ISO 14001 20041 ISO 9001 20001 ISO TS 169491

SANGSHIN

ELECOM

DIELECTRIC RESONATOR FILTERS

MONO-BLOCK FILTERS

LC FILTERS

CAVITY FILTERS

ANTENNAS & ANTENNA MODULES

DIELECTRIC RESONATORS

VOLTAGE CONTROLLED OSCILLATOR(VCO)

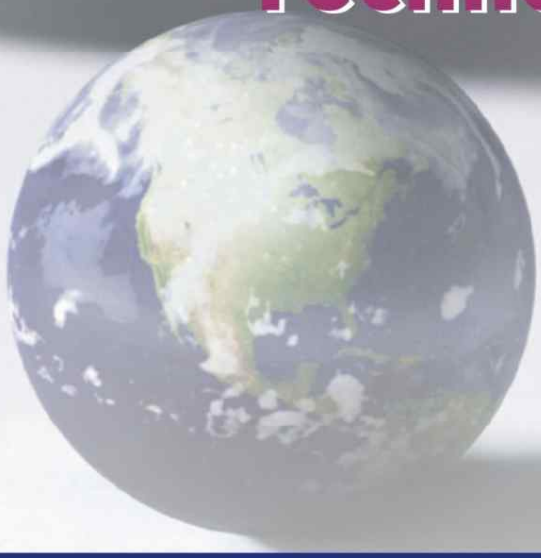
SYNTHESIZER/PHASE LOCKED LOOP(PLL)

HYBRID INTEGRATED CIRCUIT(HIC)

SANGSHIN

Company Vision

To be recognized for excellence in innovation & Technology



Company Profile

Brief History

Nov.	1973	Korea Sangshin Electric Co., Ltd
Apr.	1974	Established Mica Capacitor Production facility
Aug.	1982	LC filter & Delay Line developed
Sep.	1982	Received an award from the ministry of Trade & Industry
Mar.	1987	Building up the Hybrid IC Production Line
Feb.	1990	R&D Center established
Dec.	1990	Established Ceramic Production facility
Oct.	1991	Developed Dielectric Resonator filter
Oct.	1992	Developed Voltage Controlled Oscillator for Wireless Communication
Jan.	1996	Received ISO-9002 Certification
Jun.	1996	Received an award from the Ministry of Science & Technology
Dec.	1996	Received Certification for 100ppm(Quality Drive)
Jul.	1999	Received Y2k Certification
Mar.	2000	Developed Synthesizers / Phase Lock Loop(PLL)
Oct.	2000	Developed GPS patch antenna
Nov.	2000	Developed Chip Antenna for Bluetooth
Mar.	2001	Developed GPS Module
May	2003	Change Company's name from KSE to Sangshin Elecom.
Dec.	2003	Received QS9000 Certification
Nov.	2005	Received ISO9001 : 2000
Dec.	2005	Received ISO14001 : 2004
Mar.	2006	Received ISO / TS 16949 : 2002
June	2007	Developed Smart Antenna

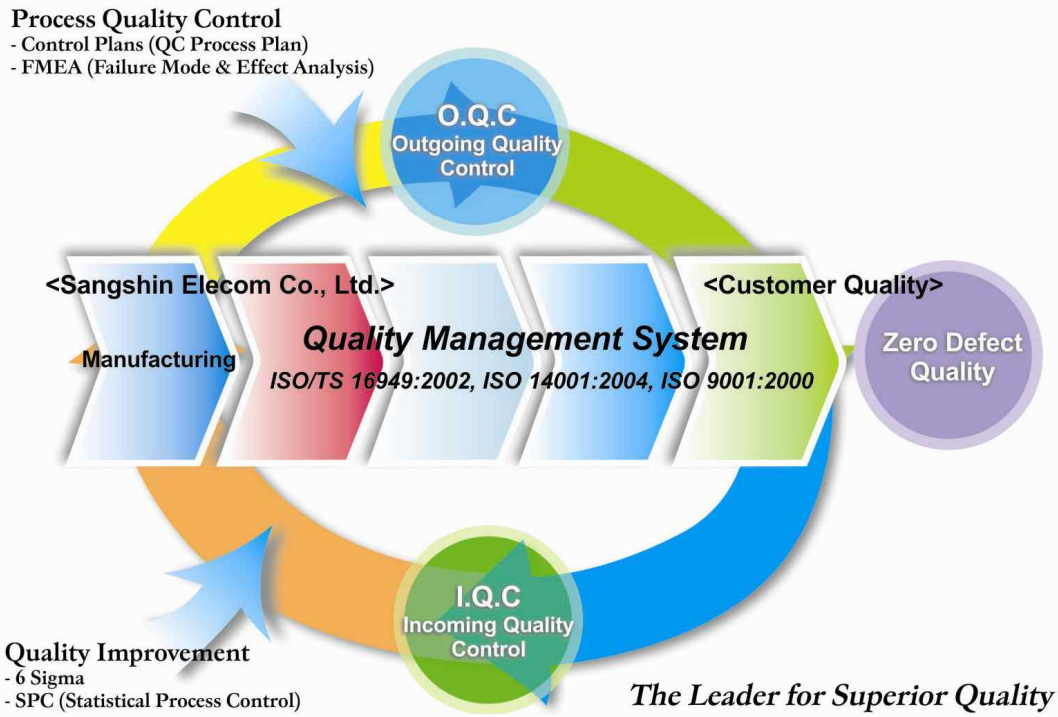
Contents

Quality Management / Quality System

Sangshin Elecom Co., Ltd., as a leading manufacturer of RF & Microwave field, realizes customer satisfaction by developing new products based on accumulated technology experience and creative concept.

The quality management is under progress to grow into a top global company, and the CEO as well as all other staffs takes an active part in its successful implementation.

In order to ensure quality and price competitiveness, Sangshin Elecom operates its own production factory in the Shanghai region, and built the business superiority system.

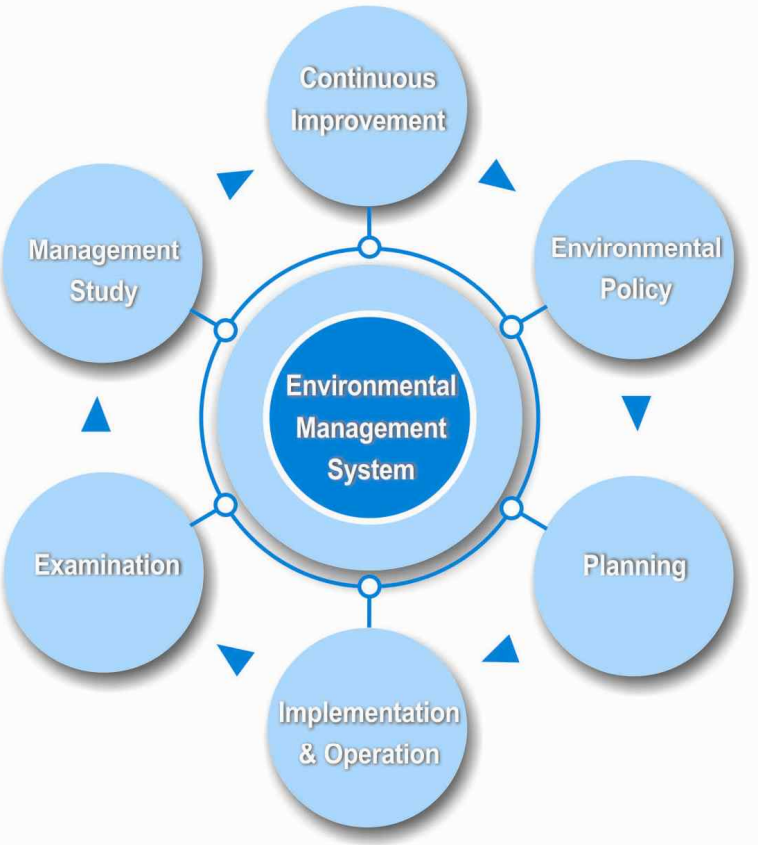


Core Value / Environmental Policy

Sangshin Elecom Co., Ltd., the first manufacturer of dielectric filters in Korea, goes upon the global market while exceeding domestic companies of its kind and displays strong will of challenge, enterprising attitude, and the passion that possibly changes impossibility in ubiquitous surroundings.

As an innovative leader who creates new growth power, Sangshin Elecom goes over IT techniques of present time and creates tomorrow's technology. We are doing the best we can to provide the value and listen closely for the customers.

Sangshin Elecom has been practicing environmental policy positively since 2003 to raise the value of the company through environmentally friendly operation, which enables coexistence with natural environment and human society. We also observe related regulations as well as requirements from customers and enlarge green workplaces continuously that contributing to customers.



Filters

Features

- High Q Factor
- Available in 2-14 Poles
- Available With 2mm - 12mm Resonator Size
- Wide Frequency Range (100KHz-8GHz)
- Low Insertion Loss
- Custom Designs Available
- Operating Temperature Range (-45°C to + 85°C)
- Notch Filters Available
- Tape and Reel Available

Applications

- Cellular phone
- Cordless phone
- PCS
- TRS
- GPS
- GSM
- Wireless LAN
- DMB/DAB
- WCDMA
- WIBRO/WIMAX
- RFID
- CATV
- LTE

Dielectric Resonator Filter

Description

Sangshin's dielectric resonator filters are comprised of multiple High Q, TEM mode ¼ wave resonators to obtain maximum performance.
Our filters are designed to provide optimal performance with relation to insertion loss and selectivity, while maintaining a cost and size effective solution.

Part Numbering

Band Pass Filters Series

BP ■■R ■■■■ S ■■ A

Duplexers Series

DPX ■■R ■■■■ / ■■■■ S ■■ A

BEF Series

BEF ■■R ■■■■ S ■■ A

Mono Block Filter

Description

Sangshin's dielectric resonator filters are comprised of multiple High Q, TEM mode ¼ wave resonators to obtain maximum performance.
Our filters are designed to provide optimal performance with relation to insertion loss and selectivity, while maintaining a cost and size effective solution.
The Monoblock Package allows for the potential of a more cost effective solution as well as additional performance benefits relative to the Dielctric Resonator Type filters.

Part Numbering

Band Pass Filters Series

MBP ■■R ■■■■ S ■■ A

Duplexers Series

MDPX ■■R ■■■■ / ■■■■ S ■■ A

BEF Series

MBEF ■■R ■■■■ S ■■ A

LC Filter

Description

Sangshin's LC filters are comprised of inductive and capacitive elements optimized to provide a high performance, cost effective filter in the 100KHz to 400MHz range. Our LC filters offer low insertion loss as well as high frequency selectivity across the available frequency ranges.

Part Numbering

Band Pass Filters Series

BPF ■■■ MS ■■ A

Duplexers Series

DPX ■■■ / ■■■ MS ■■ A

BEF Series

BEF ■■■MS ■■ A

Cavity Filter

Description

Sangshin's Cavity filters consist of High Q resonators surrounded by a silver plated aluminum and Brass –Copper filter housing.
The resonator layout is optimized to provide the lowest insertion loss and the highest level of selectivity that can be realized.
In addition, the utilization of resonators that are less than 45 degrees in electrical length assists in decreasing the effects of the 2nd and 3rd harmonics.

Part Numbering

Band Pass Filters Series

CABPF ■MR ■■■■ S ■■ A

Duplexers Series

CADPX ■MR ■■■■ / ■■■■ S ■■ A

BEF Series

BEF ■MR ■■■■ S ■■ A

Dielectric Resonator Filters

Duplexers

■ Configuration

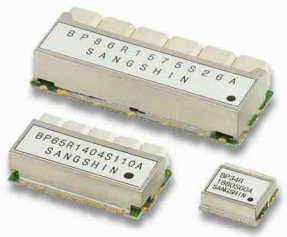
■ Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Isolation [dB]	Dim. [W x L x H]
DPX127R417/427SA	CH1	416.75	3.5	2.8 max.	1.5 max.	1.5 max.	40 min. @ CH2	88x33x15
	CH2	426.75	3.5	2.8 max.	1.5 max.	1.5 max.	40 min. @ CH1	
DPX88R836/881S25A	CH1	836.5	25	2.0 max.	1.0 max.	1.4 max.	55 min. @ CH2	65x28x9.5
	CH2	881.5	25	2.0 max.	1.0 max.	1.4 max.	55 min. @ CH1	
DPX88R902/947S25A	CH1	902.5	25	2.0 max.	1.0 max.	1.4 max.	55 min. @ CH2	65x28x9.5
	CH2	947.5	25	2.0 max.	1.0 max.	1.4 max.	55 min. @ CH1	
DPX44R1227/1575S10B	CH1	1227	10	3.5 max.	1.0 max.	2.0 max.	30 min. @ 1378 MHz	19x15x5.5
	CH2	1575	10	3.5 max.	1.0 max.	2.0 max.	30 min. @ 1475 MHz	
DPX37R1480/1950S60E	CH1	1480	60	2.5 max.	0.5 max.	1.5 max.	35 min. @ CH2	23x14x4.3
	CH2	1950	60	1.8 max.	0.5 max.	1.5 max.	50 min. @ CH1	
DPX36R1765/1855SB	CH1	1765	30	2.0 max.	1.0 max.	1.7 max.	50 min. @ CH2	20x11x4.5
	CH2	1855	30	3.0 max.	1.0 max.	2.0 max.	42 min. @ CH1	
DPX36R1950/2140S60A	CH1	1950	60	2.5 max.	1.0 max.	1.8 max.	40 min. @ CH2	20x14x4.5
	CH2	2140	60	2.5 max.	1.0 max.	1.8 max.	48 min. @ CH1	

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Pass Filters

■ Configuration



■ Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
BP32R1575S02A	1575.42	2	1.2 max.	0.3 max.	2.0 max.	14 min. @ Fc ±140 MHz	7x13.5x4.5
BP33R881S30A	881.5	25	2.5 max.	0.8 max.	1.6 max.	53 min. @ 779 MHz	10x15x4.5
BP34R2442S84A	2442	84	2.5 max.	1.0 max.	1.7 max.	40 min. @ Fc ±400 MHz	13x12x4.5
BP37R500S100B	500	100	3.0 max.	1.5 max.	1.5 max.	20 min. @ 428 MHz	22x20x4.8
BP43R3200S30A	3200	30	4.0 max.	0.8 max.	1.5 max	30 min. @ Fc ±150 MHz	13x12x5.5
BP45R2140S20B	2140	20	4.5 max.	1.0 max.	1.5 max.	50 min. @ Fc ±70 MHz	23x16x5.5
BP46R900S200B	900	200	3.0 max.	1.5 max.	1.7 max.	50 min. @ 1200~1400 MHz	27x16x5.5
BP47R1975S250C	1975	250	3.0 max.	1.5 max.	1.5 max.	53 min. @ 2260~2510 MHz	31x13x5.5
BP55R1855S30B	1855	30	3.0 max.	1.0 max.	1.5 max.	60 min. @ 1695 MHz	26x16x6.5
BP62R392S05A	392.5	5	2.0 max.	0.6 max.	1.7 max.	13 min. @ Fc ±25 MHz	15x29x7.5
BP63R3530S60B	3530	60	2.5 max.	0.8 max.	1.5 max.	37 min. @ 2910 ~ 3235 MHz	20x13x7.5
BP64R836S30A	836.5	30	3.0 max.	1.2 max.	1.7 max.	19 min. @ Fc ±32.5 MHz	26x14x7.5
BP65R1404S110A	1404	110	2.5 max.	0.5 max.	1.5 max.	40 min. @ Fc ±200 MHz	32x17x7.5
BP66R1960S60A	1960	60	3.5 max.	2.5 max.	2.0 max.	30 min. @ 1850 ~ 1910MHz	38.5x19x7.5
BP68R813S15A	813.5	15	8.0 max.	3.0 max.	3.0 max.	5 min. @ Fc ±7.5 MHz	50x20x8
BP84R836S25A	836.5	25	3.0 max.	1.0 max.	1.8 max.	35 min. @ 869 ~ 894 MHz	34x25x10
BP86R1227S26A	1227	26	3.0 max.	0.7 max.	1.5 max.	60 min. @ Fc ±80 MHz	50x20x10

Fc: Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Elimination Filters

■ Configuration

■ Specifications

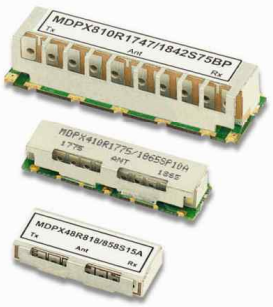
Part No.	Low BW [MHz]	High BW [MHz]	I.L Low BW [dB]	I.L High BW [dB]	Ripple [dB]	Rejection [dB]	Dim. [W x L x H]
BEF123R830S10A	-	825~835	1.4 max.	-	1.0 max.	20 min. @ 818.5 MHz	39x23.5x14.5
BEF33R1850S20A	-	1840~1860	1.0 max.	-	0.5 max.	20 min. @ 1750 ~ 1770 MHz	11x11.5x4.5
BEF45R835S10A	830~840	-	1.0 max.	-	0.2 max.	70 min. @ 914.5~ 915.5 MHz MHz	25x16x5.5
BEF52R873S06B	5~750	750~852	0.5 max.	1.5 max.	2.0 max.	26 min @ 870 ~ 876 MHz	12x16x6.5
BEF63R1950S60A	880~960	1805~1880	1.0 max.	1.0 max.	-	15 min. @1920 ~ 1980 MHz	20x20x7.5
BEF63R2140S60A	2060	2220	3.0 max.	3.0 max.	-	20 min. @ 2110 ~ 2170 MHz	20x20x7.5
BEF64R862SA	460~862	-	2.0 max.	-	2.0 max.	25 min. @ 890 ~ 960 MHz	26x22x7.5

Fc: Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Mono Block Filters

Duplexers

Configuration



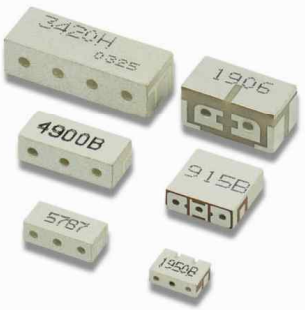
Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Isolation [dB]	Dim. [W x L x H]
MDPX37R 1950/2140S60A	CH1	1950	60	2.5 max.	1.0 max.	2.0 max.	40 min. @ CH2	13.8x6.5x2.8
	CH2	2140	60	3.0 max.	1.0 max.	2.0 max.	50 min. @ CH1	
MDPX48R 836/881S25A	CH1	836	25	2.5 max.	1.5 max.	2.0 max.	40 min. @ CH2	22x9.6x3.85
	CH2	881	25	3.5 max.	2.0 max.	2.0 max.	50 min. @ CH1	
MDPX48R 1950/2140SP20C	CH1	1950	20	2.0 max.	1.0 max.	1.5 max.	50 min. @ CH2	22.3x8.1x5.2
	CH2	2140	20	2.0 max.	1.0 max.	1.5 max.	50 min. @ CH1	
MDPX410R 1760/1850SP20E	CH1	1760	20	2.5 max	0.8 max	1.5 max.	55 min. @ CH2	30x8.8x5
	CH2	1850	20	2.5 max.	0.8 max.	1.5 max.	55 min. @ CH1	
MDPX58R 1542/1643S34A	CH1	1542	34	1.8 max.	0.8 max.	1.5 max.	45 min. @ CH2	27.2x8.6x5.8
	CH2	1643	34	1.8 max.	0.8 max.	1.5 max.	45 min. @ CH1	
MDPX58R 3592/3692S42C	CH1	3592.5	42	2.7 max.	1.5 max.	2.0 max.	40 min. @ CH2	27.5x8.5x5.9
	CH2	3692.5	42	2.7 max.	1.5 max.	2.0 max.	40 min. @ CH1	
MDPX810R 836/881SP25I	CH1	836.5	25	2.2 max.	1.0 max.	1.5 max.	58 min. @ CH2	42x17x9.5
	CH2	881.5	25	2.2 max.	1.0 max.	1.5 max.	58 min. @ CH1	
MDPX810R 1747/1842S75D	CH1	1747.5	75	2.4 max.	1.5 max.	1.5 max.	30 min. @ CH2	42x9.9x8.4
	CH2	1842.5	75	2.4 max.	1.5 max.	1.5 max.	30 min. @ CH1	
MDPX810R 1880/1960SP60O	CH1	1880	60	3.0 max.	1.6 max.	1.5 max.	40 min. @ CH2	44x14x8.8
	CH2	1960	60	3.0 max.	1.6 max.	1.5 max.	40 min. @ CH1	

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Pass Filters

Configuration



Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
MBP22R1575S03A	1575	3	3.2 max.	0.5 max.	2.0 max.	15 min. @ Fc ± 50 MHz	3.8x5.2x2
MBP32R902S25B	902.5	25	2.6 max.	1.0 max.	2.0 max.	6.5 min. @ Fc ± 32.5 MHz	5.6x8.5x2.9
MBP33R1880S60B	1880	60	2.4 max.	1.0 max.	2.0 max.	10 min. @ Fc ± 100 MHz	4.6x4x2.9
MBP33R1960S60B	1960	60	2.4 max.	1.0 max.	2.0 max.	10 min. @ Fc ± 100 MHz	7.6x3.8x2.9
MBP3.53R3415S30B	3415	30	4.0 max.	1.0 max.	2.0 max.	35 min. @ Fc + 84.5 MHz	9.7x4.6x3.6
MBP3.53R3515S30B	3515	30	4.0 max.	1.0 max.	2.0 max.	35 min. @ Fc – 84.5 MHz	9.7x4.3x3.6
MBP44R1N1747S75A	1747	75	3.0 max.	2.0 max.	1.5 max.	11 min. @ Fc – 57.5 MHz	13x6.5x3.9
MBP44R1N1842S75A	1842	75	3.0 max.	2.0 max.	1.5 max.	26 min. @ Fc –57.5 MHz	13x6.3x3.9
MBP56RC2N1880SP60A	1880	60	4.0 max.	2.0 max.	1.5 max.	15 min. @ 1920 MHz	30x12x7.2
MBP56RC2N1960SP60A	1960	60	4.0 max.	2.0 max.	1.5 max.	15 min. @ 1920 MHz	30x12x7.2
MBP810RC836SP25A	836.5	25	3.5 max.	1.0 max.	1.5 max.	38 min. @ 859 MHz	42x17x9.5
MBP810RC881SP25A	881.5	25	3.5 max.	1.0 max.	1.5 max.	38 min. @ 859 MHz	42x17x9.5
MBP810RC1880SP60A	1880	60	3.5 max.	2.0 max.	1.5 max.	18 min. @ 1920 MHz	42x12x8.8
MBP810RC1960SP60A	1960	60	3.5 max.	2.0 max.	1.5 max.	18 min. @ 1920 MHz	42x12x8.8

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Multiplexers

Configuration

Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Isolation [dB]	Dim. [W x L x H]
SEMPX836/881/1950/2140SG	CH1	836.5	25	2.5 max.	0.5 max.	1.3 max.	50 min	85x29x9
	CH2	881.5	25	2.5 max.	0.5 max.	1.3 max.		
	CH3	1950	20	2.0 max.	0.5 max.	1.3 max.		
	CH4	2140	20	2.0 max.	0.5 max.	1.3 max.		
SEMPX-CDMA/USPCS-SA	CH1	836.5	25	3.0 max.	1.2 max.	1.5 max.	50 min	88x25x10.5
	CH2	881.5	25	3.0 max.	1.2 max.	1.5 max.		
	CH3	1880	60	4.0 max.	2.2 max.	1.5 max.		
	CH4	1960	60	4.0 max.	2.2 max.	1.5 max.		

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

LC Filters

Duplexers

Configuration

Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Isolation [dB]	Dim. [W x L x H]
DPX275/75MS40A	CH1	75	40	3.0 max.	1.0 max.	1.5 max.	55 min. @ CH2	47x15x6.5
	CH2	275	40	3.0 max.	1.0 max.	1.5 max.	55 min. @ CH1	
DPX1000/1700SB	CH1	500	DC~1000	1.0 max.	1.0 max.	1.5 max.	45 min. @ CH2	23x12x8
	CH2	2100	1700~2500	1.0 max.	1.0 max.	1.5 max.	45 min. @ CH1	
TPX73/110/176SA	CH1	73	10	3.0 max.	1.0 max.	1.5 max.	50 min.	55x18x8
	CH2	110	10	3.0 max.	1.0 max.	1.5 max.		
	CH3	176	38	3.0 max.	1.0 max.	1.5 max.		
MPX10/64/142/299SA	CH1	64.5	20	2.0 max.	0.5 max.	1.5 max.	55 min.	85x18x8
	CH2	142.5	20	2.5 max.	0.5 max.	1.5 max.		
	CH3	-	DC~10	1.2 max.	1.0 max.	1.8 max.		
	CH4	299	62	3.0 max.	1.0 max.	1.5 max.		

Fc : Center Frequency or Cutoff Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Pass Filters

Configuration

Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
BPF10MS01A	10	2	3.0 max.	1.0 max.	1.5 max.	25 min. @ Fc + 20 MHz	23x12x7
BPF70MSA	70	5	4.5 max.	1.0 max.	1.5 max.	35 min. @ Fc ± 20 MHz	16x11x8
BPF100MS10A	100	10	3.5 max.	1.0 max.	1.5 max.	25 min. @ Fc ± 20 MHz	23x12x7
BPF200MS10A	200	10	3.5 max.	1.0 max.	1.5 max.	45 min. @ Fc ± 80 MHz	23x12x7
BPF300MS10A	300	10	5.0 max.	0.5 max.	1.5 max.	40 min. @ Fc ± 50 MHz	23x12x7
BPF470MS10A	470	10	5.0 max.	1.0 max.	1.5 max.	20 min. @ Fc ± 100 MHz	23x12x7
BPF950MSA	950	100	3.0 max.	1.0 max.	1.8 max.	25 min. @ Fc ± 200 MHz	23x12x7
BPF1800MS800A	1800	800	3.0 max.	1.5 max.	1.5 max.	-	23x12x7

Fc : Center Frequency , I.L: Insertion Loss, BW: Bandwidth

Low Pass Filters

Configuration

Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
LPF630KSB	630KHz	DC ~ 630KHz	1.0 max.	0.3 max.	1.5 max.	40 min. @ 1.75 MHz	21x12x7
LPF5MHz	5	DC ~ 5	1.0 max.	-	1.5 max.	43 min. @ 7 MHz	21x12x7
LPF70SA	70	DC ~ 70	1.0 max.	-	1.5 max.	20 min. @ 85 MHz	16x11x5.2
LPF438MHz	438	438.56	1.5 max.	-	1.5 max.	65 min. @ 877.12 MHz	13x7x5
LPF1500MHz	1500	DC ~ 1500	3.0 max.	-	1.5 max.	25 min. @ 2500 MHz	16x11x5.2

Fc : Cutoff Frequency, I.L: Insertion Loss, BW: Bandwidth

High Pass Filters

Configuration

Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
HPF110S20A	110	110 ~ 130	1.5 max.	1.0 max.	1.5 max.	65 min. @ 80 MHz	16x11x5.2
HPF115SA	115	115 ~ 200	2.0 max.	2.0 max.	2.0 max.	5 min. @ 110 MHz	23x12x8
HPF950SB	950	950 ~ 2150	1.5 max.	1.0 max.	2.0 max.	15 min. @ DC ~ 870 MHz	16x11x5.2
HPF1300MHz	1300	1300 ~ 3000	3.0 max.	-	1.5 max.	40 min. @ 600 MHz	16x11x5.2

Fc : Cutoff Frequency, I.L: Insertion Loss, BW: Bandwidth

Cavity Filters

Duplexers

Configuration

Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Isolation [dB]	Dim. [W x L x H]
CADPX16MR 836/881S25D	CH1	836.5	25	3.5 max.	2.0 max.	1.5 max.	35 min. @ Fc +15.5 MHz	119x121x6
	CH2	881.5	25	3.5 max.	2.0 max.	1.5 max.	35 min. @ Fc ±15.5 MHz	
CADPX8MR 1765/1855BN30A	CH1	1765	30	1.0 max.	0.5 max.	1.25 max.	65 min. @ CH2	57x43x46
	CH2	1855	30	1.0 max.	0.5 max.	1.25 max.	65 min. @ CH1	
CADPX8MR 1950/2140S20C	CH1	1950	20	1.4 max.	0.7 max.	1.25 max.	90 min. @ CH2	90x50x22
	CH2	2140	20	1.4 max.	0.7 max.	1.25 max.	90 min. @ CH1	
CADPX14MR 5750/5825S50B	CH1	5750	50	2.5 max.	1.0 max.	1.25 max.	65 min. @ CH2	192x57x16
	CH2	5825	50	2.5 max.	1.0 max.	1.25 max.	65 min. @ CH1	

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Pass Filters

Configuration

Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
CABPF10MR881.5S25A	881.5	25	3.0 max.	2.0 max.	1.5 max.	50 min. @ Fc +14.5 MHz	184.5x95x60
CABPF10MR836.5S25B	836.5	25	3.0 max.	2.0 max.	1.5 max.	40 min. @ Fc +14.5 MHz	172x75x60
CABPF6MR1950S60A	1950	60	1.0 max.	0.3 max.	1.3 max.	20 min. @ Fc ±50 MHz	25x210x30
CABPF5MR2140S60B	2140	60	0.5 max.	± 0.2 max.	1.3 max.	88 min. @ Fc -355 MHz	95x163x42
CABPF7MR4700S600B	4700	600	2.0 max.	1.0 max.	1.5 max.	70 min. @ Fc -2200 MHz	103x50x22.5

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Band Elimination Filters

Configuration

Specifications

Part No.	Reject Fc [MHz]	Reject BW [MHz]	BW [MHz]	I.L [dB]	VSWR	Rejection [dB]	Dim. [W x L x H]
CABEF5MR830N10A	830	10	100~815 855~1616	2.0 max.	1.5 max.	40 min. @ Fc +5 MHz	283x53x86
CABEF5MR875N10A	875	10	100~860 901~1616	2.0 max.	1.5 max.	40 min. @ Fc +5 MHz	283x53x86

Fc : Center Frequency I.L: Insertion Loss, BW: Bandwidth

Delay Filters

Configuration

Specifications

Part No.	Fc [MHz]	BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	DELAY TIME [nS]	Dim. [W x L x H]
CADL8MR1855S50B	1855	50	0.4 max.	0.1 max.	1.25 max.	12 ± 0.4	182x28x33
CADL6MR1855S30A	1855	30	0.4 max.	0.2 max.	1.25 max.	6 ± 0.4	72x49x24
CADL6MR2140S100A	2140	100	0.4 max.	± 0.15 max.	1.25 max.	8 ± 0.4	70x52x26

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Multiplexers

Configuration

Specifications

Part No.	Fc [MHz]		BW [MHz]	I.L [dB]	Ripple [dB]	VSWR	Attenuation [dB]	Dim. [W x L x H]
CATPX22MR 905/1795/2045NA	CH1	905	110	1.0 max.	0.8 max.	1.5 max.	50 min. @ CH2&CH3	140x82x76
	CH2	1795	170	1.5 max.	1.0 max.	1.5 max.	50 min. @ CH1&CH3	
	CH3	2045	250	1.5 max.	1.0 max.	1.5 max.	60 min. @ CH1&CH2	
CADIPX32MR 1760/1850/1970/2160NA	CH1	1760	18.75	1.2 max.	0.5 max.	1.28 max.	70 min. @ CH2	162x55x22
	CH2	1850	18.75	1.2 max.	0.5 max.	1.28 max.	70 min. @ CH1&CH3	
	CH3	1970	18.44	1.2 max.	0.5 max.	1.28 max.	70 min. @ CH2&CH4	
	CH4	2160	18.44	1.2 max.	0.5 max.	1.28 max.	70 min. @ CH3	

Fc : Center Frequency, I.L: Insertion Loss, BW: Bandwidth

Antennas & Antenna Modules

Passive Patch Antennas

■ *Description*

Sangshin's KSA series of miniature patch antenna elements provide excellent performance characteristics through use of proprietary material developed specially for use in high performance antenna elements.
These elements are highly suited for RFID, GPS, SDARS and W-LAN applications. Sangshin also offers custom design capabilities

■ *Features*

- Small form factor
- Operating Temperature Range (-40℃ to + 85℃)
- Low Return Loss
- Uniform Dielectric Constant
- Offset single-point feeding method

■ *Element Construction*

- Type : Flat patch antenna
- Design : Rectangular micro-strip antenna

Anctive Antenna Module (For GPS/SDMB)

■ *Description*

Sangshin's SAL series offer advanced Assisted Global Positioning System (A-GPS) or Global Positioning System (GPS) .
or Satellite Digital Multimedia Broadcasting (SDMB) High performance In a small package.
GPS receiver with patch antenna designed to receive the frequency 1575.42 MHz. ant SDMB the frequency 2642MHz

■ *Features*

- High performance Low Noise Amplifier(LNA) included
- Low RF system Noise figure
- Low Current
- Operating Temperature Range (-40℃ to + 85℃)
- Circular and Linear type

■ *Application*

- GPS, A-GPS Application
- Automotive Navigation
- Personal Positioning
- Sporting and Recreation and PDA , UMPC , MP4
- Satellite Digital Multimedia Broadcasting

Antennas & Antenna Modules

Patch Antennas

■ *Part Numbering*

KSA - SP - 0000M SXX - (Yxx/B)
① ② ③ ④ ⑤

① Sangshin Antenna
② SP : Special / ST : Standard
③ Center Frequency [MHz]
④ Size : Square XX mm
⑤ No : Standard Feeding [3.0mm] / Yes : Feeding Location[x.xmm] / B : Diagonal Feeding

KSRA - XD - 000
① ② ③

① Korea Sangshin ROD Antenna
② Antenna Section
③ Antenna Length : 000mm

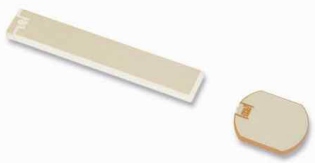
■ *Configuration*

■ *Specifications (GPS/DMB/RFID)*

Application	Part No. [KSA -]	Dimension	Polarization	Return Loss[dB]	Gain [dBi]	Ground Plane[mm]
GPS	ST1575MS36	36 x 36 x 4.0	Circular (RHCP, LHCP)	15 min.	+5.5	80 x 80
	ST1575MS25	25 x 25 x 4.0			+4.5	70 x 70
	ST1575MS25B	25 x 25 x 4.0			+4.5	70 x 70
	SP1575MS25-Y22	25 x 25 x 4.0			+4.5	70 x 70
	ST1575MS20	20 x 20 x 4.0			+3.0	60 x 60
	ST1575MS18	18 x 18 x 4.0			+2.5	50 x 50
	ST1575MS15	15 x 15 x 4.0			+1.5	50 x 50
	ST1575MS13	13 x 13 x 3.5			0	50 x 50
	ST1575MS17B	17 x 17 x 4.0			+2.5	70 x 70
	LSP1575MS2515	25 x 15 x 4.0	Linear		+1	66 x 16
	LST1575MS2513	25 x 13 x 4.0			+0.5	66 x 16
	LSP1575MS2511	25 x 11 x 4.0			0	66 x 16
	LSP1575MS3517T3	35 x 17 x 3.0	Circular		+3	70 x 70
SDARS	LCSP2326MS25	25 x 25 x 4.0	LHCP		+4.5	70 x 70
	RCSP2340MS20	20 x 20 x 4.0	RHCP		+3.0	60 x 60
DMB	LCSP2642MS25	25 x 25 x 4.0	LHCP		+4.5	70 x 70
	RCSP2642MS20	20 x 20 x 4.0	RHCP		+3.0	60 x 60
RFID	SP912MS25	25 x 25 x 4.0	Circular (RHCP, LHCP)	10 min.	+2	Patch GP
	SP912MS35	35 x 35 x 4.0			+3.5	80 x 80
	SP912MS70	70 x 70 x 7.0			+5.5	Patch GP
	SP912MS80	80 x 80 x 7.0			+5.5	Patch GP
	SP912MS100	100 x 100 x 7.0			+5.5	Patch GP

RFID Metal Tag Antennas

■ *Configuration*

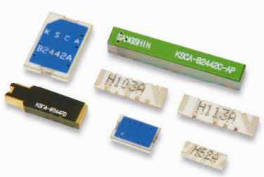


■ *Specifications*

Part No.	RID912MS6010T3	RID912MS4020T3	RID912MS21T2	RID912MS25T18C	RID912MS25
Dim.	60 x 10 x 3.0	40 x 20 x 3.0	21pi x 17 x 2.0	27pi x 25 x 1.8	25 x 25 x 4.0

Chip Antennas

■ *Configuration*



■ *Specifications (Bluetooth / WLAN)*

Part No. [KSCA -]	Dimension	Bandwidth [MHz min.]	Gain [dBi]	Part No. [KSCA -]	Dimension	Bandwidth [MHz min.]	Gain [dBi]
B2442AP	9.8 x 6.7 x 1.0	200	3.15	B2450H62A	6.0 x 2.0 x 1.1	80	1.2
B2442BP	6.0 x 4.0 x 1.0	200	0.35	B2450H93MA	9.0 x 3.0 x 1.2	100	2.1
B2442CAP	19.5 x 3.0 x 3.3	120	0	B2450H93A	9.0 x 3.0 x 1.2	80	0.23
B2442DP	11.0 x 3.2 x 1.8	50	-2.3	B2450H103A	10.0 x 3.0 x 1.0	150	3.1
-	-	-	1.2	B2450H113A	11.0 x 3.0 x 1.1	150	3.2

Antennas & Antenna Modules

ROD Antennas

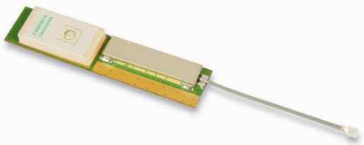
■ Configuration

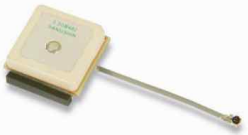
■ Specifications

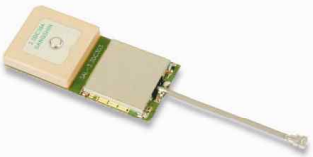
Part No. [KSRA -]	3D130	3D173	4D220	4D237	5D233	BTV350
Center frequency [MHz]	470~862		174~216			470~862
Dimension [mm]	130	173	220	237	233	223
Section	3	3	4	4	5	4

Active Antenna Module (for GPS/SDMB)

■ Configuration







■ Part Numbering

1. Sangshin Antenna LNA
2. XX : Operating Voltage (ex. 2.8: 2.8[V])
3. G : GPS / S : SDMB
4. X : Patch Antenna Size (ex. D: 15 x 15)
5. X : Patch Antenna Thickness (ex. 3: 3 Tick)
6. X : Version (ex. 01)

SAL	-XX	-G(S)	X	-X	XX
①	②	③	④	⑤	⑥

■ Specifications

	Part No.	Patch Size[mm]	Frequency [MHz]	LNA Gain[dB]	Noise Figure [dB]	Polarization	V.S.W.R
GPS	SAL-2.8GA301	25x25x3	1575.42±1.023	12/15/18/20/23	0.8~1.8	RHCP	2.0 : 1 [Max]
	SAL-2.8GB301	20x20x3					
	SAL-2.8GC301	18x18x3					
	SAL-2.8GD301	15x15x3					
	SAL-2.8GI301	13x13x3					
	SAL-2.8GA401	25x25x4					
	SAL-2.8GB401	20x20x4					
	SAL-2.8GC401	18x18x4					
	SAL-2.8GD401	15x15x4					
	SAL-2.8GI401	13x13x4					
	SAL-2.8GE301	25x15x3				LHCP	
	SAL-2.8GF301	25x13x3					
	SAL-2.8GJ301	34x17x3					
	SAL-2.8GE401	25x15x4					
	SAL-2.8GF401	25x13x4					
	SAL-2.8GJ401	34x17x4					
SDMB	SAL-2.8SF301	25x13x3	2642±12.5		1.0~1.8	RHCP/LHCP	
	SAL-2.8SF401	25x13x3					

External Active Antenna Module

■ Configuration

■ Specifications

	Part No.	Antenna Size[mm]	Frequency [MHz]	LNA Gain[dB]	Noise Figure[dB]	Polarization	V.S.W.R
GPS	SAL-2.8GA404	25x25x4	1575.42±1.023	22 [Typical]	1.0~1.6	RHCP	2.0:1 [Max]
SDMB	SAL-2.8DA-301	25x25x3	2642±12.5				

Dielectric Resonators

TEM Mode

Features

- Stable dielectric constant
- High Q factor (160~1000)
- Wide frequency range (400~6000MHz)
- Surface mount available
- Frequency tolerance to 1.0%
- Temperature stability (0±10 ppm/°C)
- Operating temperature range (-40°C to +85°C)

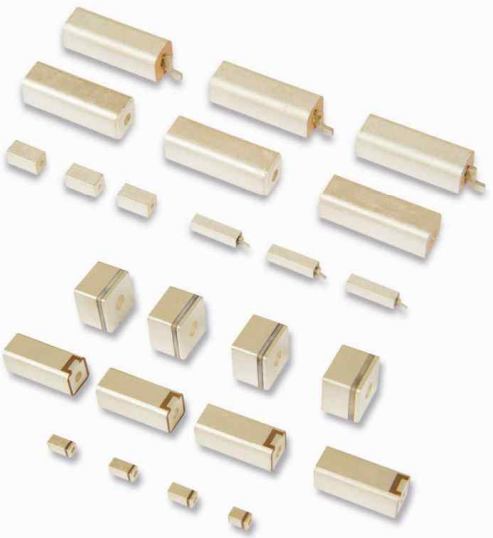
Applications

- Oscillators (DRO/VCO)
- Wireless phone
- Wireless headphone
- Filter and duplexer (CDMA/PCS/WLL/IMT2000)
- Wireless Microphone

Part Numbering

KS37	D60	10	4	1000	-	1.0	S
①	②	③	④	⑤		⑥	⑦

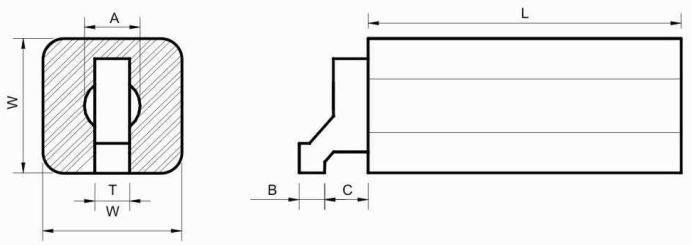
① Material series
② Size
③ Characteristic impedance (Ω)
④ Resonance wave length
⑤ Resonance frequency (MHz)
⑥ Frequency tolerance (%)
⑦ Type – S : with pole pin
N : without pole pin
P : print type
L : Laser type



Specifications

Dielectric Constant	Temperature Coefficient [ppm/°C]	Size	Frequency Range [MHz]	Q [Min.]
21	0 ± 10	2x2	2050~6000	200
		3x3	1300~6000	300
		4x4	1100~5500	400
		6x6	750~3300	550
		8x8	870~3000	700
		10x10	870~3000	800
		12x12	850~2500	850
37	0 ± 10	2x2	1700~6000	200
		3x3	1000~4550	300
		4x4	800~4000	350
		6x6	550~2400	400
		8x8	660~3000	680
		10x10	660~3000	760
		12x12	650~2500	800
45	0 ± 10	2x2	1500-5500	180
		3x3	870-4000	280
		4x4	750-3500	300
		6x6	500-2200	350
		8x8	600-2500	550
		10x10	600-2500	650
		12x12	600-2200	750
55	0 ± 10	2x2	1400-5000	160
		3x3	800-3700	250
		4x4	700-3300	280
		6x6	450-2000	350
		8x8	500-2400	500
		10x10	500-2400	620
		12x12	520-2000	700
90	0 ± 10	2x2	1000~3900	160
		3x3	650~2900	230
		4x4	400~2650	250
		6x6	400~1550	350
		8x8	400~1800	460
		10x10	450~1800	580
		12x12	400~1500	640

Dimensions



Part	W [mm]	A [Φ]	B	C	T
2x2	2.00 ± 0.2	0.65 ± 0.1	0.65 ± 0.1	1.00 ± 0.1	0.40 ± 0.1
		0.80 ± 0.1			
3x3	3.00 ± 0.2	0.95 ± 0.1	0.70 ± 0.1	1.30 ± 0.1	0.50 ± 0.1
4x4	4.00 ± 0.2	1.20 ± 0.1	0.80 ± 0.1	1.30 ± 0.1	0.60 ± 0.1
		1.50 ± 0.1			
		2.00 ± 0.1			
6x6	6.00 ± 0.2	2.00 ± 0.1	1.20 ± 0.1	1.80 ± 0.1	0.80 ± 0.1
		2.20 ± 0.1			
		2.40 ± 0.1			
		2.50 ± 0.1			
8x8	8.00 ± 0.2	2.80 ± 0.1	1.50 ± 0.1	1.80 ± 0.1	0.80 ± 0.1
10x10	10.00 ± 0.2	3.50 ± 0.1	1.50 ± 0.1	2.00 ± 0.1	1.00 ± 0.1
12x12	12.00 ± 0.2	3.50 ± 0.1	2.00 ± 0.1	2.50 ± 0.1	1.00 ± 0.1
		4.00 ± 0.1			

VCO/PLL

Features

- Miniature surface mount package
- Low phase noise & wide bandwidth
- +5V operation
- Wide linear tuning range
- Low current consumption

Applications

- RF/IF signal generator
- Sweep synthesizer
- Up down converter
- High speed switching time (PLL, DDS)
- Low phase noise coaxial oscillator
- Wide band signal source

Description

Sangshin's VCO/PLL is an ideal solution for any signal generation. With its excellent electrical and mechanical performance, it can be the best choice for signal source integrations. Miniature SMT package is pick and place friendly. Sangshin's VCO/PLL is manufactured by the ISO 9001 certified facility, incorporating the surface mount assembly and the automated electronic measurement. This ensures the consistent electrical performance and the quality on mass production quantities.

Part Numbering

VCO

KSV - ■P■■■ A
SEV - ■V■■■ A

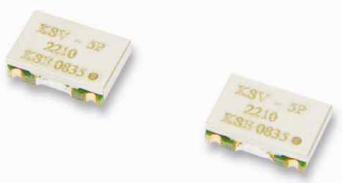
PLL

KSP - ■A■■■ A
SEP - ■VC■■■ A

Voltage Controlled Oscillators

P - TYPE (10.4x7.4x3.0mm)

Configuration

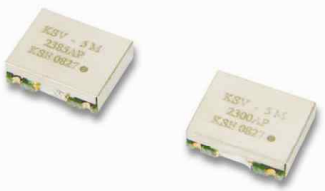


Specifications(Customized Specification is available)

Part No.	Frequency [MHz]	Tuning Voltage [V]	Phase noise @10KHz [dBc/Hz]	2nd Harmonics [dBc]	Power [dBm]
KSV-5P230A	220~240	0.5~4.5	-103	-20	0
KSV-5P550	510~590	0~5	-103	-20	2
KSV-5P950	925~975	0.5~4.5	-103	-20	5
KSV-5P1150A	1050~1250	0.2~4.8	-93	-25	3
KSV-5P1900C	1800~2000	0.2~4.8	-98	-25	0
KSV-5P2070	2010~2130	0.5~4.5	-98	-25	0
KSV-5P2557	2542~2573	0.5~4.5	-97	-25	4

M - TYPE (12.4x10.0x4.0mm)

Configuration



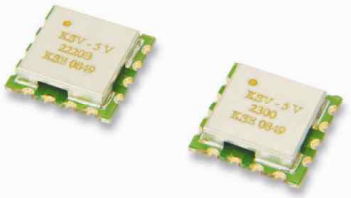
Specifications(Customized Specification is available)

Part No.	Frequency [MHz]	Tuning Voltage [V]	Phase noise @10KHz [dBc/Hz]	2nd Harmonics [dBc]	Power [dBm]
KSV-5M260A	250~270	0.5~4.5	-110	-20	3
KSV-5M420	417~423	0.5~4.5	-105	-15	5
KSV-5M870B	860~880	0.5~4.5	-109	-25	4
KSV-5M1030	1010~1050	0.5~4.5	-103	-27	3
KSV-5M1895A	1840~1950	0.5~4.5	-99	-18	2
KSV-5M2385A	2355~2415	0.5~4.5	-100	-19	5

VCO/PLL

V - TYPE (12.7x12.7x3.0mm)

■ *Configuration*

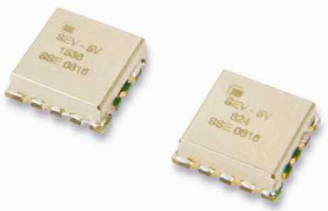


■ *Specifications(Customized Specification is available)*

Part No.	Frequency [MHz]	Tuning Voltage [V]	Phase noise @10KHz [dBc/Hz]	2nd Harmonics [dBc]	Power [dBm]
KSV-5V156	140~172	1.5~3.5	-113	-18	0
KSV-5V280A	274~286	0.5~4.5	-110	-13	0
KSV-5V325	300~350	0.5~4.5	-108	-15	5
KSV-5V910A	860~960	1.0~4.0	-100	-30	4
KSV-5V1150	1090~1210	0.5~4.5	-102	-17	7
KSV-5V1650	1500~1800	0.5~4.5	-96	-20	1
KSV-5V2000	1700~2300	0~5	-95	-23	3
KSV-5V2140C	2050~2250	0.5~4.5	-97	-22	0
KSV-5V2400A	2300~2500	1~4	-97	-24	2
KSV-5V2545A	2395~2695	0.5~4.5	-97	-23	5
KSV-5V2740	2720~2760	1~4	-91	-35	1

V - TYPE (12.7x12.7x4.0mm)

■ *Configuration*



■ *Specifications(Customized Specification is available)*

Part No.	Frequency [MHz]	Tuning Voltage [V]	Phase noise @10KHz [dBc/Hz]	2nd Harmonics [dBc]	Power [dBm]
SEV-5V370	340~400	0.5~4.5	-106	-12	2
SEV-5V915	902~928	1~4	-110	-13	1
SEV-5V1628	1612~1644	0.5~4.5	-107	-25	3
SEV-5V1960	1910~2010	0.5~4.5	-102	-20	4
SEV-5V2175	2130~2220	0.5~4.5	-101	-20	0
SEV-5V2360	2200~2500	0.2~4.5	-98	-20	4

Phase Locked Loop / Synthesizers (5V_50mA[Typical])

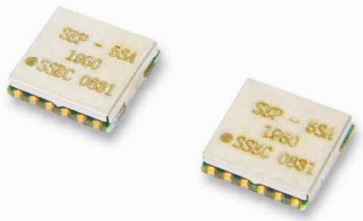
PLL Type Table

TYPE	SIZE	FREQUENCY	PICROM	TCXO
SA -TYPE	9.8x9.3x2.0 mm	Variable	External	External
VA -TYPE	12.7x12.7x3.2 mm	Variable	External	External
VC -TYPE		Fixed	Internal	Internal
VF -TYPE		Fixed	Internal	External
VT -TYPE		Variable	External	Internal
A -TYPE	19x19x6.5 mm	Variable	External	External
C -TYPE		Fixed	Internal	Internal
F -TYPE		Fixed	Internal	External
T -TYPE		Variable	External	Internal

VCO/PLL

SA - TYPE (9.8x9.3x2.0mm)

■ *Configuration*

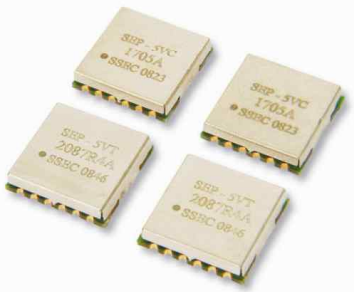


■ *Specifications(Customized Specification is available)*

Part No.	Frequency [MHz]	Power [dBm]	PDF [KHz]	P/N @ 10KHz [dBc/Hz]	2nd Harmonics [dBc]	REF FERQ [MHZ]		PLL IC
						In	Ex	
SEP-5SA745	745	0±2	50	-106	-106		10	LMX 2331
SEP-5SA790	790	0±2	50	-105	-105		10	LMX 2331
SEP-5SA842	842	0±2	50	-105	-105		10	LMX 2331
SEP-5SA997	997	0±2	50	-105	-105		10	LMX 2331
SEP-5SA1616	1600~1633	5±2	50	-100	-100		10	LMX 2331
SEP-5SA1679R6	1679.6	5±2	50	-102	-102		10	LMX 2331
SEP-5SA1690	1670~1690	7±2	160	-100	-100		19.2	LMX 2354
SEP-5SA1855	1855	0±2	50	-104	-104		10	LMX 2331
SEP-5SA1950	1930~1970	7±2	160	-100	-100		19.2	LMX 2354
SEP-5SA2045	2045	0±2	50	-105	-105		10	LMX 2331
SEP-5SA2047R6	2047.6	5±2	50	-102	-102		10	LMX 2331
SEP-5SA2327	2300~2354	5±2	200	-100	-100		10	LMX 2354
SEP-5SA2409R2	2382~2436	5±2	200	-100	-100		10	LMX 2354
SEP-5SA5800	5820~5840	3±1.5	2500	-86	-86		10	LMX 4113

VC, VT, VF - TYPE (12.7x12.7x3.2 mm)

■ *Configuration*



■ *Specifications(Customized Specification is available)*

Part No.	Frequency [MHz]	Power [dBm]	PDF [KHz]	P/N @ 10KHz [dBc/Hz]	2nd Harmonics [dBc]	REF FERQ [MHZ]		PLL IC
						In	Ex	
SEP-5VC384	384	0±2	50	-110	-17	13		LMX 2331
SEP-5VC822R9	822.9	3±2	50	-105	-20	13		LMX 2331
SEP-5VC862	862	5±2	50	-106	-26	13		LMX 2331
SEP-5VC951R5	951.5	Min -1	50	-105	-20	13		LMX 2331
SEP-5VC1646R3	1646.3	Min 7	50	-100	-27	13		LMX 2331
SEP-5VC1705A	1705	3±2	50	-99	-29	13		LMX 2331
SEP-5VC1866R1	1866.1	7±2	50	-101	-24	13		LMX 2331
SEP-5VC1881R3	1881.3	Min 7	50	-101	-24	13		LMX 2331
SEP-5VC1907R4	1907.4	7±2	200	-96	-23	13		ADF 4113
SEP-5VC1935	1935	3±2	50	-102	-27	13		LMX 2331
SEP-5VC2040	2040	5±2	500	-95	-26	13		ADF 4113
SEP-5VC2070A	2070	8±2	50	-100	-20	13		LMX 2331
SEP-5VC2090	2090	5±2	50	-100	-22	13		LMX 2331
SEP-5VC2114R5	2114.5	5±2	50	-100	-23	13		LMX 2331
SEP-5VC2120	2120	5±2	50	-100	-23	13		LMX 2331
SEP-5VT839R9	837 ~ 842	5±2	50	-105	-21	13		LMX 2331
SEP-5VT1825	1897~1852	3±2	100	-99	-21	13		LMX 2331
SEP-5VT1830	1830	8±2	50	-99	-27	13		LMX 2331
SEP-5VT2020	2010~2030	8±2	50	-100	-20	13		LMX 2331
SEP-5VT2060A	2050~ 070	8±2	50	-100	-21	13		LMX 2331
SEP-5VT2072R5	2070~2075	7±2	100	-100	-23	13		ADF 4113
SEP-5VT2262R5	2260~2265	7±2	100	-100	-30	13		ADF 4113
SEP-5VF842R8	842.8	0±2	50	-106	-32		10	LMX 2331

VCO/PLL

A, F, T, C - TYPE (19x19x6.5mm)

■ *Configuration*

■ *Specifications(Customized Specification is available)*

Part No.	Frequency [MHz]	Power [dBm]	PDF [KHz]	P/N @ 10KHz [dBc/Hz]	2nd Harmonics [dBc]	REF FERQ [MHZ]		PLL IC
						In	Ex	
KSP-5A631	625~637	1±2	125	-104	-25		10	ADF 4153
KSP-5A800	785~815	0±3	100	-105	-22		10	LMX 2326
KSP-5A1665A	1635~695	1±2	125	-100	-35		10	ADF 4153
KSP-5A1950R38	1930~19708	5±2	10	-98	-28		10	LMX 2326
KSP-5A2040D	2010~2070	0±3	100	-104	-25		10	LMX 2326
KSP-5A2110A	2080~2140	Typ 0	125	-104	-20		10	ADF 4153
KSP-5A2182	2132~2232	1±2	125	-103	-25		10	ADF 4153
KSP-5A2382	2332~2432	1± 2	125	-101	-32		10	ADF 4153
KSP-5A2472	2422~2522	3±2	125	-99	-28		10	ADF 4153
KSP-5A2535	2500~2570	1±2	125	-102	-19		10	ADF 4153
KSP-5A2800	2765~2835	1±2	125	-99	-19		10	ADF 4153
KSP-5F155	155	Typ 3	100	-107	-18		10	LMX 2326
KSP-5F731R5	731.5	Min5	500	-106	-18		10	LMX 2326
KSP-5F863	863	0±3	500	-101	-20		10	ADF 4153
KSP-5F1005R5	1005.5	0±3	500	-101	-20		10	ADF 4153
KSP-5F1485	1485	0±3	500	-97	-20		10	ADF 4153
KSP-5F1690C	1690	0±3	500	-104	-23		10	LMX 2326
KSP-5F1865	1865	3±2	500	-103	-30		10	LMX 2326
KSP-5F1907R4B	1907.4	Min 6	200	-106	-18		10	ADF 4153
KSP-5F2077R6A	2077.6	4±2	400	-105	-23		10	ADF 4153
KSP-5F2220	2220	0±2	500	-103	-19		10	LMX 2326
KSP-5F2349R5	2349.5	0±2	500	-102	-19		10	LMX 2326
KSP-5T85R5	84~87	Min 0	50	-118	-18	13		LMX 2326
KSP-5T342R5	338~347	2±2	50	-113	-20	13		LMX 2326
KSP-5T1950R38	1920~19808	5±2	10	-95	-25	13		LMX 2326
KSP-5T2072R5	2070~2075	7±2	100	-96	-20	13		ADF 4118
KSP-5T2262R5	2260~2265	7±2	100	-96	-23	13		ADF 4118
KSP-5C50	50	5±2	50	-112	-14	13		LMX 2326
KSP-5C100	100	5±2	100	-114	-22	13		LMX 2326
KSP-5C200	200	5±2	100	-112	-29	13		LMX 2326
KSP-5C384	384	1±2	100	-11	-19	13		LMX 2326
KSP-5C825R255	825.255	5±2	5	-103	-24	13		LMX 2326
KSP-5C1539R5	1539.5	Min 0	500	-105	-21	13		LMX 2326
KSP-5C1705B	1705	3±2	500	-105	-24	13		LMX 2326
KSP-5C1870	1870	3±2	500	-105	-18	13		LMX 2326
KSP-5C1945R3B	1975.3	0±2	100	-107	-28	13		ADF 4153
KSP-5C2035A	2035	-3±2	500	-102	-24	13		LMX 2326
KSP-5C2148	2148	6±2	500	-99	-23	13		ADF 4153
KSP-5C2278	2278	6±2	500	-101	-25	13		ADF 4118
KSP-5C2309	2309	0±2	1000	-101	-29	13		LMX 2326
KSP-5C2421	2421	5±2	500	-103	-29	13		ADF 4153
KSP-5C2644	2644	6±2	1000	-97	-13	13		ADF 4118
KSP-5C2908	2908	6±2	500	-98	-20	13		ADF 4118

HIC

■ *Outline of standard elements*

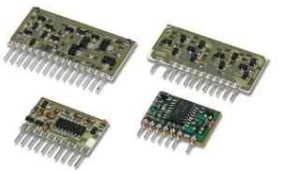
Element	Item	Components and Specification
Active Element		Tr. IC (Linear, Digital, CMOS) and minaturized package
Substrate	Material	Alumina 96%
	Printing Size	3.5" x 3.5" inch max.
	Thickness	0.635, 0.8, 1.0mm
	Lead Pitch	2.54, 2.5, 2.0, 1.8, 1.778, etc.
Conductor	Through Hole	Ψ 0.25 ~ 1mm
	Material	pd/Ag, Pt/Ag, Au, Ag
	Line Width	0.3mm (Standard), 0.2mm (Minimum)
Resistor	Material	RuO_2
	Possibility	5Ω ~ 300MΩ
	Tolerance	±0.1% max.
	TCR	150ppm max.

For Automobile

■ *Applications*

- Power window
- Power antenna
- Car booster

■ *Configuration*



Switching Controls (SMPS)

■ *Applications*

- PWM Control
- Small Size
- Output voltage
- DC/DC Converter
- Motor drive

■ *Configuration*

For Consumer & OA

■ *Applications*

- Facsimile
- Audio
- Video
- Television
- Aircon
- Computer

■ *Configuration*

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