

Murata Products for Mobile Communications



Innovator in Electronics

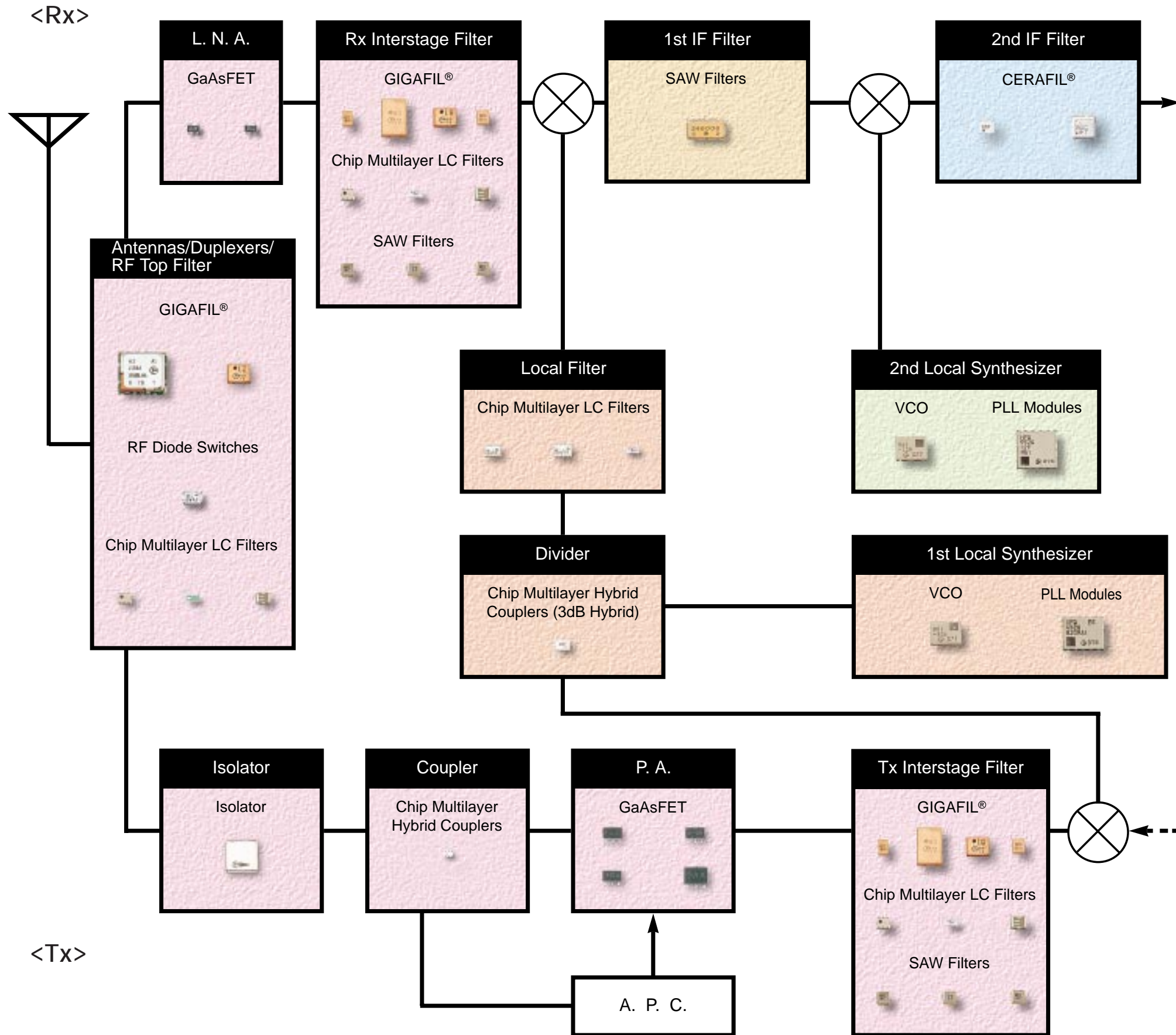


Meet the Needs Around the World

System		GSM/DCS Dual Band	GSM	PCS (CDMA1900)	AMPS/ADC	PDC800/1500	NTACS/CDMA	PHS	DECT
Area		Europe, Singapore	Europe, Asia	U.S.A.	U.S.A.	Japan	Japan	Japan, Asean	Europe, Hong Kong
Channel Multiplexing Method		TDMA/FDD	TDMA/FDD	CDMA/FDD	FDMA/FDD, TDMA/FDD	TDMA/FDD	CDMA/FDD	TDMA/TDD	TDMA/TDD
Frequency (MHz)		Tx Rx	890 – 915 935 – 960	1850 – 1910 1930 – 1990	824 – 849 869 – 894	940 – 960/1429 – 1453 810 – 830/1477 – 1501	887 – 925 832 – 870	1895 – 1916	1880 – 1900
RF	RF Diode Switches/ GIGAFIL® (Duplexers)/ Chip Multilayer Duplexers	LMS30 Series DP Series LFDP20 Series	LMS30 Series DP Series	DP Series	DP Series	LMS36A Series DP Series	DP Series	LMS33L Series	LMS33L Series
	GIGAFIL® (BPF)	MB Series	MB Series (BEF) DP Series	MB Series	MB Series	MB Series	DP Series	MB Series DP Series	MB Series
	SAW Filters		SAFC Series		SAFC Series	SAFC Series	SAFC Series		
	Chip Multilayer LC Filters (LPF)	LFTC15 Series	LFTC15 Series	LFTC15 Series		LFTC15 Series		LFTC15 Series	LFTC15 Series
	Chip Multilayer LC Filters (BPF)	LFS25/LFSN25 Series	LFS25 Series	LFSN25/30 Series	LFS25 Series	LFS25/LFS25 Series	LFS25 Series	LFSG20 Series	LFSN30 Series LFSB25 Series LFJ30-03 Series
	Isolators/Circulators	CE073 Series	CE073 Series	CE052 Series	CE073 Series	CE074/052 Series	CE073 Series	CE073 Series CE07A Series	CE073 Series CE07A Series
	Chip Multilayer Hybrid Couplers (Directional Couplers)	LDC15 Series	LDC15 Series	LDC15 Series	LDC15 Series	LDC15 Series	LDC15 Series	LDC20/30 Series	LDC20 Series
	Chip Multilayer Hybrid Baluns/ Chip Multilayer Dual Baluns	LDB15/20/25 Series	LDB15 Series	LDB15 Series	LDB20 Series	LDB20/15 Series	LDB20 Series	LDB15 Series	LDB15 Series
Mixer	Chip Multilayer Hybrid Couplers (3dB Hybrid)	LDC20/25 Series	LDC25 Series	LDC20 Series	LDC25 Series	LDC25/20 Series	LDC25 Series	LDC20 Series	LDC20 Series
	Microwave Oscillators (VCOs)	MQW Series	MQE6/9 Series	MQE5/9 Series	MQE9 Series	MQH/MQE9 Series	MQH/MQE9 Series	MQH Series	
	PLL Modules				HFQ Series	HFQ Series			
1st IF	SAW Filters	SAFC Series	SAFC Series	SAFC Series	SAFC Series	SAFC Series		SAFU Series	
2nd IF	CERAFIL®	CFSJC Series	CFSJC Series CFECS Series		CFUXC Series	CFUXC Series		CFECS Series	

Actual Size : The sample units and data in this catalog are only reference, which contains some provisional specifications.

Murata's High Functional, down-sizing technology supports RF to IF Designing



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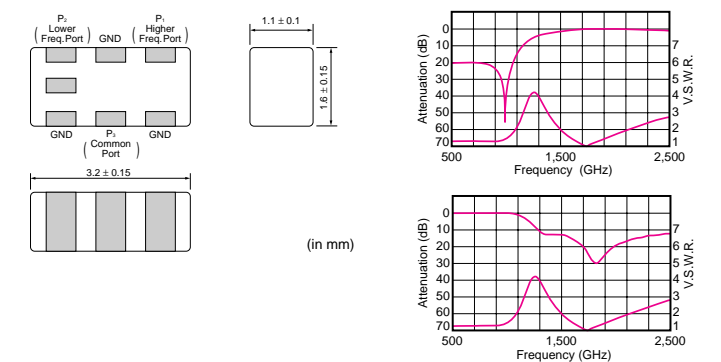
TOPICS

Chip Multilayer Diplexers/ GIGAFIL®(Switch Multiplexers)

**Most Suitable for Dual Band System.
Small-sized, Low-profiled, Light-weight.**

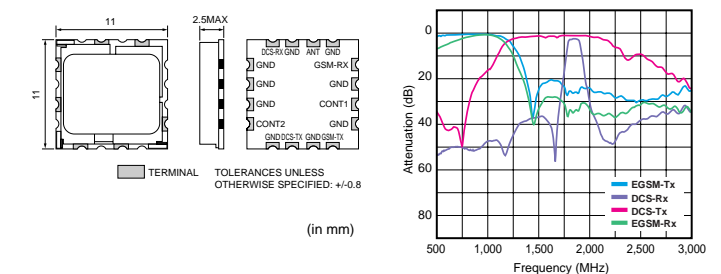
Chip Multilayer Diplexers

- Low insertion loss and high-isolation characteristics.
- Consists of high-pass and low-pass filter which divides signals by frequencies.



GIGAFIL®(Switch Multiplexers)

- Low insertion loss characteristics are available by adopting switch system in Tx circuit.
- Stable filter characteristics are realized by using Murata's band-pass filter MB series.



for GSM/DCS Dual Band (TDMA/FDD) Tx/GSM:890 – 915MHz, DCS1800:1710 – 1785MHz, Rx/GSM:935 – 960MHz, DCS1800:1805 – 1880MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo (MHz)	Band Width (MHz)	Insertion Loss (dB max.)	Ripple (dB max.)	V.S.W.R. (max.)	Attenuation (dB min.) (()) MHz	Size (mm) / Others	
Antennas/ Duplexers	GIGAFIL®	DFYJR897C1R84LHA	897.5	F _{T1} ±17.5	0.8 (0 to +35°C) 0.9 (-35 to +85°C)	0.3	1.7	15 (2×F _{T1}) 20 (3×F _{T1})	11×11×2.5	
			942.5	F _{R1} ±17.5	1.2 (0 to +35°C) 1.3 (-35 to +85°C)	0.3	2.0	-		
			1747.5	F _{T2} ±37.5	1.3 (0 to +35°C) 1.4 (-35 to +85°C)	0.3	1.7	30 (2×F _{T2}) 30 (3×F _{T2})		
			1842.5	F _{R2} ±37.5	3.2 (0 to +35°C) 3.6 (-35 to +85°C)	1.2	2.0	15 (1388–1742) 10 (1942–2000)		
	Multilayer Diplexers	LFDP20N0020A	1795.0 (F ₁)	F ₁ ±85.0	0.55	-	1.65	20.0 (F ₂)	3.2×1.6×1.2 max. Power Capacity:3.0W	
			920.0 (F ₂)	F ₂ ±40.0	0.50	-		16.0 (F ₁)		
	RF Diode Switches	LMS30L0897H103		897.5	F _T ±17.5	0.9	-	2.0	25.0 ((F _T ×2) ± (BW/2×2)) 25.0 ((F _T ×3) ± (BW/2×3))	4.9×3.2×2.0 max. Isolation:20.0dB min. Power Capacity:35dBm
				942.5	F _R ±17.5	1.0	-			
		LMS30K1747H103		1747.5	F _T ±37.5	1.0	-	2.0	20.0 ((F _T ×2) ± (BW/2×2)) 20.0 ((F _T ×3) ± (BW/2×3))	4.9×3.2×2.0 max. Isolation:20.0dB min. Power Capacity:35dBm
				1842.5	F _R ±37.5	1.25	-			
Filters (Tx)	GIGAFIL®	DFC31R74P075LHA	1747.5	F _o ±37.5	3.5	2.0	3.0	5 (F _o ±57.5)	5.7×4.6×2	
			LFTC15N19E0902B	902.5	F _o ±12.5	0.52	-	1.7	25.0 (2× (F _o ±12.5)) 25.0 (3× (F _o ±12.5))	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3.0W
	Multilayer LC Filters	LFSA25-12B0902B	902.5	F _o ±12.5	3.0	1.0	2.2	15.0 (802–827) 15.0 (978–1003)	3.2×2.5×1.9 max. Impedance:50Ω (Nominal) Power Capacity:500mW	
			LFSN25N15C1747B	1747.5	F _o ±37.5	2.5	1.0	2.2	20.0 (DC–1350) 30.0 (1350–1425) 25.0 (2300–5000)	3.2×2.5×1.6 max. Impedance:50Ω (Nominal) Power Capacity:500mW
Filters (Rx)	GIGAFIL®	DFC31R84P075LHA	1842.5	F _o ±37.5	3.5	2.0	3.0	5 (F _o ±57.5)	5.7×4.6×2	
			DFC31R84P075LHB	1842.5	F _o ±37.5	2.5 (0 to +35°C) 2.75 (-35 to +85°C)	1.0	2.0	15 (1338–1742) 10 (1942–2000)	5.7×4.6×2
	Multilayer LC Filters	LFSA25-12B0947B	947.5	F _o ±12.5	3.0	1.3	2.2	9.0 (0.3–835) 8.0 (1000–1394) 11.0 (1394–1805) 14.0 (1805–1880)	3.2×2.5×1.9 max. Impedance:50Ω (Nominal) Power Capacity:500mW	
			LFSN25N18C1842B	1842.5	F _o ±37.5	2.5	1.0	2.0	52 (0–600) 52 (1375–1450) 37 (2905–1315)	3.2×2.5×1.6 max. Impedance:50Ω (Nominal) Power Capacity:500mW

Block	Products	Parts Numbers	Center Frequency Fo (MHz)	Band Width (MHz)	Insertion Loss (dB max.)	V.S.W.R. (max.)	Size (mm)/ Others
Couplers	Hybrid Couplers	LDC15B200J0897	897.5	F _o ±17.5	0.16	1.4	2.0×1.25×1.05 max. Coupling:20.0dB±1.0
		LDC15B120J1747	1747.5	F _o ±37.5	0.50	1.4	2.0×1.25×1.05 max. Coupling:12.8dB±1.0
	Couplers with Integrated LPF	LDC15H200J1747	1747.5	F _o ±37.5	0.45	1.4	2.0×1.25×1.05 max. Coupling:20.0dB±1.0 Attenuation:22.0 (2×(F _o ±37.5)), 17.0 (3×(F _o ±37.5))
Baluns	Hybrid Baluns	LDB20C201A0900	900.0	F _o ±100	0.80	2.0	3.2×1.6×1.3 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:200Ω(Nominal)
		LDB15C500A1842	1842.5	F _o ±37.5	0.8	2.0	2.0×1.25×1.05 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)
	Dual Baluns	LDB25D500A0004A	947.5(F ₁) 1842.5(F ₂)	F ₁ ±12.5 F ₂ ±37.5	0.9 1.4	2.0	3.2×2.5×1.7 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)

Mixer

Block	Products	Parts Numbers	Center Frequency Fo (MHz)	Band Width (MHz)	Insertion Loss (dB max.)	V.S.W.R. (max.)	Amplitude Balance (dB max.)	Size (mm)/ Others
Divider	3dB 90° Hybrid	LDC25B030F0900	900.0	F _o ±100	3.3±0.5	1.5	1.0	3.2×2.5×1.0 max. Phase Deviation:90°±3.0
		LDC20B030F1600	1600.0	F _o ±100	3.3±0.5	1.5	1.0	3.2×1.6×1.0 max. Phase Deviation:90°±5.0
Block	Products	Parts Numbers	Frequency Range (MHz)		Supply Voltage (V)		Size (mm)	
Synthesizer	Rx VCO	MQW1 Series	1150 to 1185+1575 to 1655		2.7		9.6×7.0×1.6	
	Tx High Power VCO	MQW0 Series	880 to 915+1710 to 1785		2.7		9.8×8.0×1.6	

IF

Block	Products	Parts Numbers	Center Frequency Fo (MHz)	Band Width (kHz)	Insertion Loss (dB max.)	Ripple (dB max.)	GDT Deviation (μsec. max.)	Attenuation (dB min.)	Size (mm)/ Others
1st IF Filters	SAW Filters	SAFC246.000MC30X	246.0 (F _o)	±80.0 (from F _o)	5.0 (F _o)	1.0	2.5 (F _o ± 80kHz)	25 (F _o ± 400kHz) 40 (F _o ± 600kHz)	9.1×4.8×1.8 max. Input Output Impedance: 420 Ω/-3.6pF
2nd IF Filters	CERAFIL®	CFSJC6.0MP1	6.00 (F _n)	±80–±115	7.5±2.0	3.0	5.0 (within F _n) ± 80kHz	12 (F _n ± 200kHz) 30 (F _n ± 400kHz)	8.5×5.9×1.7 Input Output Impedance: 500 Ω
		CFECS13.0ME22	13.00 (F _n)	±90 min. (1dB)	6.0	1.0 (within F _n) ±90kHz	1.5 (within F _n) ±90kHz	25 (F _n ± 400kHz) 35 (F _n ± 600kHz)	3.45×3.1×1.6 Input Output Impedance: 330 Ω

for GSM (TDMA/FDD) Tx:890–915MHz, Rx:935–960MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (0MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFY2R902CR947BHG	902.5	F _T ±12.5	1.8	1.2	1.7	30 (F _R ±12.5)	20×14×4 max.
			947.5	F _R ±12.5	3.2	1.3	2.0	27 (F _T ±12.5)	
	RF Diode Switches	LMS30L0897H103	897.5	F _T ±17.5	0.9	–	2.0	25 ((F _T ×2)±(BW/2×2)), 25((F _T ×3)±(BW/2×3))	4.9×3.2×2.0 max. Isolation:20.0dB min. Power Capacity:35dBm
			942.5	F _R ±17.5	1.0	–	2.0		
Filters(Tx)	GIGAFIL®	DFC2R902P025HHB	902.5	F _o ±12.5	2.6	1.2	2.3	6.5 (F _o +32.5)	5.8×8.2×3.0 max.
			DFC2R902E025BHD	902.5	F _o ±12.5	1.0	0.6	2.0	10 (935–960)
	Multilayer LC Filters	LFTC15N19E0902B	902.5	F _o ±12.5	0.52	–	1.7	25.0 (2×(F _o ±12.5)), 25.0 (3×(F _o ±12.5))	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3W
			SAW Filters	SAFC902.5MWC90T	902.5	F _o ±12.5	3.5	1.5	2.3
Filters(Rx)	GIGAFIL®	DFC2R947P025HHB	947.5	F _o ±12.5	2.6	1.2	2.3	9 (F _o –32.5)	5.8×8.2×3.0 max.
	Multilayer LC Filters	LFSA25-12B0947B	947.5	F _o ±12.5	3.0	1.3	2.2	9.0 (0.3–835) 8.0 (1000–1394) 11.0 (1394–1805) 14.0 (1805–1880)	3.2×2.5×1.9 max. Impedance:50Ω Power Capacity:500mW
			SAW Filters	SAFC947.5MWC90T	947.5	F _o ±12.5	3.8	1.5	2.3

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B200J0897	897.5	F _o ±17.5	0.18	1.4	2.0×1.25×1.05 max. Coupling:20.0dB±1.0
Baluns	Hybrid Baluns	LDB20C201A0900	900.0	F _o ±100	0.8	2.0	3.2×1.6×1.3 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:200Ω(Nominal)
Isolators	Isolators	CE073R902DCB	902.5	F _o ±12.5	0.7	1.6	7×7×2.5 max. Isolation:13dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC25B030F0900	800–1000	3.3±0.5	1.5	1.0	3.2×2.5×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQE6P0 Series	885.0–920.0	3.75	10×7.0×2.5 max.
		MQE900 Series	1130–1212	4.0	7.8×6.0×2.0 max.

IF

Block	Products	Parts Numbers	Center Frequency (MHz)	Band Width (kHz)	Insertion Loss (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC246.000MC30X	246.0 (F _o)	±80.0 (from F _o)	5.0 (F _o)	1.0	2.5 (F _o ±80kHz)	25 (F _o ±400kHz) 40 (F _o ±600kHz)	9.1×4.8×1.8 max. Input Output Impedance: 420Ω/–3.6pF
2nd IF Filters	CERAFIL®	CFEVCV13.0ME21	13.000 (F _n)	F _n ±90 min. (2dB BW)	6.0 (Minimum Point)	1.0 (within F _n ±90kHz)	1.5 (F _n ±90kHz)	25 (F _n ±400kHz) 35 (F _n ±600kHz)	6.9×2.9×1.5 Input Output Impedance: 330Ω
		CFECS13.0ME22	13.000 (F _n)	F _n ±90 min. (1dB BW)	6.0 (Minimum Point)	1.0 (within F _n ±90kHz)	1.5 (F _n ±90kHz)	25 (F _n ±400kHz) 35 (F _n ±600kHz)	3.45×3.1×1.6 Input Output Impedance: 330Ω

for PCS (CDMA1900) (CDMA/FDD) Tx:1850–1910MHz, Rx:1930–1990MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (0MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFY21R88C1R96BHG	1880.0	F _T ± 30.0	2.3	1.7	1.8	20 (F _R ±30.0)	20×14×4 max.
			1960.0	F _R ± 30.0	3.2	1.8	1.8	25 (F _T ±30.0)	
		DFY21R88C1R96BHF	1880.0	F _T ± 30.0	2.0	1.6	1.8	17 (F _R ±30.0)	20×14×4 max.
			1960.0	F _R ± 30.0	3.0	1.7	2.0	20 (F _T ±30.0)	
Filters(Tx)	GIGAFIL®	DFC21R88P060HHA	1880.0	F _O ± 30.0	1.5	0.5	2.0	40 (1480)	4.8×4.3×3 max.
		DFC31R88P060HHA	1880.0	F _O ± 30.0	2.4	1.0	2.0	45 (1480)	7.5×4.3×3 max.
		DFC31R88P060LHA	1880.0	F _O ± 30.0	3.7	2.0	3.0	5 (1930)	5.7×4.4×2 max.
	Multilayer LC Filters	LFSN30N15C1880B	1880.0	F _O ± 30.0	2.2	1.0	2.0	40.0 (1400) 40.0 (1640)	4.5×3.2×1.6 max. Impedance:50Ω(Nominal) Power Capacity:500mW
		LFTC15N19E1920B	1920.0	F _O ± 70.0	0.7	–	1.6	25.0 (3335–3700) 30.0 (3700–3820) 25.0 (3820–6000)	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3W
	SAW Filters	SAFC1867.5T1897.5MF80T	1867.5 1897.5	F _O ± 17.5 F _O ± 12.5	3.8	1.8	2.3	30 (DPX Range)	3.8×3.8×1.5 max. (2 Filter in 1 Package)
Filters(Rx)	GIGAFIL®	DFC21R96P060HHA	1960.0	F _O ± 30.0	1.5	0.5	2.0	40 (1560)	4.8×4.3×3 max.
		DFC31R96P060HHA	1960.0	F _O ± 30.0	2.4	1.0	2.0	45 (1560)	7.5×4.3×3 max.
		DFC31R96P060LHA	1960.0	F _O ± 30.0	3.7	2.0	3.0	5 (1910)	5.7×4.4×2 max.
	Multilayer LC Filters	LFSN30N15C1960B	1960.0	F _O ±30.0	2.5	1.0	2.0	39.0 (1520) 16.0 (1740)	4.5×3.2×1.6max. Impedance:50Ω(Nominal) Power Capacity:500mW

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B140J1880	1880.0	F _O ±30.0	0.32	1.4	2.0×1.25×1.05 max. Coupling:14.4dB±1.0
Baluns	Hybrid Baluns	LDB15C201A1900	1900.0	F _O ±100	0.8	2.0	2.0×1.25×1.05 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:200Ω(Nominal)
Isolators	Isolators	CE0521R88DCB	1880.0	F _O ±30.0	0.6	1.6	5×5×2.0 max. Isolation:15dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC20B030F1600	1500–1700	3.3±0.5	1.5	1.0	3.2×1.6×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQE900 Series	1720–1780	3.3	7.8×6.0×2.0 max.

IF

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (kHz) (from Fo)	Insertion Loss at Fo (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC85.380ME30X	85.38	±13	5.5	1.5 (F _O ±13kHz)	10 (F _O ±10kHz)	40 (F _O -1MHz- F _O -925kHz) 70 (F _O -925kHz- F _O -885kHz) 40 (F _O -885kHz- F _O -700kHz)	9.1×4.8×1.9 max. Input Output Impedance: 870Ω//–1.7pF
		SAFC210.38MWJIS0X	210.38	±630	8.5	1.0 (F _O ±300kHz)	2.5° rms	33 (F _O ±1.25MHz)	13.3×5.0×2.1 max. Balance Type Available

for AMPS/ADC (FDMA/FDD, TDMA/FDD) Tx:824-849MHz, Rx:869-894MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (0MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFY2R836CR881GHD	836.5 (F _T)	F _T ±12.5	2.4	1.7	1.7	36 (F _R ±12.5)	19×11×3.6 max.
			881.5 (F _R)	F _R ±12.5	4.3	1.7	1.8	50 (F _T ±12.5)	
Filters(Tx)	GIGAFIL®	DFC2R836P025HHD	836.5	25	2.6	1.2	2.3	6.5 (869-894)	5.8×8.2×3 max.
		DFC3R836P025HHD	836.5	25	3	1	2	12 (869-894)	8.3×8.2×3 max.
	Multilayer LC Filters	LFSA25-12B0836B	836.5	Fo ±12.5	3.0	1.0	2.2	20.0 (Fo ±77.5)	3.2×2.5×1.9 max. Impedance:50Ω (Nominal) Power Capacity:500mW
	SAW Filters	SAFC836.5MC90T	836.5	Fo ±12.5	3.8	1.8	2.0	25 (869-694)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω/0pF
Filters(Rx)	GIGAFIL®	DFC2R881P025HHD	881.5	25	2.6	1.2	2.3	9 (824-849)	5.8×8.2×3.0 max.
		DFC3R881P025HHD	881.5	25	3.0	1.0	2.0	15 (824-849)	8.3×8.2×3 max.
	Multilayer LC Filters	LFSA25-12B0881B	881.5	Fo ±12.5	3.0	1.0	2.2	20.0 (Fo ±77.5)	3.2×2.5×1.9 max. Impedance:50Ω (Nominal) Power Capacity:500mW
	SAW Filters	SAFC881.5MC90T	881.5	Fo ±12.5	3.5	1.5	2.0	30 (824-849)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω/0pF

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B200J0836	836.5	Fo ±12.5	0.17	1.4	2.0×1.25×1.05 max. Coupling:20.6dB±1.0
Baluns	Hybrid Baluns	LDB20C500A0900	900.0	Fo ±100	0.8	2.0	3.2×2.5×1.3 max. Unbalance Impedance:50Ω (Nominal) Balance Impedance:50Ω (Nominal)
Isolators	Isolators	CE073R836DCB	836.5	25	0.65	1.5	7×7×2.5 max. Isolation:13dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC25B030F0900	800-1000	3.3±0.5	1.5	1.0	3.2×2.5×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQH Series	954-980	2.7	6.0×5.0×2.0 max.
		MQE900 Series	824-849	2.7	7.8×6.0×2.0 max.
	PLL Modules	HFQ361 Series	824.01-848.97	3.0	13.5×11.4×2.7

IF

Block	Products	Parts Numbers	Center Frequency	Band Width (kHz)	Insertion Loss at Fo (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC85.380ME30X	85.38MHz (Fo)	±13 (from Fo)	5.5	1.5 (Fo ±13kHz)	10 (Fo ±10kHz)	40 (Fo-1MHz- Fo-925kHz) 70 (Fo-925kHz- Fo-885kHz) 40 (Fo-885kHz- Fo-700kHz)	9.1×4.8×1.9 max. Input Output Impedance: 870Ω//~2pF
2nd IF Filters	CERAFIL®	CFUXC450B100H	450.0kHz (Fn)	F _n ±15.0 kHz min. (6dB BW)	5.0 (at F _n)	0.5 (within F _n) (±12kHz)	25 (within F _n) (±12kHz)	47 (within F _n) (±100kHz)	6.5×6.5×1.9 Input Output Impedance: 2.0kΩ

for PDC800 (TDMA/FDD) Tx:940–960MHz, Rx:810–830MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (0MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFY2R820CR950KHB	950.0	F _T ±10.0	0.5	0.3	1.7	20 (F _R ±10.0)	8×13.5×2.5 max.
			820.0	F _R ±10.0	1.8	0.5	1.8	27(F _T ±10.0)	
		DFYJR847CR942KHC	942.0	F _T ±17.5	0.8	0.3	1.7	30 (2F _T , 3F _T)	9×17×2.5 max.
	847.5	F _R ±15.5	2.2	1.2	1.8	32 (550–570)			
	RF Diode Switches	LMS36A0874H003	937.5	F _T ±22.5	Tx→ANT1:0.8 ANT1→Rx:0.9 ANT2→Rx:0.85	–	2.0	25.0 (2×F _T)	6.7×5.0×2.0 max. Isolation:20dB min. Power Capacity:35dBm
847.5	F _R ±37.5	2.0	20.0 (3×F _T)						
Filters(Tx)	Multilayer LC Filters	LFSC25N27B0924B	924.5	Fo ±35.5	1.8	1.0	2.0	30 (420–580) 9 (680–760)	3.2×2.5×1.9 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	SAW Filters	SAFC950MB90N	950.0	Fo ±10.0	4.0	2.0	2.5	45 (810–830)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω/0pF
Filters(Rx)	GIGAFIL®	DFC2R820P020HHB	820.0	20.0	2.0	0.7	2.0	20 (940–960)	5.8×8.2×3 max.
	Multilayer LC Filters	LFSC25N26B0848B	847.5	Fo ±37.5	1.5	0.7	2.0	25.0 (550–583) 17.0 (610–625)	3.2×2.5×1.65 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	SAW Filters	SAFC820MB90N	820.0	Fo ±10.0	2.5	1.5	2.5	32.0 (940–960)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω/0pF
LO Filters	Multilayer LC Filters	LFL30-15C0717B075	717.5	Fo ±37.5	4.2	2.3	2.5	19 (810–885) 40 (925–960)	4.5×3.2×2.1 max. Impedance:50Ω(Nominal) Power Capacity:500mW

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B190K0924	924.5	Fo ±35.5	0.17	1.4	2.0×1.25×1.05 max. Coupling:19.8dB±1.2
	Couplers With LPF	LDC15H190L0926	926.5	Fo ±33.5	0.45	1.3	2.0×1.25×1.05 max. Coupling:19.3dB±1.3 Attenuation:23.0 (2×(Fo±33.5)), 15.0 (3×(Fo±33.5))
Baluns	Hybrid Baluns	LDB20C500A0900	900.0	Fo ±100	0.8	2.0	3.2×2.5×1.3 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)
Isolators	Isolators/ Circulators	CE074R950CCB	950.0	20	0.75	1.55	7×7×2 max. Isolation:13dB
		CE074R942DCB	942.5	35	0.75	1.6	7×7×2 max. Isolation:12dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC25B030F0900	800–1000	3.3±0.5	1.5	1.0	3.2×2.5×1.0 max. Phase Deviation:90° ±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQH Series	680–755	2.2	6.0×5.0×1.9 max.

IF

Block	Products	Parts Numbers	Center Frequency	Band Width (kHz)	Insertion Loss (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC130.000MC16X	130.000 (Fo) (MHz)	±16 (from Fo)	5.0 (at Fn)	0.5 (Fo ±10.5kHz)	5.0 (Fo ±10.5kHz)	20 (Fo ±100kHz) 72 (Fo-885kHz- 925kHz)	7.0×5.0×1.8 max. Input Output Impedance: 740Ω/-1.8pF
2nd IF Filters	CERAFIL®	CFUXC450C100H	450 (Fn) (kHz)	Fn±9.0- 12.0kHz (3dB BW)	6.0 (at Fn)	0.5 (within Fn ±10.5kHz)	27.0 (within Fn ±10.5kHz)	47 (within Fn ±100kHz)	6.5×6.5×1.9 Input Output Impedance: 2.0kΩ

for PDC1500 (TDMA/FDD) Tx:1429–1453MHz, Rx:1477–1501MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (/MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFYJ1R44C1R48LHA	1441.0 (F _T)	F _T ±12.0	0.8	0.3	1.6	28 (2F _T), 30 (3F _T)	11.5×10×2.6 max.
			1489.0 (F _{R1})	F _R ±12.0	2.4	0.6	1.8	10 (1607–1631)	
			1489.0 (F _{R2})	F _R ±12.0	2.0	0.6	1.8	35 (1737–1761)	
	RF Diode Switches	LMS36A1441H203	1441.0	F _T ±12.0	Tx→ANT1:0.8 ANT1→Rx:0.9 ANT2→Rx:0.8	–	2.0	25.0 (2×F _T) 25.0 (3×F _T)	6.7×5.0×2.0 max. Isolation:20.0dB min. Power Capacity:35dBm
		1489.0	F _R ±12.0	2.0					
Filters(Tx)	Multilayer LC Filters	LFSA25-14B1441B	1441.0	F _o ±12.0	3.0	1.5	2.2	25.0 (1607–1631)	3.2×2.5×1.9 max. Impedance:50Ω(Nominal) Power Capacity:500mW
		LFTC15N19E1441B	1441.0	F _o ±12.0	0.6	–	2.0	31.0 (2×F _o) 26.0 (3×F _o)	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3W
	SAW Filters	SAFC1441MC90T	1441	F _o ±12.0	3.0	1.5	2.0	25 (1251–1275)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω//0pF
Filters(Rx)	GIGAFIL®	DFC21R48P024LHA	1489.0	24	1.4	0.5	2.0	10 (1607–1631)	3.8×5.2×2.0max.
	Multilayer LC Filters	LFSG20N16B1489B	1489.0	F _o ±12.0	1.3	0.3	2.0	25.0 (F _o +256.9)±12)	3.2×1.6×1.3max. Impedance:50Ω(Nominal) Power Capacity:500mW
	SAW Filters	SAFC1489MC90T	1489.0	F _o ±12.0	3.0	1.5	2.0	35 (1217–1241)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω//0pF
LO Filters	Multilayer LC Filters	LFSA25-13B1619B	1619.0	F _o ±12.0	2.8	0.8	2.0	20.0 (1477–1501)	3.2×2.5×1.9 max. Impedance:50Ω(Nominal) Power Capacity:500mW

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B160J1441	1441.0	F _o ±12.0	0.26	1.4	2.0×1.25×1.05 max. Coupling:16.3dB ± 1.0
Baluns	Hybrid Baluns	LDB15C201A1600	1600.0	F _o ±100	0.8	2.0	2.0×1.25×1.05 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:200Ω(Nominal)
Isolators	Isolators/ Circulators	CE0521R44CCB	1441.0	24	0.6	1.5	5×5×2 max. Isolation:14dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC20B030F1600	1500–1700	3.3±0.5	1.5	1.0	3.2×1.6×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQH Series	1607.0–1631.0	2.2	6.0×5.0×1.9 max.
	PLL Modules	HFQ452 Series	1607.0–1631.0	2.8	9.8×8.0×2.0 max.

IF

Block	Products	Parts Numbers	Center Frequency Fo	Band Width (kHz)	Insertion Loss (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC130.000MC16X	130.000 (MHz)	±16 (from Fo)	5.0 (at Fo)	0.5 (Fo ±10.5kHz)	5.0 (Fo ±10.5kHz)	20 (Fo±100kHz) 40 (Fo±200kHz) 72 (Fo–885kHz– 925kHz)	7.0×5.0×1.8 max. Input Output Impedance: 740Ω//–1.8pF
	Multilayer LC Filters	LFK30-04E0178L001	178.0 (MHz)	F _o ±0.5MHz	1.5 (at Fo)	–	–	30.0 (2×F _o MHz) 25.0 (3×F _o MHz)	4.5×3.2×2.3 max. Impedance:50Ω(Nominal) Power Capacity:1W
2nd IF Filters	CERAFIL®	CFUXC450C100H	450 (Fn) (kHz)	F _n ±9.0– 12.0kHz (3dB BW)	6.0 (at F _n)	0.5 (within F _n) (±10.5kHz)	27.0 (within F _n) (±10.5kHz)	47 (within F _n) (±100kHz)	6.5×6.5×1.9 Input Output Impedance: 2.0kΩ

for NTACS/CDMA (CDMA/FDD) Tx:887-925MHz, Rx:832-870MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (/MHz)	Size(mm)/ Others
Antennas/ Duplexers	GIGAFIL®	DFYMR851CR906GHBA	894 (F _T -L)	F _T -L±7	2.5	1.2	1.8	38 (F _R -L±7)	18×15×4 max. ON:F _T -L/F _R -L OFF:F _T -H/F _R -H ON:8mA max.
			920 (F _T -H)	F _T -H±5	2.2	1.2	1.8	39 (F _R -H±5)	
			839 (F _R -L)	F _R -L±7	3.8	1.2	1.8	55 (F _T -L±7)	
			865 (F _R -H)	F _R -H±5	3.4	1.2	1.8	55 (F _T -H±5)	
Filters(Tx)	Multilayer LC Filters	LFSA25-12B0906B	906.0	Fo ±12.5	3.5	1.0	2.2	20.0 (Fo ± 90.0)	3.2×2.5×1.9 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	SAW Filters	SAFC906MN90T	900	Fo ±19	3.0	1.7	2.5	20 (832-870)	3.0×3.0×1.4 max. Input Output Impedance: 50Ω/0pF
		SAFC906ML90T	906	Fo ±19	4.2	2.5	2.8	30 (832-870)	
Filters(Rx)	Multilayer LC Filters	LFSA25-12B0851B	851.0	Fo ±12.5	3.5	1.0	2.2	20.0 (Fo ± 90.0)	3.2×2.5×1.9 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	SAW Filters	SAFC851ML90T	851	Fo ±19	4.5	3.0	2.8	22 (605-652)	3.0×3.0×1.4 max.

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B200J0836	836.5	Fo ±12.5	0.17	1.4	2.0×1.25×1.05 max. Coupling:20.6dB±1.0
Baluns	Hybrid Baluns	LDB20C500A0900	900.0	Fo ±100	0.8	2.0	3.2×2.5×1.3 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)
Isolators	Isolators	CE073R906DCB	906	38	0.7	1.6	7×7×2.5 max. Isolation:12dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC25B030F0900	800-1000	3.3±0.5	1.5	1.0	3.2×2.5×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQH Series	720-761	3.0	6.0×5.0×1.9

IF

Block	Products	Parts Numbers	Center Frequency Fo (MHz)	Band Width (kHz)	Insertion Loss at Fo (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFC111.850HB30X	111.850	±13	5.0	1.5 (Fo ±15kHz)	10 (Fo ±11kHz)	32 (Fo ±100kHz)	9.1×5.0×1.9 max. Input Output Impedance: 870Ω/-1.7pF

for PHS (TDMA/TDD) Tx:1895-1916MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB min.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (()MHz)	Size(mm)/ Others
Antenna Switches	RF Diode Switches	LMS33L1907L001	Tx:1907.5	$F_T \pm 12.5$	0.8 (dB max.)	–	2.0	25 ($2 \times F_T, 3 \times F_T$)	5.4×4.0×2.3 max. Isolation:20.0dB min. Power Capacity:27dBm
			Rx:1907.5	$F_R \pm 12.5$	0.7	–	2.0		
Top Filters	GIGAFIL®	DFC21R90P025LHA	1907.5	$F_o \pm 12.5$	1.0	0.5	1.8	30 (1415-1440)	3.8×4.3×2 max.
	Multilayer LC Filters	LFSB25N15B1907B	1907.5	$F_o \pm 12.5$	1.0	0.3	2.0	35.0 (1397.5-1440) 20.0 (1646-1680)	3.2×2.5×1.7 max. Impedance:50Ω(Nominal) Power Capacity:500mW
		LFTC15N19E1907B	1907.5	$F_o \pm 12.5$	0.5	–	1.5	30.0 ($2 \times (F_o \pm 12.5)$), 25.0 ($3 \times (F_o \pm 12.5)$)	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3W
Interstage Filters	Multilayer LC Filters	LFSE25N25C1907B	1907.5	$F_o \pm 12.5$	2.5	0.5	2.0	40.0 ($F_o - 240$) 40.0 ($F_o - 480$) 15.0 ($F_o + 240$)	3.2×2.5×1.6 max. Impedance:50Ω(Nominal) Power Capacity:500mW
		LFSG20N16B1906B	1906.5	$F_o + 24.5$ -13.5	2.5	0.7	2.0	40 (1397.05-1422.85) 35 (1645.5-1671.3)	3.2×1.6×1.3 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	GIGAFIL®	DFC21R90P025LHB	1907.5	25	1.6	0.5	1.9	35 (1415-1440)	3.8×4.3×2 max.
		DFC21R90P025LHC	1907.5	$F_o \pm 12.5$	1.9	0.5	1.9	40 (1415-1440)	4.4×4.3×2 max.

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB min.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B140J1907	1907.5	$F_o \pm 12.5$	0.32	1.4	2.0×1.25×1.05 max. Coupling:14.3dB±1.0
Baluns	Hybrid Baluns	LDB15C201A1900	1900	$F_o \pm 100$	0.8	2.0	2.0×1.25×1.05 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)
Isolators	Isolators/ Circulators	CE0731R90CCB	1907.5	25	0.6	1.5	7×7×2.5 max. Isolation:15dB
		CE07A1R90CCB	1907.5	25	0.9	1.5	7×7×3 max. Isolation:15dB

Mixer

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LDC20B030F1600	1500-1700	3.3±0.5	1.5	1.0	3.2×1.6×1.0 max. Phase Deviation:90°±3.0

Block	Products	Parts Numbers	Frequency Range (MHz)	Supply Voltage (V)	Size(mm)
Synthesizer	VCO	MQH Series	1649.7-1686.3	3.0	6.0×5.0×1.9

IF

Block	Products	Parts Numbers	Center Frequency Fo	Band Width (kHz)	Insertion Loss (dB max.)	Ripple in BW (dB max.)	GDT Deviation (μ sec. max.)	Attenuation (dB min.)	Size(mm)/ Others
2nd IF Filters	CERAFIL®	CFECS10.8MK1	10.800 (Fn)	$F_n \pm 110$ min. (3dB BW)	6.0 (at Fn)	0.5 (within Fn) (±100kHz)	1.5 (within Fn) (±100kHz)	35 (Fn ±500kHz) 30 (Fn ±1.2MHz)	3.45×3.1×1.6 max. Input Output Impedance: 330Ω

for DECT (TDMA/TDD) Tx:1880-1900MHz

RF / LO

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	Ripple in BW (dB max.)	V.S.W.R. in BW (max.)	Attenuation (dB min.) (0MHz)	Size(mm)/ Others
Antenna Switches	RF Diode Switches	LMS33L1890L001	F _T 1890.0	F _T ±10.0	0.8	–	2.0	25.0 (2×F _T ,3×F _T)	5.4×4.0×2.3 max. Isolation:20.0dB min. Power Capacity:27dBm
			F _R 1890.0	F _R ±10.0	0.7	–	2.0		
Top Filters	GIGAFIL®	DFC21R89P020HHH	1890.0	F _o ±10	0.9	0.5	2.0	27 (1655-1679)	5.7×7.4×3 max.
		DFC21R89P020HHE	1890.0	20	2.0	0.5	2.0	45 (1660-1680)	4.8×3.9×3 max.
		DFC21R89P020HHG	1890.0	20	1.75	0.5	2.0	53 (1660-1680)	7.4×7.6×4 max.
		DFC21R89P020LHCA	1890.0	20	1.7	0.5	2.0	35 (1660-1680)	4.4×4.3×2 max.
	Multilayer LC Filters	LFSB25N15B1890B	1890.0	F _o ±10	1.2	0.3	2.0	20.0 (1655-1675)	3.2×2.5×1.7 max. Impedance:50Ω(Nominal) Power Capacity:500mW
		LFTC15N19E1890B	1890.0	F _o ±10.0	0.45	–	1.5	32.0 (2×(F _o ±10)), 25.0 (3×(F _o ±10))	2.0×1.25×1.05 max. Impedance:50Ω(Nominal) Power Capacity:3W
Interstage Filters	Multilayer LC Filters	LFSE25N25C1890B	1890.0	F _o ±10	2.5	0.5	2.0	40.0 (F _o -240) 40.0 (F _o -480) 15.0 (F _o +240)	3.2×2.5×1.6 max. Impedance:50Ω(Nominal) Power Capacity:500mW
	GIGAFIL®	DFC21R89P020HHE	1890.0	F _o ±10.0	2.0	0.5	2.0	45 (1660-1680)	4.8×3.9×3 max.
		DFC21R89P020LHC	1890.0	20	2.0	0.5	2.0	40.0 (1660-1680)	4.4×4.3×2 max.

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (MHz)	Insertion Loss in BW (dB max.)	V.S.W.R. in BW (max.)	Size(mm)/ Others
Couplers	Hybrid Couplers	LDC15B140J1890	1890.0	F _o ±10.0	0.32	1.4	2.0×1.25×1.05 max. Coupling:14.4dB±1.0
Baluns	Hybrid Baluns	LDB15C201A1900	1900	F _o ±100	0.8	2.0	2.0×1.25×1.05 max. Unbalance Impedance:50Ω(Nominal) Balance Impedance:50Ω(Nominal)
Isolators	Isolators/ Circulators	CE0731R89CCB	1890.0	20	0.6	1.5	7×7×2.5 max. Isolation:15dB
		CE07A1R89CCB	1890.0	20	0.9	1.5	7×7×3 max. Isolation:15dB

Mixer

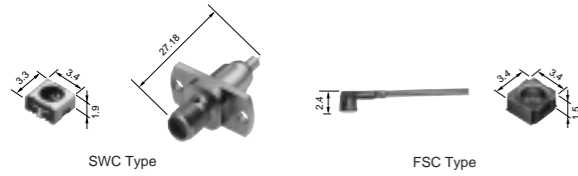
Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Insertion Loss in BW (dB)	V.S.W.R. in BW (max.)	Amplitude Balance (dB max.)	Size(mm)/ Others
Divider	3dB 90° Hybrid	LC20B030F1600	1500-1700	3.3±0.5	1.5	1.0	3.2×1.6×1.0max. Phase Deviation:90°±3.0

IF

Block	Products	Parts Numbers	Center Frequency Fo(MHz)	Band Width (kHz) (from Fo)	Insertion Loss at Fo (dB max.)	GDT Deviation (μsec. max.)	Attenuation (dB min.)	Size(mm)/ Others
1st IF Filters	SAW Filters	SAFU110.6MSA40T	110.592	±576	4.5	0.7 (F _o ±576kHz)	50 (F _o -5.184MHz) 45 (F _o -3.456MHz)	11.4×5.00×2.00 max. Input Output Impedance: 300Ω/1.2μF

Murata Products for Mobile Communications

Microwave Coaxial Connectors



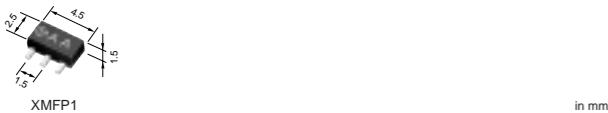
Type	Rated Voltage (V)	Rated Frequency (GHz)	Impedance (Ω)	V.S.W.R max. (f:GHz)
GSC	250	DC-6	50	1.3
SWC	250	DC-3	50	1.2
FSC	250	DC-3	50	1.3

GaAs FET



● Small Signal FET XMFS Series

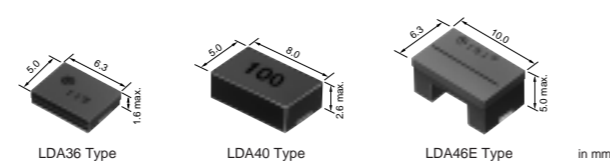
Parts Number	Package	Main Characteristics
XMFS2-M1	Plastic (SOT-143)	Fmin=0.4dB(@2GHz) Gas=12dB
XMFS3-M1	Plastic (SOT-143)	Fmin=0.4dB(@2GHz) Gas=15dB



● Power FET XMFP Series

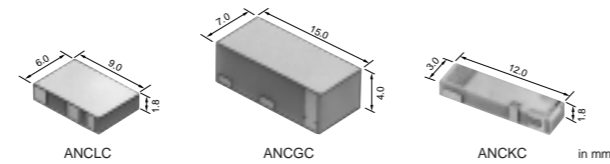
Parts Number	Package	Main Characteristics
XMFP1-M3	Plastic (SOT-89)	Po=23dBm(@1.9GHz) GLP=16dB(VDS=4V)
XMFP2-M3	Plastic (SOT-89)	Po=26dBm(@1.9GHz) GLP=15dB(VDS=4V)
XMFP3-M3	Plastic (SOT-89)	Po=30dBm(@1.9GHz) GLP=12dB(VDS=4V)
XMFP4-M4	Plastic (SOT-Original)	Po=35dBm(@0.9GHz) GLP=15dB(VDS=4.8V)

Antennas



● Chip Multilayer Antennas

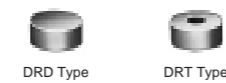
Parts Number	Center Frequency (Fo)(MHz)	VSWR at Feeding Point
LDA40D1489A	1489 (Nominal)	at Fo±12.0MHz 2.0 max.
LDA40D0820A	820 (Nominal)	at Fo±10.0MHz 3.0 max.
LDA36D1907A	1907.5 (Nominal)	at Fo±12.5MHz 2.0 max.
LDA46E1489A	1489.0 (Nominal)	at Fo±12.0MHz 3.0 max.



● Chip Dielectric Antennas

Parts Number	Center Frequency (MHz)	Band Width (MHz)	VSWR (max.)
ANCLC1R90J025AAA	1906.5	25.0	2
ANCLC1R89J020AAA	1890.0	20.0	
ANCGC1R48U024AAC	1489.0	24.0	3
ANCKC1R48U024AAA	1489.0	24.0	
ANCKCR819U018AAA	819.0	18.0	

Dielectric Resonators (RESOMICS®)



● TE Mode

Material	εr	Frequency Range (GHz)
F Series	24	10.0-25.1
E Series	24	8.4-25.1
B Series	28	4.8-25.9
R Series	30	4.6-24.2
V Series	34	2.9-13.2
M Series	38	1.5-12.4
U Series	38	1.5-12.4



● TEM Mode

Electrode	Material	εr	Frequency Range (MHz)
Copper	P	21.4±0.2	1000-5000
	K	92±1	440-3000
Silver	U	38±1	680-4800

Piezoelectric Speakers (CERAMITONE®)



Parts Number	Frequency Range	Capacitance	Input Voltage
VSB35EW-0701B	600Hz-20kHz	340nF±35% at 120Hz	4Vrms max. (W/N JIS Filters)

Piezoelectric Diaphragms

Parts Number	Resonant Frequency (kHz)	Resonant Impedance (Ωmax.)	Capacitance (nF, at 1kHz)	Input Voltage (Vp-p max.)
7BB-20-6	6.3±0.6	300	10±30%	30

Piezoelectric Ringers (PIEZORINGER®)



Parts Number	Rating	Sound Pressure (dB min.)	Capacitance (pF at 120Hz)	Input Voltage (max.)
PKM33EP-1202C	1.2kHz/1Vrms Sine/10cm	64	40000±30%	40Vp-p

Piezoelectric Receivers (CERAMIPHONE®)



Parts Number	Sound Pressure	Capacitance (nF at 120Hz)
PKD17EW-01R	107±3dB	60±30%

Monolithic Ceramic Capacitors

● GRM33 Series Temperature Compensation

TC	C0G
Rated Voltage(V)	DC25
Capacitance(pF)	1-15

● GRM33 Series High Dielectric Constant

TC	X7R
Rated Voltage(V)	DC16
Capacitance(pF)	100-1000

● GRM36 Series Temperature Compensation

TC	C0G	SL	
Rated Voltage(V)	DC50	DC50	DC25
Capacitance(pF)	0.5-160	43-200	220-390

● GRM36 Series High Dielectric Constant

TC	X7R			
Rated Voltage(V)	DC50	DC25	DC16	DC10
Capacitance(pF)	220-3900	4700-6800	8200, 10000	27000-47000

TC	X5R	
Rated Voltage(V)	DC16	DC10
Capacitance(pF)	12000-22000	56000-100000

TC	Y5V			
Rated Voltage(V)	DC50	DC25	DC16	DC10
Capacitance(pF)	2200-15000	22000	33000-100000	150000-470000

High Frequency Monolithic Ceramic Capacitors



● High-Frequency Series

Parts Number	TC Size	Capacitance (pF)		
		200	100	50
GRH706	1.25×1.00	0.5-13	9-22	16-51
GRH708	2.00×1.25	0.5-51	39-91	75-160
GRH710	3.2×2.50	0.5-160	180-510	560-1000

● High Power / High Frequency Series

Parts Number	TC Size	Capacitance (pF)				
		500	300	200	100	50
GRH110	1.4×1.4	-	-	-	-	0.5-100
GRH111	2.8×2.8	0.5-100	110-200	220-470	510-680	750-1000

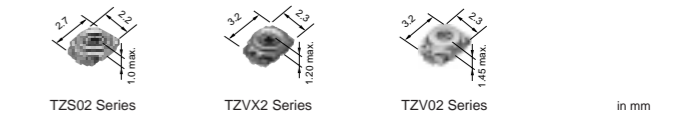
High Frequency Microchip Capacitors

● CLB Series

TC	CG	UH	XL
Capacitance(pF)	0.1-16	0.3-56	0.8-110

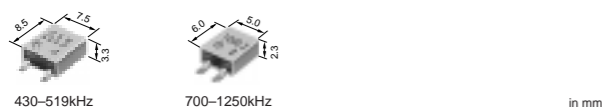
TC	B	F	YFD
Capacitance (pF)	2.0-1200	27-3000	36-4300

Chip Trimmer Capacitors



Series	Maximum Capacitance		
	Temp. Coeff. (ppm/C)		
	NP0 (0)	N750 (-750)	N1200 (-1200)
TZS02	6, 10	20	-
TZVX2	2.5, 3, 6, 10	20, 25	45
TZV02	2.5, 3, 6, 10	20	-
TZC03	3, 6	10	20, 30
TZBX4	3, 6, 10, 25	20, 50	30, 40

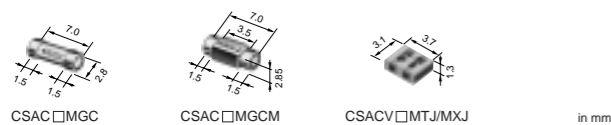
Ceramic Resonators (CERALOCK®)



● CSBF Series (430–519kHz, 700–1250kHz)

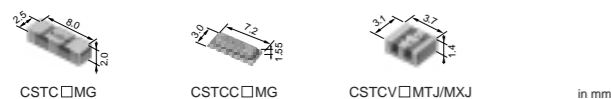
Series	Frequency Range (kHz)	Frequency Accuracy (25°C)	Stability in Temperature (-20°C to +80°C)
CSBF□J	430-519	±0.5%	±0.3%
*CSBF□J	700-1250	±0.5%	±0.3%

* Unavailable for certain frequency range.



● CSAC/CSACV Series (1.80–60.00MHz)

Series	Frequency Range (MHz)	Frequency Accuracy (25°C)	Stability in Temperature (-20°C to +80°C)
CSAC□MGC/MGCM	1.80-6.00	±0.5%	±0.3%
CSACV□MTJ	6.01-13.0	±0.5%	±0.5%
CSACV□MXJ040	13.50-60.00	±0.5%	±0.3%



● Built-in Capacitor CSTC/CSTCV Series (2.00–60.00MHz)

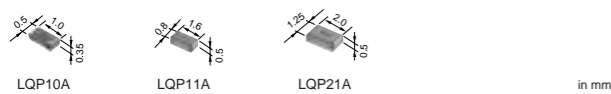
Series	Frequency Range (MHz)	Frequency Accuracy (25°C)	Stability in Temperature (-20°C to +80°C)
CSTC□MG	2.00-3.50	±0.5%	±0.3%
CSTCC□MG	3.51-10.00	±0.5%	±0.3%
CSTCV□MTJ	10.01-13.0	±0.5%	±0.4%
CSTCV□MXJ040	13.50-60.00	±0.5%	±0.3%

Chip Coils



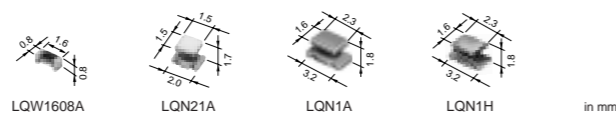
● Monolithic Type * Minimum Value

Series	Inductance (nH)	Q (Typ.)	Allowable Current* (mA)
LQG10A	1.2-33	25	200
LQG11A	1.2-100	160	300



● Thin-film Type * Minimum Value

Series	Inductance (nH)	Q (Typ.)	Allowable Current* (mA)
LQP10A	10-33	30	400
LQP11A	1.3-33	160	300
LQP21A	1.5-100	300	550

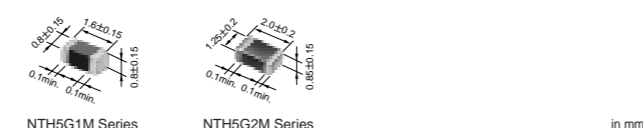


● Winding Type

* Minimum Value

Series	Inductance (nH)	Q (Typ.)	Allowable Current* (mA)
LQW1608A	3.9-220	55	850
LQN21A	3.3-220	80	910
LQN1A	8.8-100	100	750
LQN1H	54-880	90	920

Chip NTC Thermistors

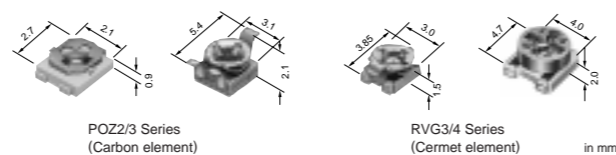


● NTH5G Series

Type	Resistance 25°C	Rated Electric Power (mW)
NTH5G1M	220Ω-100kΩ	10
NTH5G2M		20

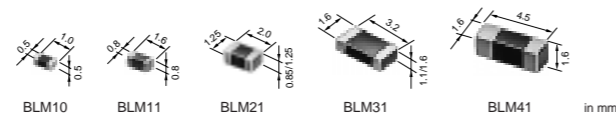
● Resistance Tolerance : ±5%, ±10%

Trimmer Potentiometers



Series	Power Rating (W)	Resistance Range	TCR (ppm/°C)
POZ2	0.1 (50°C)	500Ω-1MΩ	±500
POZ3		200Ω-2MΩ	
RVG3	0.1 (70°C)	100Ω-2MΩ	±250
RVG4M08		200Ω-2MΩ	
RVG4M58	0.25 (70°C)	100Ω-2MΩ	±100 (200Ω-50kΩ) ±150 (100Ω, 100kΩmin.)

Chip Ferrite Beads (EMIFIL®)



● BLM10 Series

Series	Impedance(Typ.) at 100MHz (Ω)	Rated Current (mA)
BLM10A	10-1000	50-500
BLM10B	75-600	50-100

● BLM11 Series

Series	Impedance(Typ.) at 100MHz (Ω)	Rated Current (mA)
BLM11P	30-60	500-1000
BLM11A	120-1000	100-200
BLM11B	5-2500	50-700
BLM11HA	470-1000	100-200
BLM11HB	470-600	100

● BLM21 Series

Series	Impedance(Typ.) at 100MHz (Ω)	Rated Current (mA)
BLM21P	22-220	2000-6000
BLM21A	120-1000	200
BLM21B	5-2700	200-500

● BLM31 Series

Series	Impedance(Typ.) at 100MHz (Ω)	Rated Current (mA)
BLM31P	33-120	3000-6000
BLM31A	26-600	200-500
BLM31B	600	200

● BLM41 Series

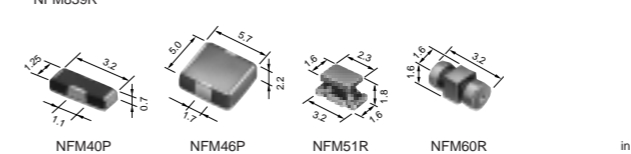
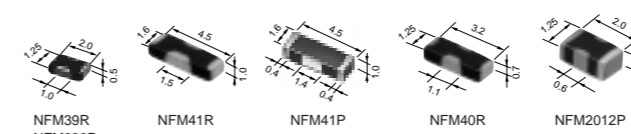
Series	Impedance(Typ.) at 100MHz (Ω)	Rated Current (mA)
BLM41P	60-180	1000-6000
BLM41A	80-150	200-500



● Chip Ferrite Beads Arrays BLA3216 Series

Series	Impedance (Typ.) at 100MHz (Ω)	Rated Current (mA)	Circuit
BLA3216A	30-1000	50-200	4
BLA3216B	120-600	100-150	

Built-in Capacitor Chip EMIFIL®



● NFM39R/40R/41R Series for General Use

Series	Capacitance (pF)	Rated Voltage (VDC)	Rated Current (mADC)
NFM39R	22-22000	50	300
NFM40R		25	
NFM41R		100	

● NFM839R Series for Signal Line (with Waveform Distortion Suppressing Function)

Series	Capacitance (pF)	Resistance (Ω)	Rated Current (mA)	Rated Voltage (VDC)
NFM839R	10-100	22-100	25-50	50

● NFM51R Series for Signal Line

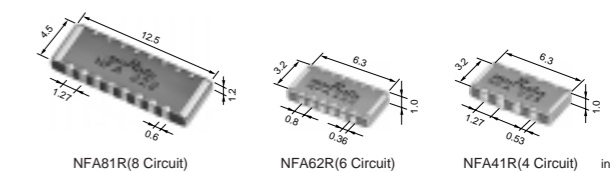
Series	Cut-off Frequency (MHz)	Rated Voltage (VDC)	Rated Current (mA)
NFM51R	10-500	25	200

● NFM2012P/40P/41P/46P Series for Large Current

Series	Capacitance	Rated Voltage (VDC)	Rated Current (ADC)
NFM2012P	100000-470000pF	16	2
NFM40P	22000pF		
NFM41P	0.2 μF		
NFM46P	1.5 μF		

● NFM60R/61R/61RH Series for Large Current T-type

Series	Capacitance (pF)	Rated Voltage (VDC)	Rated Current (A)	Temperature Range (°C)
NFM60R	22-2200	25	6	-40 to d85
NFM61R	33-4700	50	2	-25 to d85
NFM61RH	33-3300	100		-55 to d125



● Chip EMIFIL® Array NFA81R/62R/41R Series

Series	Capacitance (pF)	Rated Voltage (VDC)	Rated Current (mA)	Circuit
NFA81R/62R/41R	22-100000	50	200-300	4, 6, 8



● Chip EMIFIL® Array NFA3216G Series (with Waveform Distortion Suppressing Function)

Series	Capacitance (pF)	Resistance (Ω)	Rated Current (mA)	Rated Voltage (VDC)	Circuit
NFA3216G	10-100	6.8-100	15-50	6	4

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Murata products should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.

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- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Medical equipment
- ⑤ Transportation equipment (vehicles, trains, ships, etc.)
- ⑥ Traffic signal equipment
- ⑦ Disaster prevention / crime prevention equipment
- ⑧ Data-processing equipment
- ⑨ Application of similar complexity and/or reliability requirements to the applications listed in the above

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