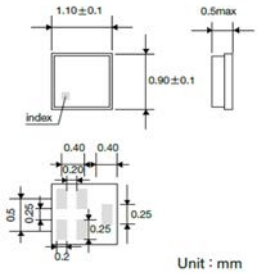
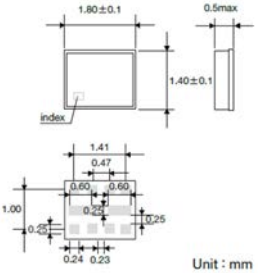
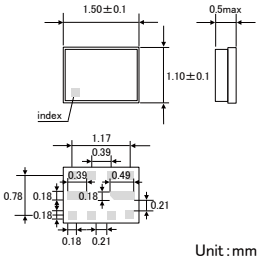
Code (example)	Frequency
1G84	1.84GHz
881M	881MHz

⑦Internal code

⑧Custom code

⑨Packaging

EXTERNAL DIMENSIONS

1.6 × 1.2 × 0.44	1.8 × 1.4 × 0.5 (Duplexer)	1.4 × 1.0 × 0.5
		
1.1 × 0.9 × 0.5	**1.8 × 1.4 × 0.5 (Dual Filter)**	**1.5 × 1.1 × 0.5**
		

■PART NUMBER

●Duplexers

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 1	FSDCSR8T2G14K2A7	D6DA2G140K2A7	1.8×1.4×0.5max.	1.6/1.7	58/59	
	FSDCSQ6N2G14G1CP	D6SK2G140G1CP	1.6×1.2×0.44max.	1.6/1.8	57/56	
	FSDCSR8T2G14E1AL	D6RB2G140E1AL	1.8×1.4×0.47max.	1.7/1.8	57/51	Rx : Bal.100ohm
Band 2	FSDCSQ8N1G96A3CY	D6FH1G960A3CY	1.8×1.4×0.44max.	1.8/2.2	60/56	
	FSDCSQ6N1G96G3NZ	D6SD1G960G3NZ	1.6×1.2×0.44max.	1.7/2.2	59/54	
	FSDCSQ6N1G96G3NT	D6SD1G960G3NT	1.6×1.2×0.44max.	1.7/2.2	59/54	
	FSDCSQ6M1G96G3HC	D6SD1G960G3HC	1.6×1.2×0.36max.	1.7/2.2	59/54	Low Profile (0.36mm max)
	FSDCSR8H1G96E1HB	D6RB1G960E1HB	1.8×1.4×0.6max.	2.1/2.9	56/55	Rx : Bal.100ohm
Band 3	FSDCSR8M1G84K2C7	D6DA1G842K2C7	1.8×1.4×0.38max.	1.8/1.9	60/56	
	FSDCSR8N1G84A3CZ	D6FH1G842A3CZ	1.8×1.4×0.44max.	1.5/2.1	60/58	
	FSDCSQ6N1G84G3NW	D6SD1G842G3NW	1.6×1.2×0.44max.	1.6/2.1	58/55	
Band 4	FSDCSQ8T2G13K2D9	D6DA2G132K2D9	1.8×1.4×0.5max.	1.6/1.8	60/56	
	FSDCSR8T2G13E1DF	D6RB2G132E1DF	1.8×1.4×0.5max.	1.6/1.8	62/54	Rx : Bal.100ohm
Band 5	FSDCSQ8T881MK2E4	D5DA881M5K2E4	1.8×1.4×0.5max.	1.4/1.7	58/59	
	FSDCSQ6N881MG1CN	D5SK881M5G1CN	1.6×1.2×0.44max.	1.3/1.6	62/59	
	FSDCSR8T881ME1BH	D5RB881M5E1BH	1.8×1.4×0.47max.	1.4/1.7	58/52	Rx : Bal.100ohm
Band 7	FSWCSQ8H2G65DP03	D6HQ2G655DP03	1.8×1.4×0.54max.	2.0/2.0	61/56	
	FSDCSR8N2G65K2F1	D6DA2G655K2F1	1.8×1.4×0.44max.	2.1/2.2	60/61	
	FSDCSQ6M2G65G3PZ	D6SE2G655G3PZ	1.6×1.2×0.36max.	2.1/1.9	62/65	Low Profile (0.36mm max)
	FSWCSR8H2G65BP11	D6HP2G655BP11	1.8×1.4×0.54max.	1.8/2.4	56/56	Rx : Bal.100ohm, FBAR
Band 8	FSDCSR8H942MK2S2	D5DA942M5K2S2	1.8×1.4×0.6max.	1.3/1.5	58/56	for LTE
	FSDCSQ8H942MA1SZ	D5FH942M5A1SZ	1.8×1.4×0.6max.	1.8/1.9	61/52	
	FSDCSR6N942MG3NY	D5SD942M5G3NY	1.6×1.2×0.44max.	1.4/1.9	58/58	
	FSDCSQ6N942MG3NU	D5SD942M5G3NU	1.6×1.2×0.44max.	1.7/1.8	60/59	
	FSDCSR8T942ME1CF	D5RB942M5E1CF	1.8×1.4×0.5max.	1.5/1.9	56/51	Rx : Bal.100ohm
Band 11	FSDCSQ8N1G48K2W1	D6DA1G485K2W1	1.8×1.4×0.44max.	1.2/1.3	58/60	
Band 12	FSDCSR8T737MK2H2	D5DA737M5K2H2	1.8×1.4×0.5max.	1.65/1.65	63/58	
	FSDCSR7M737MK2H9	D5DC737M5K2H9	1.7×1.3×0.36max.	1.85/1.65	68/56	
Band 12/85	FSDCSQ8N737MK3HZ	D5FH737M0K3HZ	1.8×1.4×0.44max.	1.5/1.5	66/63	
Band 13	FSDCSQ8T782MK2J6	D5DA782M0K2J6	1.8×1.4×0.5max.	1.9/1.7	58/61	
Band 14	FSDCSQ8N793MK2K2	D5DA793M0K2K2	1.8×1.4×0.44max.	1.2/2.2	63/67	
Band 17	FSDCSR8T740MK2L4	D5DA740M0K2L4	1.8×1.4×0.5max.	1.25/1.65	65/60	
Band 20	FSDCSQ8N847MK3NE	D5FC847M0K3NE	1.8×1.4×0.44max.	1.8/1.8	55/56	
Band 21	FSDCSQ8N1G50K2Y1	D6DA1G503K2Y1	1.8×1.4×0.44max.	1.3/1.3	60/60	
Band 25	FSWCSR8H1G96DP35	D6HQ1G962DP35	1.8×1.4×0.57max.	2.5/2.6	57/57	FBAR
Band 26	FSDCSR8H876MK2P6	D5DA876M5K2P6	1.8×1.4×0.6max.	1.3/2.0	60/57	
Band 28	FSDCSR8N773MK3NC	D5FC773M0K3NC	1.8×1.4×0.44max.	2.5/2.6	57/57	
	FSDCSR8N788MK3ND	D5FC788M0K3ND	1.8×1.4×0.44max.	1.8/1.9	63/60	
Band 66	FSDCSR8N2G15K2T2	D6DA2G155K2T2	1.8×1.4×0.44max.	2.0/2.0	57/54	
	FSDCSQ6N2G15G1CQ	D6SK2G155G1CQ	1.6×1.2×0.44max.	2.0/2.2	57/53	

● Multiplexes

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 13+17 Triplexer	FSJCSRYH782MP1H6	J5NA782M0P1H6	2.5×2.0×0.6max.	1.6/1.9 1.9/1.9	60/49 53/55	
Band 1+3 Quadplexer	FSKCSQYR2G14Q3ZC	K6QZ2G140Q3ZC	2.5×2.0×0.8max.	2.0/1.9 2.4/2.3	55/57 57/58	

■PART NUMBER

● W-CDMA / LTE / CDMA 2000 Filters

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 1 Tx	FSSCSR1T1G95M2AA	F6QA1G950M2AA	1.1×0.9×0.5max.	1.8	38	
Band 1, Band 4 Rx	FSSCSR1T2G14M2AM	F6QA2G140M2AM	1.1×0.9×0.5max.	1.9	46	
	FSSCSR1T2G14P2KA	F6QG2G140P2KA	1.1×0.9×0.5max.	1.7	55	100ohm output
Band 2 Tx BC1(PCS) Tx	FSSCSR1T1G88M2AQ	F6QA1G880M2AQ	1.1×0.9×0.5max.	1.7	20	
Band 2 Rx BC1(PCS) Rx	FSSCSR1T1G96M2AP	F6QA1G960M2AP	1.1×0.9×0.5max.	2.8	39	High Att.
	FSSCSR1T1G96P2KT	F6QG1G960P2KT	1.1×0.9×0.5max.	2.8	44	100ohm output
Band 3 Tx	FSSCSR1T1G74M2QS	F6QA1G747M2QS	1.1×0.9×0.5max.	2.1	22	
Band 3 Rx	FSSCSR1T1G84M2AN	F6QA1G842M2AN	1.1×0.9×0.5max.	2.0	38	
	FSSCSR1T1G84P2KD	F6QG1G842P2KD	1.1×0.9×0.5max.	3.2	45	100ohm output
Band 5 Tx BC0 Tx	FSSCSR1T836MM2AR	F5QA836M5M2AR	1.1×0.9×0.5max.	1.9	45	High Att.
Band 5 Rx BC0 Rx	FSSCSR1T881MM2AU	F5QA881M5M2AU	1.1×0.9×0.5max.	1.3	51	Low Loss/high Att.
	FSSCSR1T881MP2KG	F5QG881M5P2KG	1.1×0.9×0.5max.	1.5	56	100ohm output
Band 7 Rx	FSSCSR1T2G65M2QH	F6QA2G635M2QH	1.1×0.9×0.5max.	2.5	38	
	FSSCSR1T2G65P2KE	F6QG2G655P2KE	1.1×0.9×0.5max.	2.5	52	100ohm. High Att.
Band 8 Tx	FSSCSR1T897MM2AC	F5QA897M5M2AC	1.1×0.9×0.5max.	2.3	28	
Band 8 Rx	FSSCSR1T942MM2AW	F5QA942M5M2AW	1.1×0.9×0.5max.	2.0	48	for LTE
	FSSCSR1T942MP2KB	F5QG942M5P2KB	1.1×0.9×0.5max.	2.2	56	100ohm output
	FSSCSR1T942MP2KF	F5QG942M5P2KF	1.1×0.9×0.5max.	2.2	60	100ohm output for LTE
	FSSCSR1N942MH4PK	F5FC942M5H4PK	1.1×0.9×0.44max.	1.7	47	
Band 12 Rx	FSSCSR1T737MM2QN	F5QA737M5M2QN	1.1×0.9×0.5max.	1.6	53	
	FSSCSR1T737MP2KK	F5QG737M5P2KK	1.1×0.9×0.5max.	1.6	55	100ohm output
Band 13 Tx	FSSCSR1T782MM2AZ	F5QA782M0M2AZ	1.1×0.9×0.5max.	1.5	56	
Band 13 Rx	FSSCSR1T751MM2QM	F5QA751M0M2QM	1.1×0.9×0.5max.	1.9	50	
Band 14	FSSCSR1T763MM2QL	F5QA763M0M2QL	1.1×0.9×0.5max.	2.2	49	
Band 17 Tx	FSSCSR1T710MM2AY	F5QA710M0M2AY	1.1×0.9×0.5max.	1.3	33	
Band 17 Rx	FSSCSR1T740MP2KH	F5QG740M0P2KH	1.1×0.9×0.5max.	1.4	65	100ohm output
Band 20 Rx	FSSCSR1T806MM2QE	F5QA806M0M2QE	1.1×0.9×0.5max.	2.7	41	
Band 21 Rx	FSSCSR1T1G50M2QF	F6QA1G503M2QF	1.1×0.9×0.5max.	2.0	52	
Band 25 Tx	FSSCSR1T1G88M2AS	F6QA1G882M2AS	1.1×0.9×0.5max.	1.8	23	
Band 26 Rx	FSSCSR1T876MM2QP	F5QA876M5M2QP	1.1×0.9×0.5max.	2.2	49	
	FSSCSR1T876MP2KQ	F5QG876M5P2KQ	1.1×0.9×0.5max.	2.2	59	100ohm output
Band 28 Rx	FSSCSR1T773MM2QC	F5QA773M0M2QC	1.1×0.9×0.5max.	2.1	52	Block A
	FSSCSR1T788MM2QB	F5QA788M0M2QB	1.1×0.9×0.5max.	2.0	52	Block B
Band 29 Rx	FSSCSR1N722MM6UW	F5BA722M5M6UW	1.1×0.9×0.44max.	1.6	–	
Band 30 Rx	FSSCSR1T2G35R2SE	F6QP2G355R2SE	1.1×0.9×0.5max.	2.1	50	
Band 32 Rx	FSSCSR1T1G47H2JS	F6QA1G474H2JS	1.1×0.9×0.5max.	1.8	–	
Band 66 Rx	FSSCSR1N2G15M6UU	F6BA2G155M6UU	1.1×0.9×0.44max.	1.7	45	
Band 67 Rx	FSSCSR1T748MM2WF	F5QA748M0M2WF	1.1×0.9×0.5max.	1.5	–	

● W-CDMA / LTE Dual Filters

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 3+1 Rx (Common Input)	FSGCSR5T2G14M2RN	G6QN2G140M2RN	1.5×1.1×0.5max.	2.0/1.7	40/52	For B1+B3 CA

● TDD Filters(TD-SCDMA / TD-LTE)

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 34 TRx	FSSCSR1N2G01H4PC	F6FC2G017H4PC	1.1×0.9×0.44max.	1.1	–	Input Power +29dBm(TDD:50% Duty)
Band 34 Rx	FSSCSR1T2G01R2SF	F6QP2G017R2SF	1.1×0.9×0.5max.	1.3	–	
Bnad 38 TRx	FSSCSR4T2G59A4VL	F6KA2G595A4VL	1.4×1.0×0.5max.	1.5	–	Input Power +29dBm
Bnad 38 Rx	FSSCSR1T2G59M2QK	F6QA2G595M2QK	1.1×0.9×0.5max.	1.9	–	
	FSSCSR1T2G59P2BS	F6QB2G595P2BS	1.1×0.9×0.5max.	2.0	–	Balanced 100ohm
Band 39 TRx	FSSCSR1N1G90H4PB	F6FC1G900H4PB	1.1×0.9×0.44max.	1.1	–	Input power +29dBm(Duty 50%)
Band 39 Rx	FSSCSR1T1G90M2WD	F6QA1G900M2WD	1.1×0.9×0.5max.	1.5	–	
Band 40 TRx	FSFCSQ1T2G35FG27	F6UG2G350FG27	1.1×0.9×0.5max.	1.3	–	FBAR
	FSFCSP1T2G35FG26	F6UG2G350FG26	1.1×0.9×0.5max.	1.4	–	FBAR for HPUE
	FSFCSQ1M2G35EK01	F6HK2G350EK01	1.1×0.9×0.36max.	1.4	–	FBAR Low Profile (0.37mm max)
Band 40 Rx	FSSCSR1T2G35M2QA	F6QA2G350M2QA	1.1×0.9×0.5max.	2.2	–	
	FSSCSR1T2G35P2BH	F6QB2G350P2BH	1.1×0.9×0.5max.	2.8	–	Balanced 100ohm
Band 41 TRx	FSSCSP1N2G59H4PD	F6FC2G595H4PD	1.1×0.9×0.44max.	1.7	–	Unbal Improved IL High power design & HPUE for CMCC 2535-2655MHz BW120MHz
	FSSCSQ1N2G59H4PG	F6FC2G595H4PG	1.1×0.9×0.44max.	1.5	–	32.0 @2535-2655MHz (TD-LTE 40%duty5MHz 1RB)
	FSFCSP8H2G59AP31	F6HQ2G593AP31	1.8×1.4×0.57max.	2.7	–	Unbal High power design & HPUE for Sprint 2496-2690MHz BW194MHz FBAR

● TDD Dual Filters(TD-SCDMA / TD-LTE)

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 34 + Band 39 TRx	FSGCSQ5N2G01G2YA	G6FT2G017G2YA	1.5×1.1×0.44max.	1.3/1.4	–	1 IN / 2 OUT
	FSGCSQ5M2G01G2SP	G6FS2G017G2SP	1.5×1.1×0.36max.	1.3/1.4	–	1 IN / 2 OUT Low Profile (0.36mm max)
Band 39 Rx + 41(BW100MHz) TRx(Common Input)	FSGCSR8T2G60D4AB	G6KJ2G605D4AB	1.8×1.4×0.5max.	2.1/2.6	–	B41 High power design B41 (2555-2655MHz BW100MHz)
Band 41 Rx + 39(BW100MHz) DRx(Common Input)	FSGCSR5T2G60M2RM	G6QN2G605M2RM	1.5×1.1×0.5max.	2.2/1.3	–	
Band 41(BW120MHz) Rx + 39Rx (Common Input)	FSGCSR5T2G59M2RP	G6QN2G595M2RP	1.5×1.1×0.5max.	2.3/1.3	–	

■PART NUMBER

● Triple Filters

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Band 39 + Band 34 +Band 41(BW120MHz) DRx	FSHCSR8N2G59T2MZ	H6FM2G595T2MZ	1.8×1.4×0.44max.	1.3/1.4/2.7	–	1 IN / 3 OUT
LTE / Band 1 + Band 3 + Band 7 DRx	FSHCSR8N2G65T2MY	H6FM2G655T2MY	1.8×1.4×0.44max.	1.9/2.1/2.3	–	1 IN / 3 OUT

● GPS

System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
GPS	FSSCSR1T1G57H2JF	F6QA1G575H2JF	1.1×0.9×0.5max.	0.96	–	Low loss, High Att.
GPS (GNSS)	FSSCSR1T1G58M2AT	F6QA1G585M2AT	1.1×0.9×0.5max.	1.4	–	
	FSSCSR1T1G58P2BQ	F6QB1G585P2BQ	1.1×0.9×0.5max.	1.7	–	100ohm output
GPS+GLONASS+Galileo+Compass	FSSCSR1T1G58M2QZ	F6QA1G581M2QZ	1.1×0.9×0.5max.	1.4	–	
	FSSCSR1T1G58H2JM	F6QA1G582H2JM	1.1×0.9×0.5max.	1.8	–	Ladder High Att.
	FSSCSR1N1G58H4PJ	F6FC1G582H4PJ	1.1×0.9×0.44max.	1.0	–	
	FSSCSR1N1G58R6TT	F6BG1G582R6TT	1.1×0.9×0.44max.	1.7	–	100ohm output
GNSS(L2+L5+B2)	FSSCSR1N1G19H4PF	F6FC1G197H4PF	1.1×0.9×0.44max.	1.3	–	
GPS (L1+L5 Dual)	FSGCSR5N1G58G2YB	G6FT1G582G2YB	1.5×1.1×0.44max.	1.0/1.3	–	

● Others

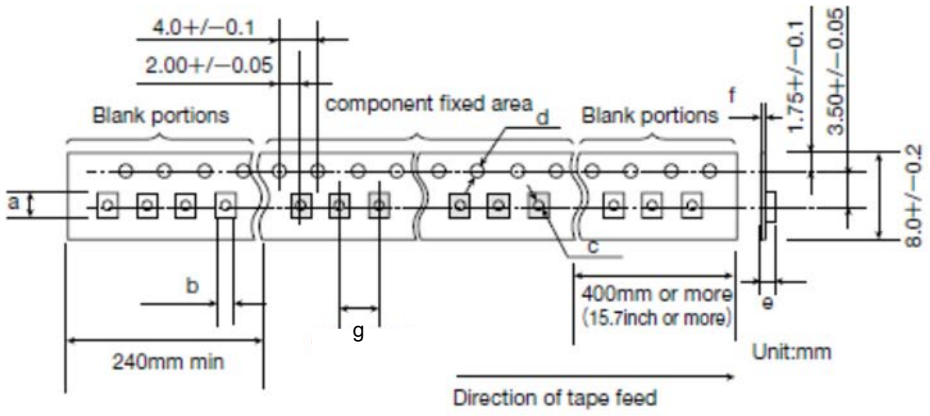
System	New part number	Old part number (for reference)	Package Size(mm)	Insertion Loss(dB)	Attenuation(dB)	Remarks
Wireless LAN / Bluetooth	FSFCSR1T2G44FG29B	F6UG2G441FG29B	1.1×0.9×0.5max.	1.2	–	Low Insertion Loss High Att. @2.38GHz Passband 2402.5–2481.5MHz FBAR
	FSSCSR1N2G44H4PE	F6FC2G441H4PE	1.1×0.9×0.44max.	1.0	–	SAW

■PACKAGING

①Minimum Quantity

Type	Size [mm]	Code & Quantity [pcs]					
		Standard		Option			
Duplexer	2.0×1.6	Y	15000	Z	3000		
	1.8×1.4	Y	15000	Z	3000		
	1.6×1.2	Y	15000	Z	3000		
Quadplexer	2.5×2.0	U	10000	Z	3000		
Triplexer	2.5×2.0	U	10000	Z	3000		
Single Filter	2.0×1.6	Y	15000	Z	3000		
	1.8×1.4	Y	15000	Z	3000		
	1.4×1.0	Y	15000	Z	3000		
	1.1×0.9	X	10000	Y	15000	J	5000
Dual Filter	1.8×1.4	Y	15000	Z	3000		
	1.5×1.1	Y	15000	J	5000		
Triple Filter	1.8×1.4	Y	15000	Z	3000		

②Tape material



Taping dimensions

Type	Size[mm]	a	b	c	d	e	f	g
Duplexer	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	4.0±0.1
	1.8×1.4	2.2±0.1	1.8±0.1	0.5±0.05	1.55±0.05	0.8±0.1	0.30±0.05	4.0±0.1
	1.6×1.2	1.9±0.05	1.5±0.05	0.5±0.05	1.5+0.1/−0	0.55±0.05	0.20±0.05	4.0±0.1
Quadplexer	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	4.0±0.1
Triplexer	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	4.0±0.1
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	4.0±0.1
	1.8×1.4	2.2±0.1	1.8±0.1	0.5±0.05	1.55±0.05	0.8±0.1	0.30±0.05	4.0±0.1
	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	4.0±0.1
	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	2.0±0.05
Dual Filter	1.8×1.4	2.2±0.1	1.8±0.1	0.5±0.05	1.55±0.05	0.8±0.1	0.30±0.05	4.0±0.1
	1.5×1.1	1.8±0.1	1.4±0.1	0.5±0.05	1.5+0.1/−0	0.7±0.1	0.25±0.05	4.0±0.1
Triple Filter	1.8×1.4	2.2±0.1	1.8±0.1	0.5±0.05	1.55±0.05	0.8±0.1	0.30±0.05	4.0±0.1

Unit : mm

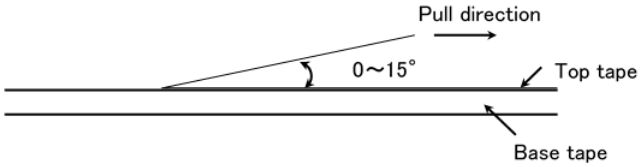
Material of Tape (Conductive)

Tape : Polystyrene

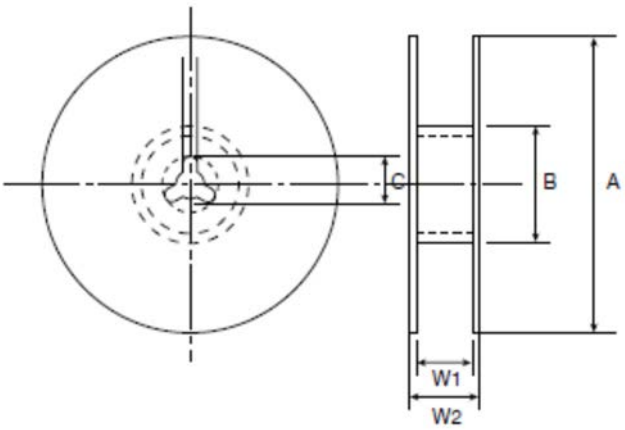
Top cover tape : Polyethylene terephthalate (PET) and Polyethylene

③Top 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.



④Reel size



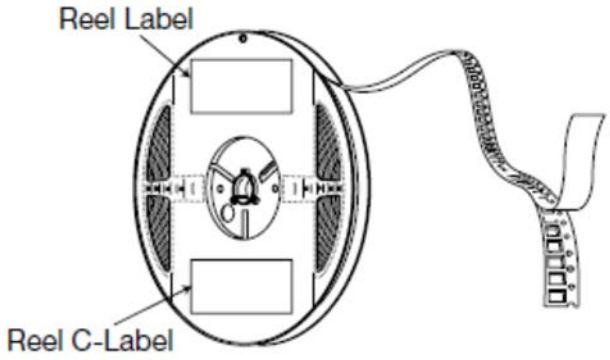
● Material of Reel
Material : Polystyrene＋Carbon
Characteristics: Conform to EIAJ-ET-7200A
Color: Black
Surface resistance(reference value) :$10^9\Omega$/sq Max.

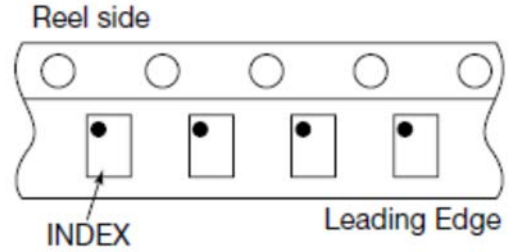
Code	Quantity	A	B	C	W1	W2
X	10,000 pcs	φ180.0 +0.0/−1.5	φ66.0 ±0.5	φ13.0 ±0.2	9.0 +1.0/−0.0	11.4 ±1.0
U	10,000 pcs	φ330.0 ±2.0	φ100.0 ±1.0	φ13.0 ±0.2	9.4 ±1.0	13.4 ±1.0
Y	15,000 pcs	φ330.0 ±2.0	φ100.0 ±1.0	φ13.0 ±0.2	9.4 ±1.0	13.4 ±1.0
J	5,000 pcs	φ180.0 +0.0/−1.5	φ66.0 ±0.5	φ13.0 ±0.2	9.0 +1.0/−0.0	11.4 ±1.0
Z	3,000 pcs	φ180.0 +0.0/−1.5	φ66.0 ±0.5	φ13.0 ±0.2	9.0 +1.0/−0.0	11.4 ±1.0

Unit : mm

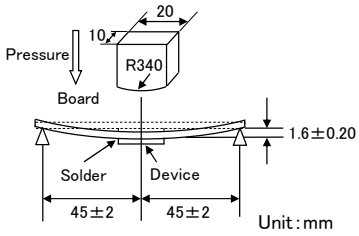
⑤Reel label and Reel C-Label sticking and Winding method

● Surface





■RELIABILITY DATA

1. Terminal stregth	
Specified Value	No damage to be found.
Test Methods and Remarks	Bend width 4mm, hold for 5±1 sec. 

2. Mechanical shock	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Apply 14700m/s^2 for 0.5ms 5 times for each of 6 directions.

3. Vibration	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	With 1.5 mm of whole amplitude at 10 to 55 Hz of frequency, and 98m/s^2 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)

4. Drop 1	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Drop 3 times onto concrete floor from the height of 1.0m.

5. Drop 2	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Drop with 150g weight 3 times in each 6 direction onto concrete floor from the height of 1.8m.

6. Temperature cycling	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Temp. range −40 to +100℃. 500cycle.

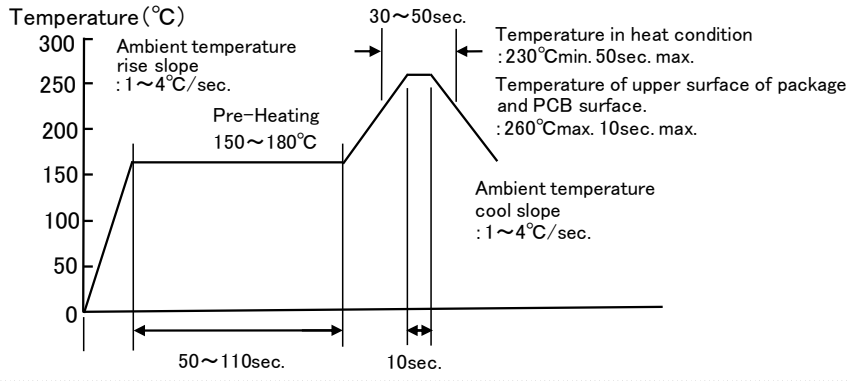
7. Static humidity	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	SAW : +85℃, 90% to 95%RH, apply DC5V, 1000hours. FBAR : +85℃, 90% to 95%RH, apply DC0V, 1000hours.

8. High temperature storage life	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	+100℃, 1000hours.

9. Low temperature storage life	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	−40℃, 1000hours.

10. High Temperature Bias	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Please refer to individual specifications in detail.

11. Solderbility	
Specified Value	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Test Methods and Remarks	Lead-free Solder paste, Reflow；Peak temperature 245℃

12. Solder heat resistance	
Specified Value	After testing, meet the specified characteristics at a room temperature. A change of the remarkable appearance do not have it.
Test Methods and Remarks	◆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. 

※ According to JIS(IEC) standard.

■PRECAUTIONS

1. Storage conditions	
Precautions	◆Storage 1. To maintain the solderability of terminal electrodes and to keep the packaging material in good condition, care must be taken to control temperature and humidity in the storage area. Humidity should especially be kept as low as possible. ・ Recommended conditions Ambient temperature : －5～＋40℃ Humidity : 40～85%RH The ambient temperature must be kept below 30℃. Even under ideal storage conditions, the solderbility of electrodes decreases gradually, so filters should be mounted within 1 year from the time of delivery. ・ The packaging material should be kept where no chlorine or sulfur exists in the air.
Technical considerations	◆Storage 1. If the parts are stocked in a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of taping/ packaging materials may take place. For this reason, components should be used within 1 year from the time of delivery. If exceeding the above period, please check the solderability before using the filter.

■ Please contact our sales offices for further details of specifications.
All of the standard values listed here are subject to change without notice.
Therefore, please check the specifications carefully before use.

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