TF0103 Digitally Tunable LC Filters
30MHz – 90MHz – typical performance

...when timing matters

I. General & Electrical Requirements

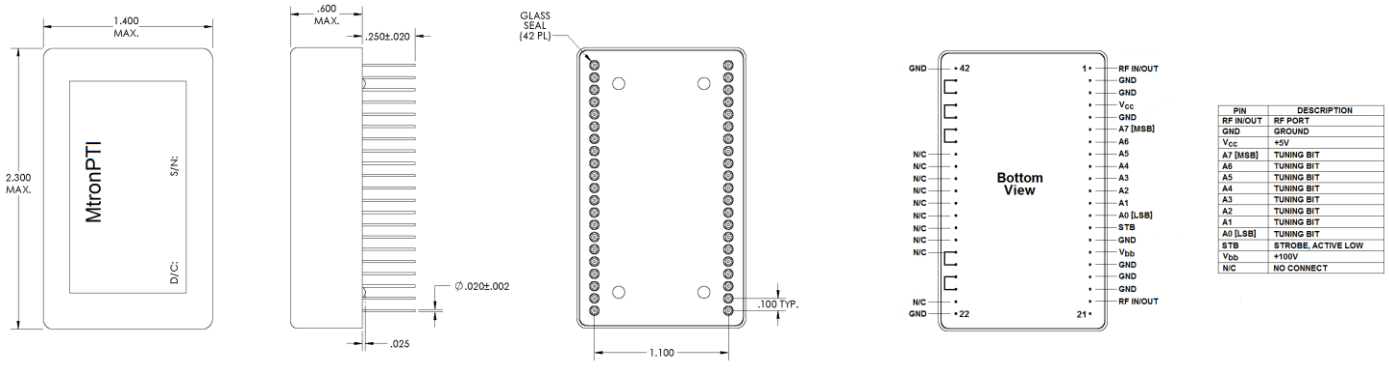
1. Tuned Center Frequency Range (F_{COM}) [Note 1]:
   F_{MIN} = 30MHz to F_{MAX} = 90MHz in 250-steps, F_{STEP} = 240kHz
2. Passband @ 3dB: F_{SIG} ±200kHz
3. Passband Insertion Loss: ≤ 3.6dB
4. Passband Variation (peak-valley): ≤ 0.3dB
5. Input/Output VSWR (within the F_{SIG} Bandwidth into 50Ω): < 2.0:1
6. Absolute Stop Band Attenuation:
   F_{SIG} ±10%: 16dB minimum
   F_{SIG} ±15%: 22dB minimum
   F_{SIG} ±20%: 27dB minimum
   1.6MHz to ½ F_{TUNE}: 40dB minimum
   2x F_{SIG} to < 750MHz: 35dB minimum
   750MHz to 1.2GHz: 25dB minimum
   1.2GHz to 2.0GHz: 15dB minimum
7. In-Band IIP3: +45dBm minimum
8. In Band RF Power Handling: ≤ 1.25-watts (+31dBm) CW
9. Out of Band RF Power Handling: 5-watts (+37dBm) CW, ≥ ±10% from F_{TUNE}
10. Z_{IN}/Z_{OUT}: 50Ω nominal
11. Tuning Method:
    Digital Control: 250-steps, 8-bit parallel
    Tuning Speed: < 25*μsec*
12. DC Power:
    V_1: +5V_{DC} ±5%
    I_1: < 275*mA*
    V_2: 100V_{DC} ±5% [Note 2]
    I_2: 1.5*mA* typical

Note 1:
F_{SIG} = Frequency of the signal,
Where; F_{COM} is the target command frequency that the filter will be directed to.
F_{COM} = Integer$((F_{SIG}- F_{MIN})/ F_{STEP})* F_{STEP} + F_{MIN}$

Note 2:
V_2 = 100V, the filter command and tune frequencies are set up with 100V applied and the filter is fully compliant to these specification. For V_2 = 50V (I2 = 1.5mA), the filter will be functional but the filter command frequency may have greater error. Power handling and linearity will be degraded.

II. Environmental & Physical Requirements

1. Temperature Range:
   Operating: -40°C to +85°C
   Storage: -45°C to +90°C
2. Package
   Size: 2.300" (L) x 1.100: (W) x 0.600" (H)
   Style: 42-pin thru-hole



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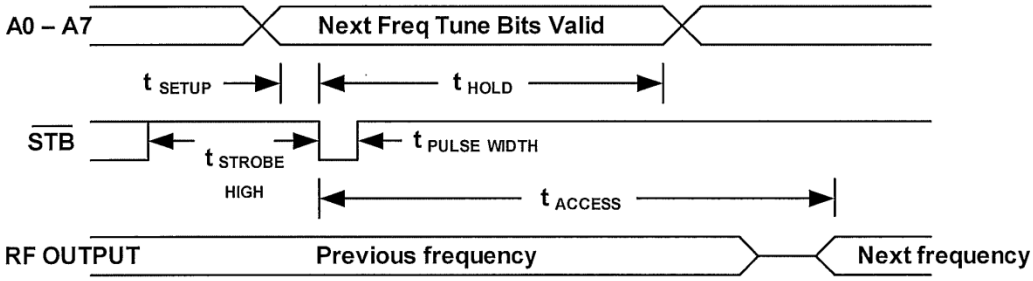
III. Interface Timing:

Input Control Timing



t_{SETUP} = 200 ns (min)

t_{HOLD} = 6 µS (min)

$t_{STROBE\ HIGH}$ = 25 µS (min)

$t_{PULSE\ WIDTH}$ = 20 ns (min)

t_{ACCESS} = 25 µS (max)

DC Control Interface Characteristics

Symbol	Parameter	Condition	Min	Max	Units
V_{IL}	Input Low Voltage	Control signals except A0 - A7	0.0	0.2 Vcc	V
V_{IH}	Input High Voltage	Control signals except A0 - A7	0.7 Vcc	Vcc	V
V_{IL}	Input Low Voltage	A0 - A7	0.0	0.15 Vcc	V
V_{IH}	Input High Voltage	A0 - A7	0.7 Vcc	Vcc	V

IV. Data Sheet Revision:

Date	Rev.	Author	Details of Revision
06/25/13	-	BRM	Original Draft.

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