

Thermally Conductive Absorbers TCA10L - TCA40H



NETWORK COMMUNICATIONS | OPTOELECTRONICS | AUTOMOTIVE | WEARABLE DEVICES | 5G BASE STATION | CHIP COOLING



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Thermally Conductive Absorbers

Leader Tech's Thermally Conductive Electromagnetic Wave Absorber Pads (TCA series) are dual-function composite materials that combine thermal management and electromagnetic wave absorbing functions. They have both good elasticity and compressibility, strong surface viscosity and excellent operating range. The pads can be applied between integrated circuits, heat sinks, other heat conducting components and metal substrates. In addition to solving the problem of heat conduction in materials, it can also suppress unnecessary electromagnetic energy coupling, resonance and EMI problems caused by electromagnetic interference.

Part Series Key

L

Low Frequency

M

Medium Frequency

H

High Frequency

Applications

- Between chip and cooling module
- Optoelectronics industry
- Netcom products
- Automotive Electronics
- Wearable devices
- 5G base station

Benefits

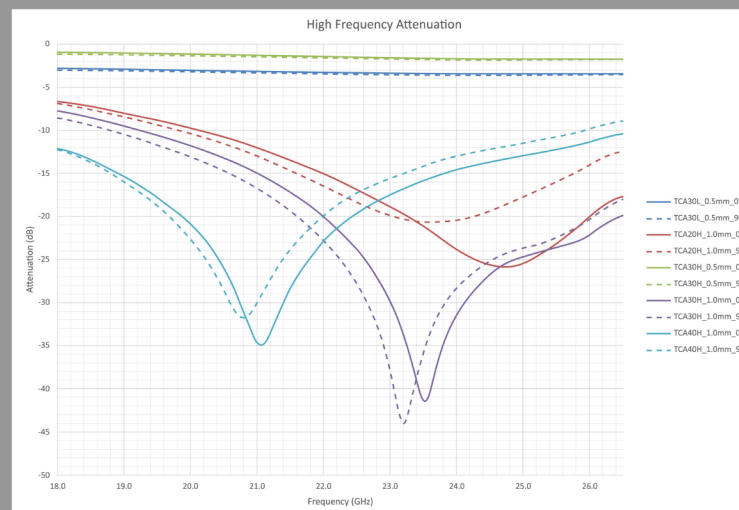
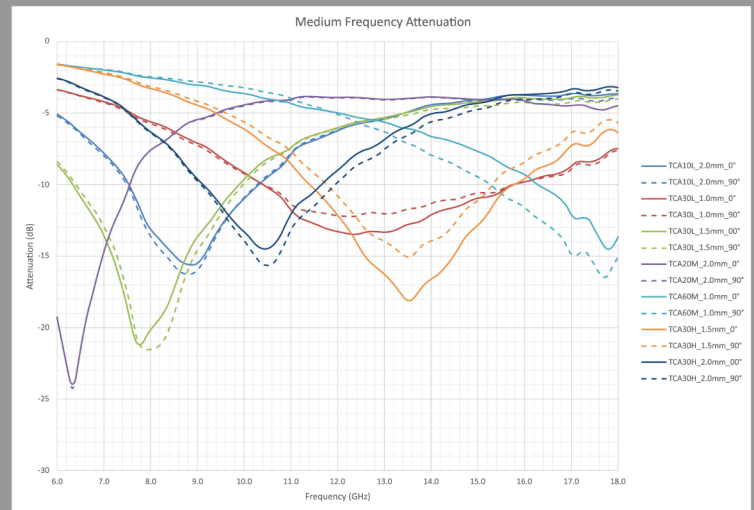
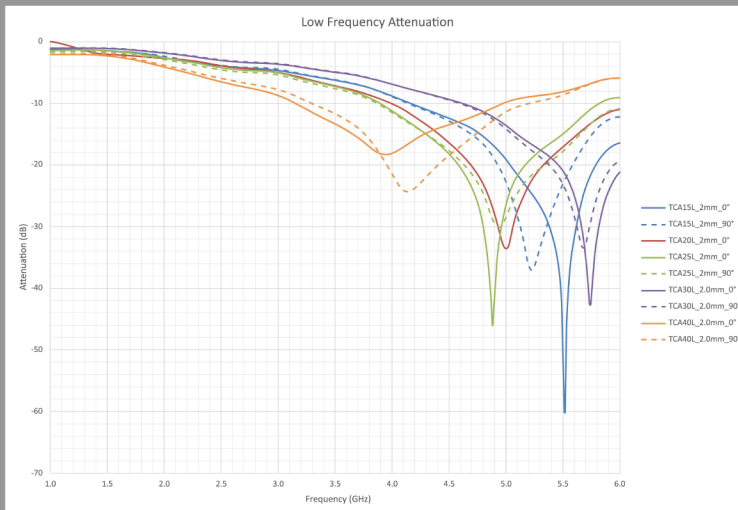
- Provides RF absorption and heat conduction
- Low thermal resistance
- Good surface compatibility and self adhesive
- Application under low pressure
- Excellent electrical insulation performance

Material

Aluminum Oxide Filled Silicone

Part Series	Test Method	TCA10L	TCA15L	TCA20L	TCA25L	TCA30L	TCA40L	TCA20M	TCA60M	TCA20H	TCA30H	TCA40H
Physical Properties												
Color	Visual	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Thickness range (in, (mm))	ASTM D 374	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)	.020-.118 (0.5-3)
Hardness (Shore C)	ASTM D 2240	25-50	25-50	25-50	25-50	25-50	25-50	25-50	40-60	30-55	30-55	30-55
Density (lb/in³, (g/cc))	ASTM D 792	0.155 (4.3)	0.152 (4.2)	0.144 (4.0)	0.141 (3.9)	0.163 (4.5)	0.166 (4.6)	0.137 (3.8)	0.144 (4.0)	0.115 (3.2)	0.130 (3.6)	0.137 (3.8)
Tensile Strength (psi, (MPa))	ASTM D 412	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 14.53 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 21.76 (≥ 0.15)	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)	≥ 14.50 (≥ 0.1)
Elongation (%)	ASTM D 412	≥ 150	≥ 150	≥ 150	≥ 150	≥ 150	≥ 150			≥ 150		
Tear Strength (lb/in, (N/mm))	ASTM D 624	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 2.28 (≥ 0.4)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)	≥ 3.43 (≥ 0.6)
Compression Ratio (%)	ASTM D 575	≥ 40 (@50 PSI)	≥ 40 (@50 PSI)	≥ 40 (@50 PSI)	≥ 40 (@50 PSI)			≥ 40 (@50 PSI)				
Frequency Band (GHz)		1-16	1-16	1-16	1-16	1-16	1-16	10-20	10-20	> 20	> 20	> 20
Operating Temperature (°F, (°C))	IEC 60068-2-14	-40 - 392°F (-40 - 200°C)	-40 - 392°F (-40 - 200°C)	-40 - 392°F (-40 - 200°C)	-40 - 392°F (-40 - 200°C)	-40 - 257°F (-40 - 125°C)	-40 - 392°F (-40 - 200°C)	-40 - 392°F (-40 - 200°C)	-40 - 257°F (-40 - 125°C)	-40 - 320°F (-40 - 160°C)	-40 - 320°F (-40 - 160°C)	-40 - 320°F (-40 - 160°C)
Thermal Properties												
Thermal Conductivity (W/m·K)	ASTM D 5470	1.0	1.5	2.0	2.5	3.0	4.0	2.0	6.0	2.0	3.0	4.0
Thermal Resistance (°C-in²/W)	ASTM D 5470	≤ 3.2 (@ 20PSI & 2mm)	≤ 2.5 (@ 20 PSI & 2mm)	≤ 1.5 (@ 20PSI & 2mm)	≤ 1.35 (@ 20PSI & 2mm)	≤ 1.3 (@ 20PSI & 2mm)	≤ 1.5 (@ 20PSI & 2mm)	≤ 1.8 (@ 10PSI & 2mm)	≤ 0.5 (@20 PSI & 1mm)	≤ 1.5 (@ 10PSI & 2mm)	≤ 1.3 (@ 20PSI & 2mm)	≤ 1.5 (@ 20PSI & 2mm)
Electrical Properties												
Breakdown Voltage (kV/mm)	ASTM D 149	≥ 1	≥ 2	≥ 2	≥ 2	≥ 1	≥ 1	≥ 2	≥ 1	≥ 2	≥ 2	≥ 2
Volume Resistivity (Ω·cm)	ASTM D 257	≥ 10¹⁰	≥ 10¹²	≥ 10¹²	≥ 10¹²	≥ 10¹²	≥ 10¹²	≥ 10¹²	≥ 10¹⁰	≥ 10¹²	≥ 10¹²	≥ 10¹²
Dielectric Constant @ 1MHz	ASTM D 150	8	8	8	8	8	8	8	8	5	5	5
Dielectric Loss @ 1MHz	ASTM D 150	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1

Frequency Attenuation Charts



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