

BL1L series, ball-grid-array thin film delay lines



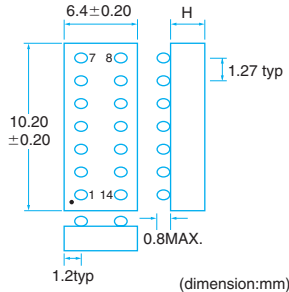
Now under development

These delay lines offer the same excellent frequency performance as GL delay lines but come in a solder bump configuration that takes up less board space than the GL series. As with all of TFT's delay lines, these feature stripline conductors on ceramic for high speed, high stability performance.



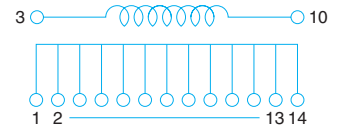
SPECIFICATIONS

Mechanical



Time Delay	H	Code
0.1~0.9n sec	1.70max	L
1.0~1.8n sec	2.30max	M
1.9~2.7n sec	2.80max	N
2.8~3.5n sec	2.90max	O

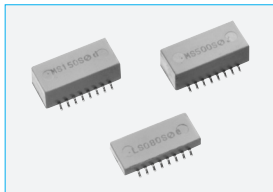
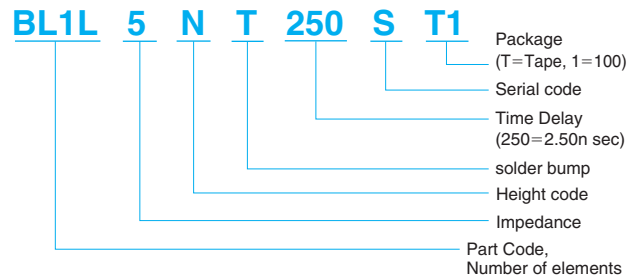
Equivalent circuit



Electrical

Type	BL1L5
Time Delay	0.1~3.5n sec.(0.1n sec. Step)
Time Delay Tolerance	±0.05n sec.
Characteristic Impedance	50±5Ω
Rated Current	100mA
DC Resistance	1.0Ω/n sec. Max.
Insulation resistance	100Ω(DC50V)
Operating Tem. Range	-40~85°C
Storage Tem. Range	-55~125°C

PART NUMBER



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

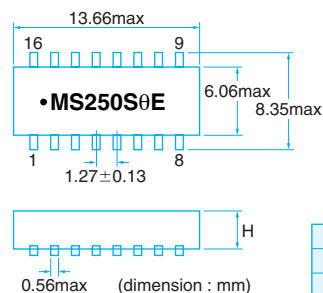


These delay lines offer the same excellent frequency performance as SIP delay lines but come in a gullwinged surface mount package. The differential SMT is useful for PECL application, and contains two identical transmission lines matched for the time delay. Featuring a stripline shielded construction,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



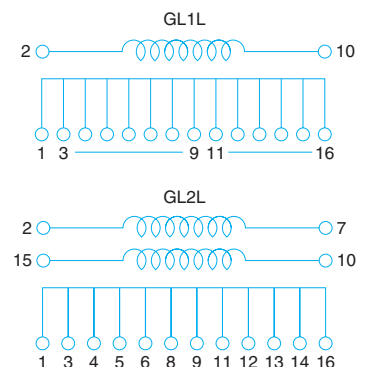
SPECIFICATIONS

Mechanical



Time Delay	H	Code
0.1~1.0ns	2.37max	L
1.1~5.0ns	4.85max	M

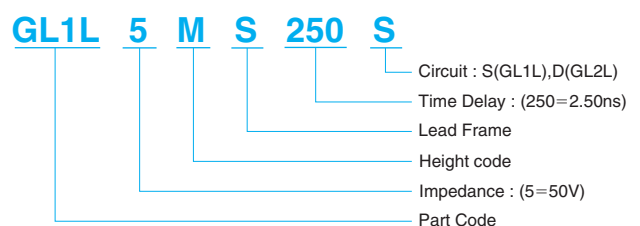
Equivalent circuit

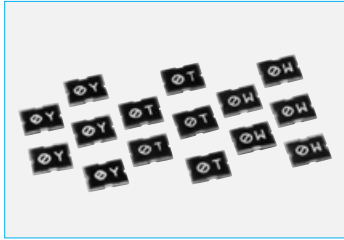


Electrical

Type	GL1L	GL2L
Time Delay	0.1~5.0ns(0.1ns step)	0.1~3.0ns(0.1ns step) 3.5~4.5ns(0.5ns step)
Time Delay Tolerance	±0.05ns	±0.05ns(0.1~2.9ns) -0.5/+0.1ns(3.0ns) ±0.1ns(3.5~4.5ns)
Temp. coefficient of Td	0~150ppm/°C	
Characteristic Impedance	50±5Ω	
Rise/fall time	200ps/ns	
Rated Current	100mA	
Operating Temperature	-25~85°C	

PART NUMBER





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

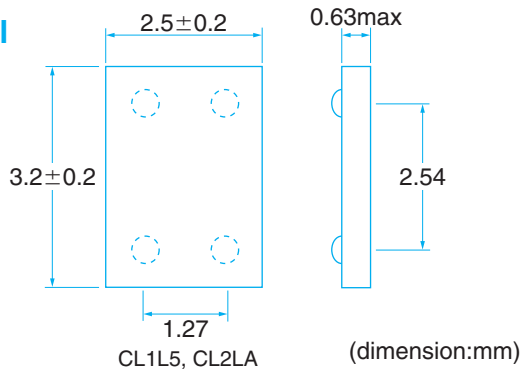


This series permits ultra-precision timing adjustment from 20 to 200 picoseconds with accuracy of $\pm$ picoseconds for ultrahigh-speed signal processing applications.
Differential delay line:CL2L

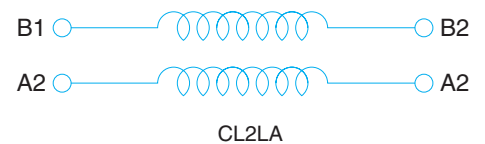
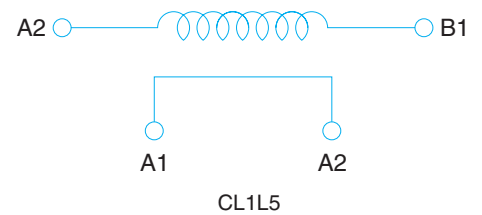


SPECIFICATIONS

Mechanical



Equivalent circuit



Electrical

Type	CL1L5	CL2LA
Time Delay	40~200ps(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	0.3Ω (100ps or less) $3.0\Omega/\text{ns}$ max(100ps以上)	1.0Ω Max.
Insertion loss	0.5dB以下(at 0.75GHz)	0.5dB or less (at 1.0GHz)
Rated Current	100mA	
Operating temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$	



PART NUMBER

CL 1L 5 A T 020 L

Serial code (L=CL1L5A, D=CL2LA)

Time Delay (020=200ps)

Termination type (T)

Height code (A)

Impedance (5=50 Ω , A=100 Ω)

Number of elements (1L=CL1L5, 2L=CL2LA)

Part Code, Number of elements