



## CL1L, CL2L series, surface-mount thin film delay lines



This series permits ultra-precision timing adjustment from 20 to 200 picoseconds with accuracy of  $\pm$  picoseconds for ultrahigh-speed signal processing applications.  
Differential delay line: CL2L

RoHS compliant

Completely lead free

### SPECIFICATIONS

#### Mechanical



#### Electrical

| Type                     | CL1L5                                                                | CL2LA                     |
|--------------------------|----------------------------------------------------------------------|---------------------------|
| Time Delay               | 40~220ps(20ps step)                                                  |                           |
| Time Delay Tolerance     | $\pm 10\%$                                                           |                           |
| Temp. coefficient of Td  | $\pm 100\text{ppm}/^\circ\text{C}$                                   |                           |
| Characteristic Impedance | $50\Omega \pm 10\%$                                                  | $100\Omega \pm 10\%$      |
| DC Resistance            | 0.3 $\Omega$ (100ps or less)<br>3.0 $\Omega$ /ns max (100ps or more) | 1.0 $\Omega$ Max.         |
| Insertion loss           | 0.5dB or less (at 0.75GHz)                                           | 0.5dB or less (at 1.0GHz) |
| Rated Current            | 100mA                                                                |                           |
| Rated Current            | $-40^\circ\text{C} \sim 85^\circ\text{C}$                            |                           |

#### Equivalent circuit



### PART NUMBER

CL 1L 5 A T 020 L T1 (-C)

Given to RoHS compliant CL2LA series products  
Package(T1:100pcs, T5:500pcs, TA:1,000pcs)  
Serial code (L=CL1L5A, D=CL2LA)  
Time Delay (020=200ps)  
Termination type (T)  
Height code (A)  
Impedance (5=50 $\Omega$ , A=100 $\Omega$ )  
Number of elements (1L=CL1L5, 2L=CL2LA)  
Part Code, Number of elements



## GL1L/GL2L series, SOP (small outline package) thin film differential delay lines



These delay lines offer the same excellent frequency performance as SIP delay lines but come in a gullwinged surface mount package. The differential SMT is useful for PECL application, and contains two identical transmission lines matched for the time delay. Featuring a stripline shielded construction, these parts offer very low EMI/RFI, and are ideal for high frequency/tight tolerance timing and deskew applications.

RoHS compliant

### SPECIFICATIONS

#### Mechanical



#### Electrical

| Type                     | GL1L                                  | GL2L                                                                                              |
|--------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------|
| Time Delay               | 0.1~5.0ns(0.1ns step)                 | 0.1~3.0ns(0.1ns step)<br>3.5~4.5ns(0.5ns step)                                                    |
| Time Delay Tolerance     | $\pm 0.05\text{ns}$                   | $\pm 0.05\text{ns}$ (0.1~2.9ns)<br>$-0.5/+0.1\text{ns}$ (3.0ns)<br>$\pm 0.1\text{ns}$ (3.5~4.5ns) |
| Temp. coefficient of Td  | $0 \sim 150\text{ppm}/^\circ\text{C}$ |                                                                                                   |
| Characteristic Impedance | $50 \pm 5\Omega$                      |                                                                                                   |
| Rise/fall time           | 200ps/ns                              |                                                                                                   |
| Rated Current            | 100mA                                 |                                                                                                   |
| Characteristic Impedance | $-25 \sim 85^\circ\text{C}$           |                                                                                                   |

#### Equivalent circuit



### PART NUMBER

GL1L 5 M S 250 S -T\* (-C)

Given to RoHS compliant products  
Package(T1:100pcs, T5:500pcs)  
Circuit : S(GL1L), D(GL2L)  
Time Delay : (250=2.50ns)  
Lead Frame  
Height code  
Impedance : (5=50V)  
Part Code