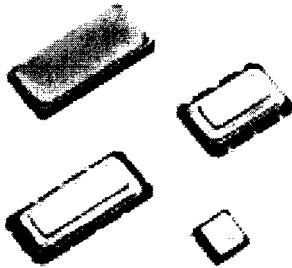


CERAMIC MICROWAVE FILTERS SAW FILTERS



SAF Series



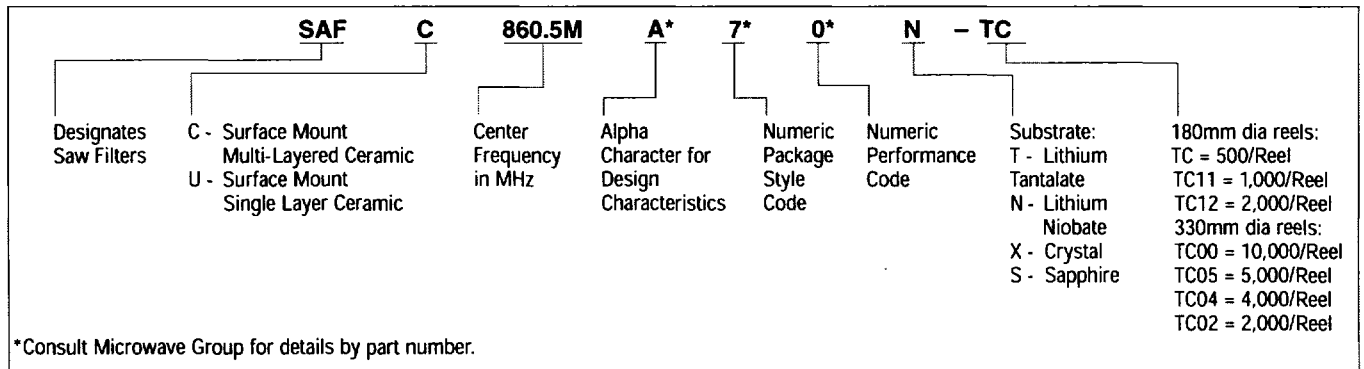
FEATURES

- Standard part frequency range (80MHz – 2.0GHz)
- Low passband ripple
- Linear phase
- High selectivity

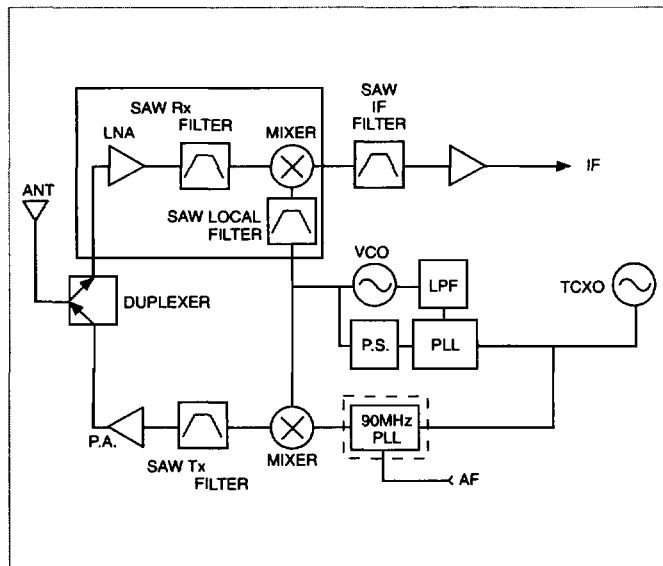
APPLICATIONS

- Cellular Phone: E-AMPS, PCS and GSM, PDC
- Cordless Phone: CT-1, ISM, DECT
- Land Mobile Radio (LMR)
- 915 MHz ISM
- Pager
- RKE
- GPS

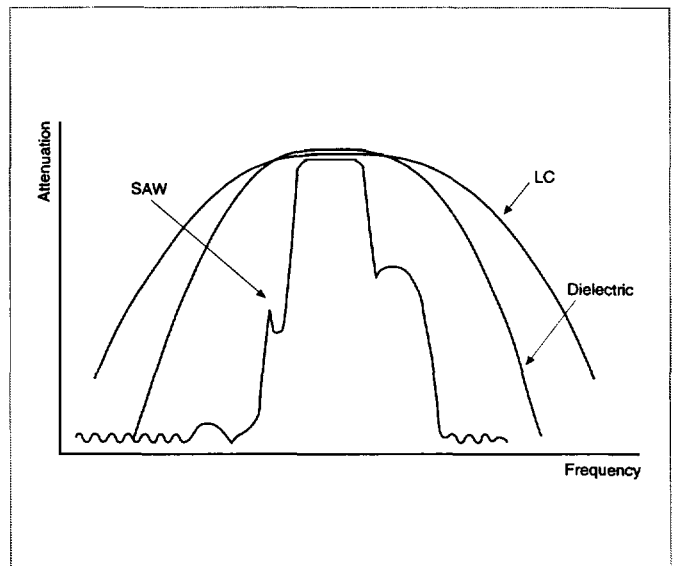
PART NUMBERING SYSTEM



TYPICAL CELLULAR SYSTEM AND SAW POSSIBILITIES



ATTENUATION VS. FREQUENCY – GENERAL COMPARISON OF FILTER CHARACTERISTICS



CERAMIC MICROWAVE FILTERS SAW FILTERS SPECIFICATIONS

SAF Series

| App. | Part Number | Function | Center Freq. (MHz) | I.L. (dB) max.* | Bandwidth (MHz) | Attenuation (dB) | Ripple (dB) max. | VSWR | Max. GDT (μ s) | Input/Output Impedance | Pkg. Style | Tape Code ¹ |
|------------------|------------------------|----------------------|--------------------|------------------|------------------|------------------|------------------|------|---------------------|--|------------------|------------------------|
| E-AMPS /ADC | SAFC836.5MC90T | RF (TX) | 836.5 | 3.8 | 824 to 849 | 3.8 | 1.8 | 2 | N/S | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 869 to 894 | 25 | | | | | | |
| | | | | | 920 to 2000 | 32 | | | | | | |
| | SAFC881.5MC90T | RF (RX) | 881.5 | 3.5 | 869 to 894 | 3.5 | 1.5 | 2.0 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 824 to 849 | 30 | | | | | | |
| | | | | | 1100 to 2000 | 32 | | | | | | |
| | SAFC881.5MD90T | RF (RX) | 881.5 | 2.5 | 869 to 894 | 2.5 | 1.5 | 2.5 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 824 to 849 | 20 | | | | | | |
| | | | | | 1100 to 2000 | 2.3 | | | | | | |
| | SAFC881.5MWC90T | RF (RX) differential | 881.5 | 3.5 | 869 to 894 | 3.5 | 1.5 | 2.0 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 824 to 849 | 30 | | | | | | |
| | | | | | 1100 to 2000 | 28 | | | | | | |
| SAFC83.160MA40X | 1st IF | 83.160 | 5.0 | fo \pm 15kHz | 3.0 | 1.5 | N/S | 10.0 | 850 ohm // - 2.0pF | SC511 | TC, TC11 | |
| | | | | 83.04 to 83.10 | 20 min. | | | | | | | |
| | | | | 83.22 to 83.28 | 20 min. | | | | | | | |
| SAFC83.160MC40X | 1st IF | 83.160 | 5.0 | fo \pm 15kHz | 3.0 | 1.5 | N/S | 8.0 | 850 ohm // - 2.0pF | SC511 | TC, TC11 | |
| | | | | 83.04 to 83.10 | 20 min. | | | | | | | |
| | | | | 83.22 to 83.28 | 20 min. | | | | | | | |
| SAFC85.380ME35X | 1st IF | 85.38 | 5.5 | fo \pm 13kHz | 3 | 1.5 | N/S | 10 | 870 ohm // - 1.7pF | SC59 | TC, TC11, TC04 | |
| | | | | 85.26 to 85.32 | 25 | | | | | | | |
| | | | | 85.44 to 85.50 | 25 | | | | | | | |
| SAFC130.4MSC10T | 1st IF | 130.38 | 5.5 | fo \pm 630kHz | 3 | N/S | N/S | 0.8 | 435 ohm // 0.8uH | SC57 | TC, TC11, TC04 | |
| | | | | 135.33 | 40 | | | | | | | |
| | | | | 139.65 to 140.91 | 45 | | | | | | | |
| PCS | SAFC1960ML1C0T | RF (RX) | 1960 | 4.5 | 1930 to 1990 | 4.5 | 3.0 | 2.5 | - | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 1850 to 1910 | 15 | | | | | | |
| | | | | | 1719 to 1780 | 23 | | | | | | |
| | SAFC1880ML1C0T | RF (TX) | 1880 | 4.5 | 1850 to 1910 | 4.5 | 3.0 | 2.5 | - | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 1930 to 1990 | 9 | | | | | | |
| | | | | | 3860 to 3980 | 14 | | | | | | |
| | SAFC1867.5T1897.5ML80T | RF split TX | 1867.5 | 2.8 | 1850 to 1885 | 2.8 | 1.8 | 1.8 | - | 50 ohm // OpF | SC44 dual type | TC, TC04, TC11 |
| | | | 1897.5 | 2.8 | 1930 to 1965 | 30 | | | | | | |
| | | | | | 3700 to 3770 | 20 | | | | | | |
| | SAFC210.38MWJ50X | IF differential | 210.38 | 8.5 | 209.75 to 211.01 | 5.0 | - | 1.0 | - | in 775 ohm // 68nH out 465 ohm // 54nH | SC513 | TC02, TC11 |
| | | | | | 130 to 209.13 | 33 | | | | | | |
| | | | | | 211.63 to 270 | 33 | | | | | | |
| GSM | SAFC902.5MA90N | RF (TX) | 902.5 | 4 | 890 to 915 | 4 | 1.7 | 2.5 | N/S | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 935 to 960 | 20 | | | | | | |
| | SAFC902.5MC90T | RF (TX) | 902.5 | 3.5 | 890 to 915 | 3.5 | 1.5 | 2.1 | N/S | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 935 to 960 | 25 | | | | | | |
| | SAFC902.5MWC90T | RF (TX) differential | 902.5 | 3.5 | 1500 to 2000 | 40 | 1.5 | 2.3 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 890 to 915 | 3.5 | | | | | | |
| | SAFC947.5MC90T | RF (TX) | 947.5 | 3.5 | 935 to 960 | 3.5 | 1.5 | 2.3 | N/S | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 890 to 915 | 35 | | | | | | |
| | SAFC947.5MD90T | RF (TX) | 947.5 | 3.5 | 1500 to 2000 | 40 | 1.5 | 2.2 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 935 to 960 | 3 | | | | | | |
| | SAFC947.5MWC90T | RF (TX) differential | 947.5 | 3.8 | 890 to 915 | 20 | 1.5 | 2.3 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 890 to 915 | 35 | | | | | | |
| EGSM | SAFC942.5MD1C0T | RF (RX) | 942.5 | 3.0 | 925 to 960 | 3.0 | 1.7 | 2.8 | - | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 880 to 905 | 18 | | | | | | |
| | | | | | 1850 to 2500 | 30 | | | | | | |
| | SAFC942.5MYJ1C0T | RF (RX) | 942.5 | 4.3 | 925 to 960 | 4.3 | 2.2 | 2.8 | - | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 980 to 1100 | 23 | | | | | | |
| | | | | | 1600 to 2500 | 25 | | | | | | |
| | SAFC1842.5ML1C0T | RF (RX) | 1842.5 | 4.5 | 1805 to 1880 | 4.5 | 3.0 | 2.5 | - | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 1600 to 1710 | 35 | | | | | | |
| | | | | | 1980 to 3000 | 20 | | | | | | |
| | SAFC942.5T1842.5ML80T | RF (RX) EGSM | 942.5 | 3.7 | 925 to 960 | 3.7 | 2.5 | 2.7 | - | 50 ohm // OpF | SC44 dual type | TC, TC04, TC11 |
| | | | | | 880 to 905 | 15 | | | | | | |
| | | RF (RX) GSM1800 | 1842.5 | 4.2 | 1600 to 2000 | 25 | 2.5 | 2.7 | - | 50 ohm // OpF | SC44 dual type | TC, TC04, TC11 |
| 1805 to 1880 | 4.2 | | | | | | | | | | | |
| SAFC246.000MC30X | 1st IF | 246 | 5 | fo \pm 80kHz | 3 | 1.0 | N/S | 2.5 | 420 ohm // - 3.6pF | SC59 | TC, TC04, TC11 | |
| | | | | 245.6 and 246.4 | 25 | | | | | | | |
| | | | | 243 and 249 | 40 | | | | | | | |

N/S: Not Specified.

¹Tape codes and package quantities defined at the end of the SAW section of this catalog.

*IL for IF filters is guaranteed at center frequency relative to 0dB reference. I.L. for RF filters is guaranteed across the pass band relative to 0dB reference level.

**Attenuation for IF filters is relative to center frequency loss. Attenuation for RF filters is relative to 0dB reference level.

CG01-H

345

FILTERS

CERAMIC MICROWAVE FILTERS SAW FILTERS SPECIFICATIONS



Innovator in Electronics
SAF Series

| Type | Part Number | Function | Center Freq. (MHz) | I.L. (dB) max.* | Bandwidth (MHz) | Attenuation (dB) | Ripple (dB) max. | VSWR | Max. GDT (μs) | Input/Output Impedance | Pkg. Style | Tape Code† |
|----------------|-----------------------|---------------|--------------------|-----------------|---------------------------|------------------|------------------|------|---------------|------------------------|------------------|------------------------|
| ISM 915 | SAFC903MF90T | TX or RX | 903 | 4.5 | 902 to 904 | 4.5 | 1.5 | - | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 926 to 928 | 35 | | | | | | |
| | | | | | 944 to 948 | 40 | | | | | | |
| | SAFC927MF90T | TX or RX | 927 | 4.5 | 926 to 928 | 4.5 | 1.5 | - | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 902 to 904 | 35 | | | | | | |
| | | | | | 968 to 972 | 40 | | | | | | |
| | SAFC915MA70N | RF | 915.0 | 4.5 | 902 to 928 | 4.5 max. | 2.0 | N/S | N/S | 50 ohm // OpF | SC44 | TC00, TC04, TC11 |
| | | | | | 790 to 860 | 30 min. | | | | | | |
| | | | | | 970 to 1040 | 20 min. | | | | | | |
| DECT | SAFU110.6MSA40T | 1st IF | 110.592 | 4.5 | $f_0 \pm 576\text{MHz}$ | 3.0 | N/S | N/S | 0.7 | 300 ohm 1.2μH | SU511 | TC, TC11 |
| | | | | | $f_0 \pm 1.15\text{MHz}$ | 10 min. | | | | | | |
| | | | | | $f_0 \pm 1.728\text{MHz}$ | 30 min. | | | | | | |
| LMR | SAFC815.5MA70N | RF | 815.5 | 4.0 | 806 to 825 | 4.0 max. | 2.0 | 2.5 | N/S | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 761 to 780 | 20 min. | | | | | | |
| | | | | | 851 to 870 | 20 min. | | | | | | |
| | SAFC860.5MA70N | RF | 860.5 | 4.0 | 851 to 870 | 4.0 max. | 2.0 | 2.5 | N/S | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 806 to 825 | 20 min. | | | | | | |
| | | | | | 896 to 915 | 15 min. | | | | | | |
| RKE | SAFC315MF70T | RF (RX) | 315 | 3.0 | 314.7 to 315.3 | 3.0 | 1.5 | 2.0 | - | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 293 to 293.9 | 50 | | | | | | |
| | | | | | 357.5 to 358.7 | 50 | | | | | | |
| | SAFC869MF70T | RF (RX) | 869 | 4.5 | 868 to 870 | 4.5 | 1.5 | - | - | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 825 to 828 | 40 | | | | | | |
| | | | | | 910 to 913 | 40 | | | | | | |
| | SAFC864MF70T | RF (RX) | 864 | 4.5 | 863 to 865 | 4.5 | 1.5 | - | - | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 820 to 823 | 40 | | | | | | |
| | | | | | 905 to 908 | 40 | | | | | | |
| | SAFC434MC70T | RF (RX) | 433.9 | 4.5 | 433.05 to 434.7 | 4.5 | 1.5 | 2.0 | - | 50 ohm // OpF | SC44 | TC, TC04, TC11 |
| | | | | | 389 to 392 | 50 | | | | | | |
| | | | | | 475.5 to 478.5 | 50 | | | | | | |
| GPS | SAFC1575MB1C0S | RF (RX) | 1575.5 | 2.8 | 1574 to 1577 | 2.8 | 1.3 | 3.0 | N/S | 50 ohm // OpF | SC33 low profile | TC00, TC05, TC12 |
| | | | | | 1382 to 1397 | 35 | | | | | | |
| | | | | | 1478 to 1487 | 25 | | | | | | |
| | SAFC90MA31N | IF | 90 | 6.5 | $90 \pm 1\text{MHz}$ | 3.0 | 2.0 | - | 0.5 | 365 ohm // - 0.7pF | SC59 | TC, TC04, TC11 |
| PDC 800 | SAFC950MB90N | RF (TX) 800 | 950 | 4 | 940 to 960 | 4 | 2 | N/S | 2.5 | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 810 to 830 | 45 | | | | | | |
| | | | | | 1050 to 2000 | 35 | | | | | | |
| | SAFC950MC90T | RF (TX) | 950 | 3.5 | 940 to 960 | 3.5 | 1.5 | 2.5 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 810 to 830 | 48 | | | | | | |
| | | | | | 1050 to 2000 | 35 | | | | | | |
| | SAFC820ME90N | RF (RX) 800 | 820 | 2.5 | 810 to 830 | 2.5 | 1.5 | N/S | 2.5 | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 940 to 960 | 32 | | | | | | |
| | | | | | 1100 to 2000 | 22 | | | | | | |
| | SAFC820MD90T | RF (RX) | 820 | 2.2 | 810 to 830 | 2.2 | 1.3 | 2.5 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 940 to 960 | 30 | | | | | | |
| | | | | | 1100 to 2000 | 22 | | | | | | |
| PDC 1.5 | SAFS1441MC1B0T | RF (TX) | 1441 | 2.7 | 1429 to 1453 | 2.7 | 1.5 | 2.3 | - | 50 ohm // OpF | SC22 | TC00, TC05, TC12 |
| | | | | | 1477 to 1501 | 15 | | | | | | |
| | | | | | 1783 to 1808 | 32 | | | | | | |
| | SAFC1489MC90S | RF (RX) | 1489 | 2 | 1477 to 1501 | 2 | 1.2 | N/S | 2.7 | 50 ohm // OpF | SC33 | TC00, TC05, TC11, TC12 |
| | | | | | 1429 to 1453 | 15 | | | | | | |
| | | | | | 1737 to 1761 | 35 | | | | | | |
| | SAFC1489MC1B0T | RX | 1489 | 2.7 | 1477 to 1501 | 2.7 | 1.5 | 2.3 | - | 50 ohm // OpF | SS22 | TC00, TC05, TC12 |
| | | | | | 1429 to 1453 | 15 | | | | | | |
| | | | | | 1735 to 1766 | 35 | | | | | | |
| PDC Multi-band | SAFC895.5T942.5MF1D0T | RF (TX) 895.5 | 895.5 | 4.0 | 893 to 898 | 4.0 | 2.1 | 2.5 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC12 |
| | | | | | 810 to 830 | 22 | | | | | | |
| | | | | | 1778 to 1796 | 20 | | | | | | |
| | | RF (TX) 942.5 | 942.5 | 3.5 | 925 to 960 | 3.5 | 2.3 | 3.2 | - | 50 ohm // OpF | dual type | |
| | | | | | 870 to 885 | 18 | | | | | | |
| | | | | | 1850 to 1920 | 10 | | | | | | |
| | SAFC826.5T877.5MF1D0T | RF (TX) 826.5 | 826.5 | 2.7 | 810 to 843 | 2.7 | 1.6 | 2.6 | - | 50 ohm // OpF | SC33 | TC00, TC05, TC12 |
| | | | | | 893 to 960 | 24 | | | | | | |
| | | | | | 1300 to 2000 | 12 | | | | | | |
| | | RF (TX) 877.5 | 877.5 | 2.7 | 870 to 885 | 2.7 | 1.3 | 2.6 | - | 50 ohm // OpF | dual type | |
| | | | | | 925 to 960 | 26 | | | | | | |
| | | | | | 1300 to 2000 | 23 | | | | | | |
| PDC All | SAFC130.000MA1G0X | IF | 130.0 | 5.5 | $130 \pm 16\text{kHz}$ | 3.0 | 0.5 | - | 5 | 740 ohm // - 1.1pF | SC36 | TC05, TC11 |
| | | | | | $130 \pm 100\text{kHz}$ | 22 | | | | | | |
| | | | | | $130 \pm 200\text{kHz}$ | 40 | | | | | | |

N/S: Not Specified.

†Tape codes and package quantities defined at the end of the SAW section of this catalog.

*IL for IF filters is guaranteed at center frequency relative to 0dB reference. I.L. for RF filters is guaranteed across the pass band relative to 0dB reference level.

**Attenuation for IF filters is relative to center frequency loss. Attenuation for RF filters is relative to 0dB reference level.

CERAMIC MICROWAVE FILTERS SAW FILTERS SPECIFICATIONS



SAF Series

| Type | Part Number | Function | Center Freq. (MHz) | I.L. (dB) max.* | Bandwidth (MHz) | Attenuation (dB) | Ripple (dB) max. | VSWR | Max. GDT (μs) | Input/Output Impedance | Pkg. Style | Tape Code ¹ | |
|----------------|----------------|----------------|--------------------|-----------------|-----------------|------------------|------------------|------|-------------------|------------------------|--------------------|------------------------------|------------------------|
| JAPAN CDMA | SAFC906ML90T | RF (TX) | 906 | 4.5 | 887 to 925 | 4.5 | 2.8 | 2.8 | - | 50 ohm // 0pF | SC33 | TC00, TC05, TC11, TC12 | |
| | | | | | 832 to 870 | 30 | | | | | | | |
| | | | | | 2661 to 2775 | 20 | | | | | | | |
| | SAFC851ML90T | RF (RX) | 851 | 4.5 | 832 to 870 | 4.5 | 3.0 | 2.8 | - | 50 ohm // 0pF | SC33 | TC00, TC05, TC11, TC12 | |
| KOREA PCS | SAFC1765MF90T | RF (TX) | 1765 | 3.5 | 1750 to 1780 | 3.5 | 2.0 | 2.4 | - | 50 ohm // 0pF | SC33 | TC00, TC05, TC11, TC12 | |
| | | | | | 1840 to 1870 | 30 | | | | | | | |
| | | | | | 3500 to 3560 | 25 | | | | | | | |
| | SAFC1855MF90T | RF (RX) | 1885 | 3.5 | 1840 to 1870 | 3.5 | 2.0 | 2.4 | - | 50 ohm // 0pF | SC33 | TC00, TC05, TC11, TC12 | |
| CT-1 | SAFC886ME70T | RF | 886.0 | 3.5 | 884 to 888 | 3.5 max. | 1.5 | N/S | N/S | 50 ohm // 10nH | SC44 | TC, TC04, TC11 | |
| | | | | | 840 to 846 | 40 min. | | | | | | | |
| | SAFC931ME70T | RF | 931.0 | 3.5 | 929 to 933 | 3.5 max. | 1.5 | N/S | N/S | 50 ohm // 10nH | SC44 | TC, TC04, TC11 | |
| | SAFC914ME70T | RF | 914.0 | 3.5 | 884 to 891 | 40 min. | 1.5 | N/S | N/S | 50 ohm // 10nH | SC44 | TC, TC04, TC11 | |
| | | | | | 913 to 915 | 3.5 max. | | | | | | | |
| | SAFC959ME70T | RF | 959.0 | 3.5 | 934 to 937 | 15 min. | 1.5 | N/S | N/S | 50 ohm // 10nH | SC44 | TC, TC04, TC11 | |
| | | | | | 958 to 960 | 3.5 max. | | | | | | | |
| | | | | | 936 to 939 | 30 min. | | | | | | | |
| | PAGER | SAFC139MC70N | RF (RX) | 1575.5 | 2.8 | 979 to 982 | 20 min. | 1.3 | 3.0 | N/S | 50 ohm // 0pF | SC33 | TC00, TC05, TC12 |
| | | | | | | 1574 to 1577 | 2.8 | | | | | | |
| | | | | | | 1382 to 1397 | 35 | | | | | | |
| | | SAFC146MC70N | IF | 90 | 6.5 | 1478 to 1487 | 25 | 2.0 | - | 0.5 | 365 ohm // - 0.7pF | SC59 | TC, TC04, TC11 |
| 90 ± 1MHz | | | | | | 3.0 | | | | | | | |
| 84 to 85 | | | | | | 25 | | | | | | | |
| SAFC154MC70N | | RF (TX) 800 | 950 | 4 | 95 to 96 | 25 | 2 | N/S | 2.5 | 50 ohm // 0pF | SC33 | TC12 | |
| | | | | | 940 to 960 | 45 | | | | | | | |
| | | | | | 810 to 830 | 45 | | | | | | | |
| SAFC162MC70N | | RF (TX) | 950 | 3.5 | 1050 to 2000 | 35 | 1.5 | 2.5 | - | 50 ohm // 0pF | SC33 | TC00, TC05, TC11, TC12 | |
| | | | | | 940 to 960 | 3.5 | | | | | | | |
| | | | | | 810 to 830 | 48 | | | | | | | |
| SAFC171MC70N | RF (RX) 800 | 820 | 2.5 | 1050 to 2000 | 35 | 1.5 | N/S | 2.5 | 50 ohm // 0pF | SC33 | TC12 | | |
| | | | | 810 to 830 | 2.5 | | | | | | | | |
| | | | | 940 to 960 | 32 | | | | | | | | |
| SAFC280ME70N | RF | 280.0 | 4.5 | 1100 to 2000 | 22 | 2.0 | N/S | N/S | 230 ohm // - .2pF | SC44 | TC, TC04 TC11 | | |
| | | | | 275 to 285 | 4.5 max. | | | | | | | | |
| | | | | 180 to 242.5 | 48 min. | | | | | | | | |
| SAFC281ME70N | RF | 281.0 | 4.5 | 317.5 to 380 | 40 min. | 2.0 | N/S | N/S | 230 ohm // - .2pF | SC44 | TC, TC04 TC11 | | |
| | | | | 276 to 286 | 4.5 max. | | | | | | | | |
| | | | | 181 to 243.5 | 48 min. | | | | | | | | |
| SAFC284ME75N | RF | 284.0 | 4.5 | 318.5 to 381 | 40 min. | 2.0 | N/S | N/S | 230 ohm // - .2pF | SC44 | TC, TC04 TC11 | | |
| | | | | 280 to 288 | 4.5 max. | | | | | | | | |
| | | | | 184 to 246.5 | 48 min. | | | | | | | | |
| SAFC930.5ME70T | RF | 930.5 | 4.5 | 321.5 to 384 | 40 min. | 2.0 | N/S | N/S | 50 ohm // 10nH | SC44 | TC, TC04 TC11 | | |
| | | | | 928.8 to 932.2 | 4.5 max. | | | | | | | | |
| | | | | 884.8 to 890.2 | 45 min. | | | | | | | | |
| | | | | | 906.8 to 911.2 | 30 min. | | | | | | | |

N/S: Not Specified.

¹Tape codes and package quantities defined at the end of the SAW section of this catalog.

*IL for IF filters is guaranteed at center frequency relative to 0dB reference. I.L. for RF filters is guaranteed across the pass band relative to 0dB reference level.

**Attenuation for IF filters is relative to center frequency loss. Attenuation for RF filters is relative to 0dB reference level.

CERAMIC MICROWAVE FILTERS
SAW FILTERS
ENVIRONMENTAL SPECIFICATIONS



SAF Series

MECHANICAL

| TEST ITEM | PACKAGE | TEST CONDITIONS | TEST METHOD |
|-------------------|---------|---|--------------------------|
| Terminal Strength | SMD | Filter is soldered onto the center of PCB which is laid on two small supporters spaced 90mm apart. The PCB is deflected to 1mm below the horizontal level by the pressing stick for 1 second and repeated 5 times. | |
| | LEADED | A force of 1.0 Kg shall be applied to each terminal in the direction of the axis of terminal for 30 ± 5 seconds. A force of 250 gf is applied to each lead in axial direction. The lead shall be bent 90 degrees to one direction, then in opposite direction and returned to the original position. | |
| Solderability | BOTH | Lead terminals are immersed in methanol with 7 to 10% of rosin flux for about 5 seconds, then immersed in soldering bath at $230 \pm 5^\circ\text{C}$ for 5 ± 0.5 seconds. | MIL-STD-202E Method 208C |
| Random Drop | BOTH | Drop 3 times on concrete floor from 1.0 meter, (30cm for some products). | |
| Vibration | BOTH | Vibration amplitude of 1.5mm at 10-55Hz in each of three mutually perpendicular directions for 1 hour. | MIL-STD-201E Method 201A |

ENVIRONMENTAL

| TEST ITEM | PACKAGE | TEST CONDITIONS | TEST METHOD |
|------------------------------|---------|--|--------------------------|
| Salt Spray | BOTH | Hold in chamber with 5% salt density at $35^\circ\text{C} \pm 1.1^\circ\text{C}$ for 48 hours. Measure after exposure to room condition for 1 hour. | MIL-STD-202E Method 101D |
| Temperature Cycling | BOTH | Exposure to 5 cycles of -55°C (30 minutes) $\rightarrow +25^\circ\text{C}$ (15 minutes), $\pm 85^\circ\text{C}$ (30 minutes) $\rightarrow +25^\circ\text{C}$ (15 minutes). Test after 2 hours exposure to room conditions. | MIL-STD-202E Method 102A |
| Humidity | BOTH | Hold in chamber with 90 to 95% R.H. at $40 \pm 2^\circ\text{C}$ for 100 hours. Test after 2 hours exposure to room conditions. | MIL-STD-202E Method 103B |
| Operating Humidity | BOTH | Hold in chamber with 90 to 95% R.H. at $40 \pm 2^\circ\text{C}$ for 100 hours at 6VDC. Test after 2 hours exposure to room conditions. | MIL-STD-202E |
| Thermal Shock | BOTH | Expose to 5 cycles of -55°C (30 minutes) $\rightarrow +85^\circ\text{C}$ (30 minutes). Test after 2 hours exposure to room conditions. | MIL-STD-202E Method 107D |
| Life Test (High) | BOTH | Hold in chamber at $85 \pm 2^\circ\text{C}$ for 100 hours. Test after exposure to room conditions for 2 hours. | MIL-STD-202E Method 108A |
| Life Test (Low) | BOTH | Hold in chamber at $-30 \pm 2^\circ\text{C}$ for 100 hours. Test after exposure to room conditions for 2 hours. | MIL-STD-202E Method 108A |
| Operating Life Test | BOTH | Hold in chamber at $85 \pm 2^\circ\text{C}$ for 100 hours at 6VDC. Test after exposure to room conditions for 2 hours. | |
| Sulfuration | BOTH | Hold in chamber with 1000ppm sulfur density for 24 hours. Test after exposure to room conditions for 2 hours. | |
| Resistance to Soldering Heat | SMD | Filter shall be preheated at $150 \pm 20^\circ\text{C}$ for 60 seconds, immersed whole electrode in soldering bath at $240 \pm 5^\circ\text{C}$ for 3 ± 1 seconds, then measured after exposure to room conditions for 2 hours. | MIL-STD-202E Method 210A |
| | LEADED | Lead terminals are immersed up to 1.5mm from package base in soldering bath at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds, then measured after exposure to room conditions for 2 hours. | |

ELECTRICAL

| TEST ITEM | PACKAGE | TEST CONDITIONS | TEST METHOD |
|---------------------------------|---------|--|-------------------------|
| Dielectric Withstanding Voltage | BOTH | Apply 100VDC between I/O terminals and ground terminal, for 1 minute. | MIL-STD-202E |
| Insulation Resistance | BOTH | Apply 100VDC between I/O terminals and ground terminal, for 1 minute. | MIL-STD-202E Method 302 |
| Temperature Characteristics | SMD | Filter shall be measured between -10°C to $+60^\circ\text{C}$ temperature range. | |
| | LEADED | Filter shall be measured between -10°C to $+50^\circ\text{C}$ temperature range. | |