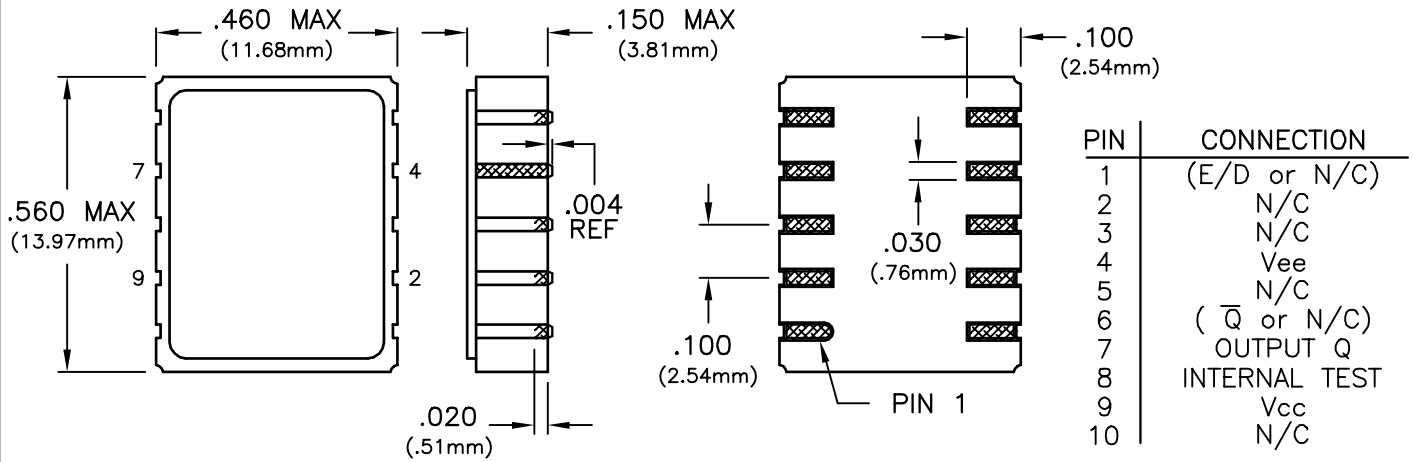
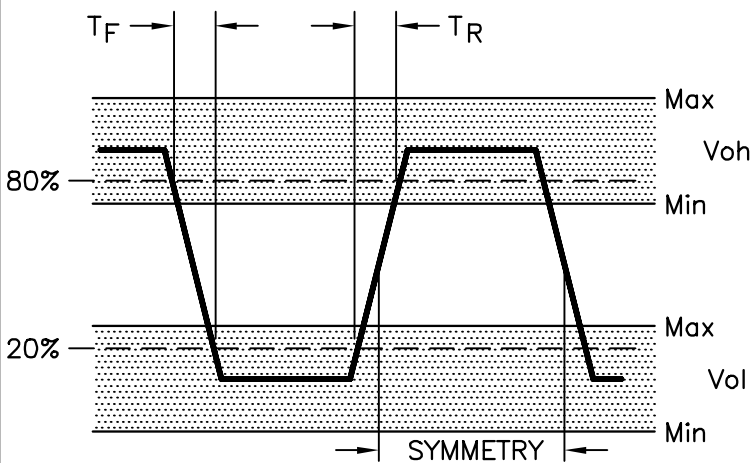


**SM ECL PLL FREQUENCY MULTIPLIER**

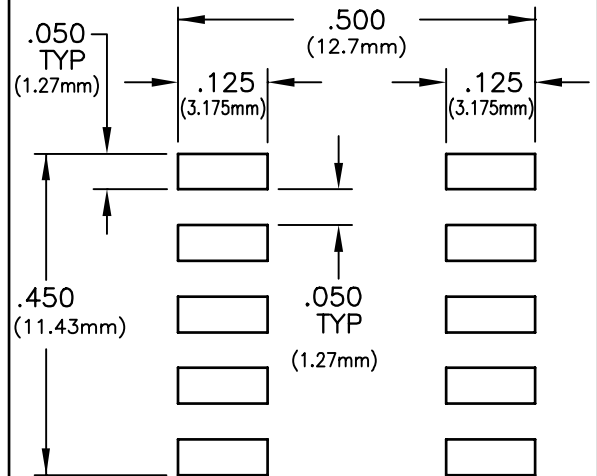
| SPECIFICATIONS                            | GA91-52*   | GA91-53*   | GA91-54*                      | GA91-62*   | GA91-63* | GA91-64* |  |
|---|--|--|-------------------------------|--|----------|----------|--|
| Available Frequency Ranges                | 120 to 135 MHz<br>144 to 168 MHz<br>174 to 205 MHz<br>232 to 270 MHz<br>288 to 336 MHz<br>348 to 410 MHz<br>464 to 540 MHz<br>576 to 672 MHz |  |                               | 144 to 168 MHz<br>174 to 205 MHz<br>288 to 336 MHz<br>348 to 410 MHz<br>576 to 672 MHz |          |          |  |
| Frequency Stability                       | ±50ppm   | ±100ppm  | ±20ppm                        | ±50ppm   | ±100ppm  | ±20ppm   |  |
|   | Inclusive of calibration tolerance at 25°, operating temperature range, supply voltage change, load change, aging, shock and vibration.      |  |                               |  |          |          |  |
| Operating Temp Range                      | 0°C to +70°C   |  |                               | -40°C to +85°C   |          |          |  |
| Storage Temp Range                        | -55°C to +125°C  |  |                               |  |          |          |  |
| Output                                    | Waveform   | ECL Squarewave , 100K Compatible   |                               |  |          |          |  |
|   | Load   | Output must be terminated into 50 Ohms to -2Vdc.   |                               |  |          |          |  |
|   | Voltage  | Voh  | -1.0V Minimum , -0.5V Maximum |  |          |          |  |
|   |  | Vol  | -2.1V Minimum , -1.6V Maximum |  |          |          |  |
|   | Symmetry   | 45/55 Maximum measured at 50% level  |                               |  |          |          |  |
|   | Rise/Fall Time   | 750pS Maximum  |                               |  |          |          |  |
|   | Jitter   | 10pS rms Maximum   |                               |  |          |          |  |
|   | SSB Phase Noise  | -100dBc/Hz typical @ 10KHz offset  |                               |  |          |          |  |
| Enable/<br>Disable<br>Option<br>(Pin 1):  | Enable (Vil)   | -4.5Vdc Maximum  |                               |  |          |          |  |
|   | Disable (Vih)  | -3.5Vdc Minimum  |                               |  |          |          |  |
|   |  | Q (Pin 7) disables to low state, Option $\bar{Q}$ (Pin 6) disables to high state. When Pin 1 is floating, output is in disabled state. |                               |  |          |          |  |
| Supply Voltage (Vee)                      | -5.2Vdc ±5%  |  |                               |  |          |          |  |
| Supply Current                            | 100mA Maximum  |  |                               |  |          |          |  |
| Package                                   | Hermetically sealed, leadless ceramic package  |  |                               |  |          |          |  |
| Options<br>* - add suffix to model number | 0  | No Connection on Pin 1 and Pin 6   |                               |  |          |          |  |
|   | 1  | Complementary Output on Pin 6 , N/C on Pin 1   |                               |  |          |          |  |
|   | 2  | Enable/Disable on Pin 1 , N/C on Pin 6   |                               |  |          |          |  |
|   | 3  | Enable/Disable on Pin 1 , Complementary Output on Pin 6  |                               |  |          |          |  |



**OUTPUT WAVEFORM**



**SUGGESTED PAD LAYOUT**



**TEST CIRCUIT**

