



Thin Film Technology
**Product Portfolio
 Overview**

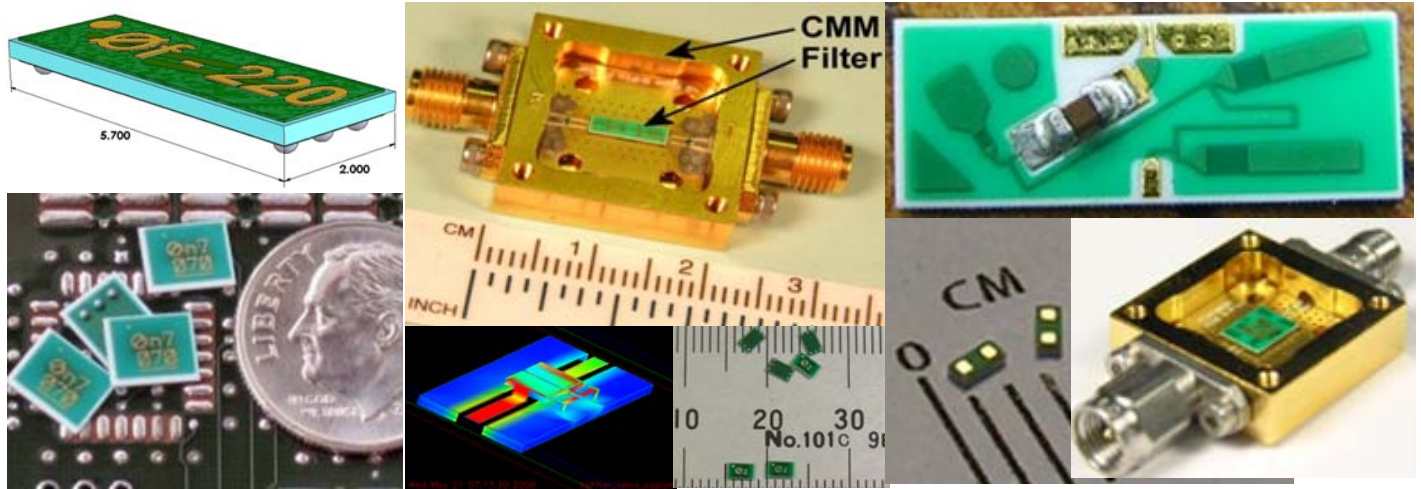


Your Full Service Passive Component Solution Provider

TFET[®]
 Thin Film Technology Corp.

Signal Integrity Products





Thin Film Technology offers several families of products which are typically used for signal integrity purposes at high frequencies. These range from Low Pass filters, Band Pass filters and High pass filters (equalizers). We also manufacture high frequency crossover chips than can operate in frequencies up to 20GHz. TFT has a great amount of experience with signal integrity so if you do not see what you need, contact us.



- Equalizers
- Low Pass Filters
- Band Pass Filters
- 40Gb/s LP Filters
- 20GHz Crossover Chips
- Attenuators
- Impedance Matching
- Power Splitters
- EMI Filters



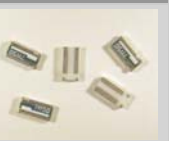
Delay Lines

Thin Film Technology offers several families of impedance matched delay lines. All of the delay lines that we manufacture are produced on high quality alumina or zirconium ceramic. These high dielectric materials allow for high delays in a small package and offer great space savings as compared to cable or board trace and they offer much greater performance as compared to lumped sum element delay lines.

Specifications	GL	HE	CL	DS	DL
Product Photo					
Package Type	16-pin DIP (Gull Wing)	BGA 0.711mm (28 mil) balls	Micro BGA 0.305mm (12 mil) balls	3-pin SIP (Thru hole)	4 or 6-pin SIP (Thru hole)
Transmission Line Type	Single ended (GL1) Coupled Differential (GL2)	Single ended (S) Dual Transmission (U) Coupled Differential (D)	Single ended (CL1) Coupled Differential (CL2)	Single ended	Single ended
Time Delay	0.1 ~ 5.0ns (GL1) 0.1 ~ 4.5ns (GL2)	0.1 ~ 0.3ns (AA) 0.4 ~ 1.2ns (AT) 0.1, 0.5 ~ 1.0ns (BA) 1.0 ~ 3.5ns (BT)	40 ~ 220ps (CL1) 40 ~ 200ps (CL2)	0.1 ~ 5.0ns (DJ) 5.5 ~ 10.0ns (VJ)	0.1 ~ 10.0ns
Time Delay Tolerance	±0.05ns (GL1) ±0.05ns (GL2 0.1~2.9ns) -0.05/+0.10ns (GL2 3.0ns) ±0.10ns (GL2 >3.0ns)	±15ps + 2% of nominal	±10ps	±0.050ns (0.10~2.0ns) ±0.125ns (2.25~5.0ns) ±0.250ns (5.5~10.0ns)	±0.05ns ±0.10ns ±0.25ns
Time Delay Increments	0.1ns steps (GL1) 0.1ns steps (GL2 <3.0ns) 0.5ns steps (GL2 >3.0ns)	0.1ns steps (AA/AT) 0.5ns steps (BA/BT)	10ps steps	0.1ns steps (0.1 ~ 2.0ns) 0.25ns steps (2.25~5.0ns) 0.50ns steps (5.5~10.0ns)	0.1ns steps 0.2ns steps 0.5ns steps







Current Sense Chip Resistors

Thin Film Technology offers several families of low ohm chip resistors that are commonly used in current sensing applications. They offer excellent performance in resistance, noise performance, surface heat distribution and a lower surface temperature. Other options are also available on some families including a higher operating temperature range to 170°C.

Specifications	RL	RL-W	RL-6	RL-L4	EL / KL	CPA0612
Product Photo						
Sizes Available (English)	0201, 0402, 0603, 0805, 1206, 2512	1508, 3008	1206, 2512	1206, 2010, 2512	0805, 1206, 2512, 3015, 3618, 4320	0612
Resistance Range (Ω)	0.018 Ω -6.8 Ω E-24 values	0.001 Ω -2.2 Ω E-6/E-24 values	0.001 Ω -0.150 Ω E-24+ values	0.003 Ω -0.500 Ω E-12+ values	0.001 Ω -0.100 Ω E-12+ values	1632
Tolerances (\pm)	0.5%, 1.0%, 2.0%, 5.0%	1.0%, 2.0%	1.0%, 2.0%, 5.0%	0.5%, 1.0%	1.0%, 2.0%, 5.0%	1.0%

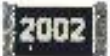



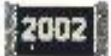
Chip Power Resistors

Thin Film Technology offers several families of chip power resistors to meet your needs. These power resistors cover both RF and DC applications. The CPA series of Chip Power Resistors offers smaller packages and are intended for DC applications. The CFN series of Chip Power Resistors offers excellent frequency performance making them ideal for RF applications. Both series offer lower thermal resistance and excellent power handling capabilities in a small package thus allowing for space savings.

Specifications	CPA1206	CPA2512	CPA2525	CFN2010	CFN2525	CFN2335
Product Photo/Diagram						
English Size	1206	2512	2525	2010	2525	2335
Resistance Range	22 Ω -120 Ω E-12 values Also available in RF 50 Ω (CFA)	3.3 Ω -120 Ω E-12 values Also available in RF 50 Ω (CFA)	3.3 Ω -180 Ω E-12 values	NA	NA	NA
Impedance	NA	NA	NA	50 Ω	50 Ω	50 Ω
Resistance/Impedance Tolerance (\pm)	1.0%	1.0%	1.0%	5.0%	5.0%	5.0%
Frequency Performance	NA	NA	NA	Return Loss < -19dB to 2.0 GHz	Return Loss < -16dB to 2.0 GHz	Return Loss < -25dB to 2.5 GHz
Rated Power	Up to 7W	Up to 16W	Up to 25W	20W	40W	100W

Chip Resistors

Thin Film Technology offers several families of high precision chip resistors. They offer excellent performance and high reliability and a competitive price. High precision resistor networks are also available.

Specifications	CR	RR	RP / RP-H	RGH	RN73
Product Photo					
Sizes Available (English)	0402, 0603, 0805, 1206	0201, 0402, 0603, 0805, 1206, 1210	0402, 0603, 0805	0402, 0603, 0805	0805
Resistance Range (Ω)	10 ~ 1M Ω E-24/96 values	10 ~ 2M Ω E-24/96 values	0.01 Ω -100 Ω E-12/24 values	47 ~ 470K Ω E-24/96 values	100 Ω ~ 100K Ω
Tolerances (\pm)	0.02%, 0.05%, 0.1%, 0.25%, 0.5%	0.1%, 0.5%, 1.0%	1.0%, 2.0%, 5.0%	0.1%, 0.5%	0.1%, 0.5%


Chip Resistors Networks

Thin Film Technology offers several families of high precision chip resistor networks. They offer excellent performance and high reliability and a competitive price. The RA1632 and RN1632 products offer resistance ratio tracking and TCR tracking while the RS1 and RS8A do not offer those parameters.

Specifications	RA1632	RN1632	RS1	RS8A
Product Photo				
Sizes Available (English)	1206 (4 elements, straight thru)	1206 (2 or 3 elements, 3 schematic types)	1206 (4 elements, straight thru)	1206 (8 elements, 10 electrodes)
Resistance Range (Ω)	50 Ω ~ 100K Ω	50 Ω ~ 200K Ω	10 Ω ~ 1M Ω	56 Ω ~ 100K Ω
Tolerances (\pm)	0.1%, 0.5%	0.1%, 0.5%	0.1%, 0.5%, 1.0%, 5.0%	5.0%

Chip Inductors

Thin Film Technology offers a tight tolerance chip inductor in a 0201 or 0402 English case size. They offer a high self-resonance frequency of 1GHz.

Specifications	HPL
Product Photo	
Sizes Available (English)	0201, 0402
Inductance Range	1.0nH ~ 39nH
Tolerances (\pm)	0.1nH, 0.2nH, 2.0%

About Thin Film Technology Corp.

Thin Film Technology began in 1979 in North Mankato, Minnesota (USA) for the purpose of supplying thin film resistor products to the computer industry. While Thin Film continues to supply a wide variety of thin film resistive products to a wide array of electronic market segments, we have also developed and sell signal integrity products intended for high speed electronics applications as well as a full line of power resistor products, for both DC and RF applications.

Mission Statement:

TFT is a leading edge solution provider of high performance passive electronic components for wireless, FTTx and power architectures, servicing; automotive, medical, military, data-communication, ATE, and aerospace markets.

TFT provides a dependable global supply of innovative components and services based on our strong commitment to enduring relationships with our customers.

TFT is committed to building and maintaining customer relationships to provide highly reliable, highly stable electronic solutions. With our capabilities, TFT services our customers by providing the entire process from simulation through mass production. We accomplish this by utilizing thin film and emerging technologies that serve today's and future electronic markets.

We embrace strong relationships and teamwork in pursuit of our mission. This ensures that our customers know that they can depend on TFT.

How to contact TFT:

Headquarters

Thin Film Technology Corp.
1980 Commerce Drive
North Mankato, MN 56003 (USA)
Phone: 1 (507) 625-8445
Fax: 1 (507) 625-3523

Website: <http://www.thin-film.com>
E-mail: sales@thin-film.com

