

THERMAL PRODUCT OVERVIEW

©2024/Rev01 MTC Micro Tech Components

Thermally conductive paste

1C/2C gap fillers

Gap pads

Thermally conductive adhesive tapes

Thermally conductive insulators

Phase change material

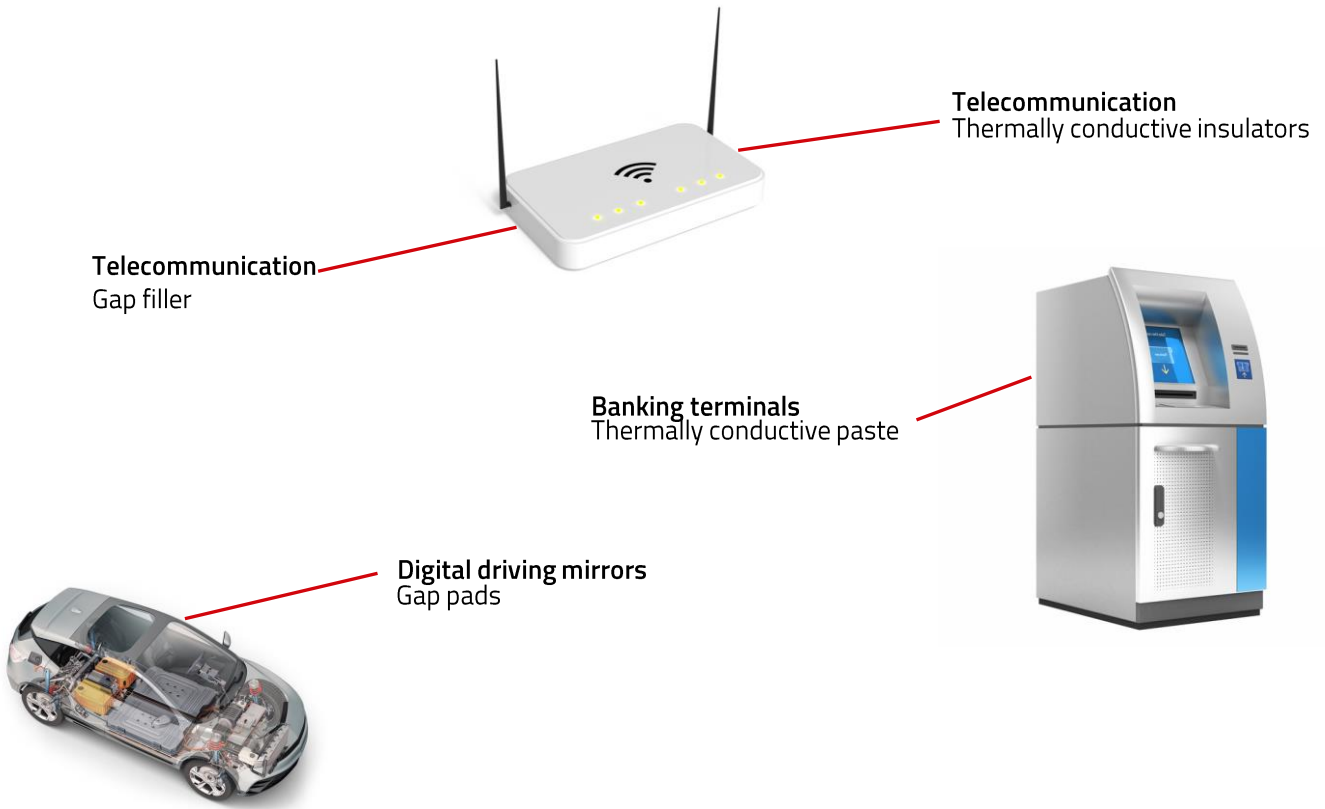
Graphite foils

Thermally conductive emi absorbers

Thermally conductive products from MTC

Our high-quality products for a **reliable heat management** are used wherever a seamless thermal connection between a heat source and a heat sink must be ensured in order to efficiently dissipate the generated heat. Thermally Conductive materials compensate unevennesses or air gaps. By displacing the air with a highly conductive material, the heat dissipation is optimized and the module is better cooled. You can avoid early failures, reduced working speed and other performance problems with our thermal management solutions.



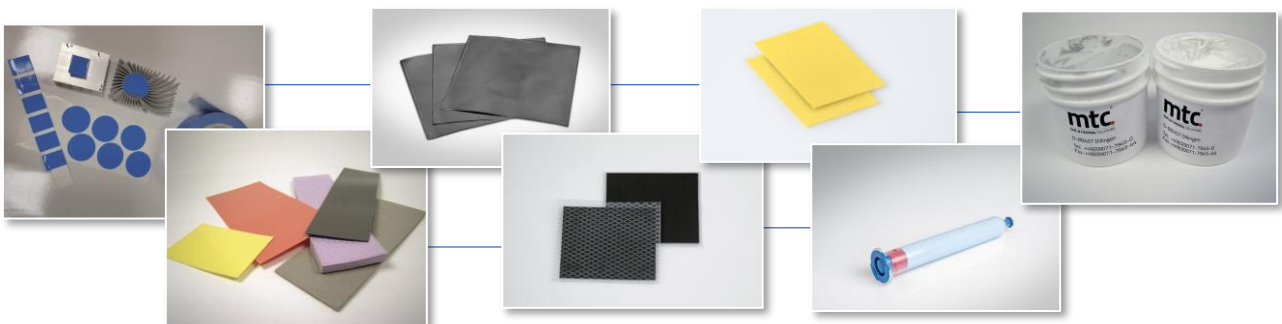


THERMALLY CONDUCTIVE PRODUCTS

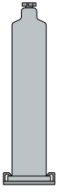
We specialise in the development and the supply of **customised solutions** that are precisely tailored to your needs. Rely on us to provide you with the best thermal solutions to meet your requirements. We look forward to work with you and helping you achieve your goals.



This is only a rough list of our product portfolio. The actual number of product variations does not fit into a table. Please note that if your requirements are not included in this list, **a customised product has to be requested.**

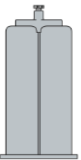


1C GAP FILLER



PROPERTY	TCTP-2,0	TCTP-3,5	TCTP-6,0	TCTP-7,0	TCTP-10,0	UNIT
Thermal conductivity	2,0	3,5	6,0	7,0	10,0	W/m*K
Breakdown voltage	>8	>8	>8	>8	>8	kV/mm
Volume resistivity	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	Ω-cm
Composition	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	-
Density	2.75	3,3	3,5	3,3	3,3	g/cm ³
Minimum bond line thickness	0,1	0,1	0,1	0,1	0,1	mm
Shelf Life	18	18	18	12	12	months
Flammability rating	E360243	E360243	E360243	E360243	E360243	-
Flow rate	25 ±5	20±4	12±4	12±4	15±4	g/min (30cc syringe with no tip attachment 0, 100" orifice,90psi*)
Temperature range	-55 to 200	-55 to 200	-55 to 200	-55 to 200	-55 to 200	°C
Color	Multi-color	Multi-color	Multi-color	Multi-color	Multi-color	-
Available with glass balls	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-
RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

2C GAP FILLER



PROPERTY	TCTX-1,8	TCTX-2,0	TCTX-3,0	TCTX-4,0	TCTX-5,0	UNIT
Thermal conductivity	1,8	2,0	3,0	4,0	5,0	W/m*K
Dielectric strength	>8	>8	>8	>8	>8	kV/mm
Volume resistivity	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	Ω-cm
Composition	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	Filled silicone elastomer	-
Hardness	60±10%	55-60±10%	55-60±10%	55-60±10%	55-60±5%	Shore 00
Density	1,8±10%	2,4±10%	3,0±10%	3,3±10%	3,3±10%	g/cm ³
Viscosity	70000±10%	80000±10%	80000±10%	115000±10%	tbd	cps
Shelf Life	6	6	6	6	6	months
Temperature range	-40 to 180	-40 to 180	-40 to 180	-40 to 180	-40 to 180	°C
Flammability rating	acc. to UL94	acc. to UL94	acc. to UL94	acc. to UL94	acc. to UL94	-
Total mass loss TML	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	@24h/125°C vakuum
Working time @25°C	180	180	180	180	180	min
RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

GAP PADS

	PROPERTY	TCGF-1,0	TCGF-1,5	TCGF-1,8	TCGF-2,0	TCGF-2,5	TCGF-3,0	TCGF-5,0	TCGF-6,0	VALUE
	Thermal conductivity	1,0	1,5	1,8	2,0	2,5	3,0	5,0	6,0	W/m²K
	Thermal impedance	3,3	2,0	2,0	tbd	tbd	tbd	1,6	tbd	°C-in²/W @40 Shore 00, 2mm thickness
	Breakdown voltage	>10	>10	>10	>10	>10	>10	>8	>8	kV/mm
	Dielectric constant	4,9	4,9 @30MHz	Tbd	4,9	7,2	12,6	tbd	tbd	MHz
	Volume resistivity	2,2*10 ¹³	3*10 ¹³	10 ¹³	0,298*10 ¹³	4,5*10 ¹²	2,5*10 ¹³	0,795*10 ¹³	tbd	Ω-cm
	Composition	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	-
	Hardness	5-60	10-60	40-65	20-60	20-60	10-60	35-80	30-70	Shore 00
	Density	1,76	2,05	2,55	2,5	2,65	2,98	3,1	3,4	g/cm³
	Thickness range	0,1-18,0	0,1-18,0	0,5-5,0	0,15-18,0	0,2-18,0		0,25-10,0		mm
	Working temperature	-40 to 200	-40 to 200	-60 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 200	°C
	Flammability rating	E360243	E360243	E360243	E360243	E360243	E360243	E360243	E360243	UL94
	Total mass loss TML	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	@24h/125°C vakuum
	RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

	PROPERTY	TCGF-7,0	TCGF-7,0-LI	TCGF-8,0	TCGF-9,0	TCGF-SF-3,0	TCGF-SF-5,0	TCGF-1,055F	TCGF-1,5-HR	TCGF-3,0-HR	TCGF-5,0-HR	UNIT
	Thermal conductivity	7,0	7,0	8,0	9,0	3,0	5,0	1,0	1,5	3,0	5,0	W/m²K
	Breakdown voltage	>8	>0,1	>6	>6	>10	>8	>10	>10	>10	>10	kV/mm
	Volume resistivity	0,68*10 ¹²	4,74*10 ¹³	0,72*10 ¹³	0,8*10 ¹³	2,1*10 ¹³	2,1*10 ¹³	2,2*10 ¹³	3,0*10 ¹³	3,0*10 ¹³	0,95*10 ¹³	Ω-cm
	Composition	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	Ceramic filled silicone elastomer	-
	Hardness	50-70	50-70	35-70	50-70	30-60	50-60	5±	10-40	15-40	25-40	Shore 00
	Density	3,5	2,7	3,5	3,5	2,98	3,3	1,76	2,05	2,98	3,1	g/cm³
	Thickness range	0,5-10	0,3-10	0,5-10	0,5-10	0,5-10	0,5-10	0,1-18,0	0,1-10	0,5-10	0,5-10	mm
	Working temperature	-40 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 125	-40 to 125	-40 to 200	-40 to 200	-40 to 200	-40 to 200	°C
	Flammability rating	E360243	E360243	E360243	E360243	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	-
	Total mass loss TML	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	@24h/125°C vakuum
	RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

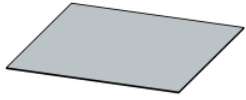
THERMALLY CONDUCTIVE ADHESIVE TAPES

PROPERTY	TCAT-1,0	TCAT-1,2	TCAT-1,5	TCAT-2,0	UNIT
Thermal conductivity	1,0	1,2	1,5	2,0	W/m*K
Breakdown voltage	>8	>8	>8	>8	kV/mm
Type of adhesive	Acryl polymer	Acryl Polymer	Acryl Polymer	Acryl Polymer	-
Filler	Ceramic powder	Ceramic powder	Ceramic powder	Ceramic powder	-
Hardness	60 Shore 00	45 Shore A	45 Shore A	60 Shore 00	Shore
Working temperature	-40 to 130	-40 to 130	-40 to 130	-40 to 130	°C
Shelf Life	12	12	12	12	months
Thickness range	0,1-2,0	0,1-2,0	0,1-0,8	0,3-2	mm
Tensile strength	3	3	6	tbd	Mpa
Density	2,5	2,5	1,65	3,0	g/cm³
RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

INSULATORS

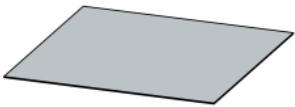
PROPERTY	TCIN-1,2	TCIN-1,3	TCIN-1,5	TCIN-1,6	TCIN-2,0	TCIN-3,0	TCIN-3,6	TCIN-5,0	TCIN-7,0	UNIT
Thermal conductivity	1,2	1,3	1,5	1,6	2,0	3,0	3,6	5,0	7,0	W/m*K
Breakdown voltage	>5	10	>10	6	>10	>10	>8	>8	>8	V/mm
Material	Fibreglass reinforced silicone	Silicone coating on polyimid film	Fibreglass reinforced silicone	Fibreglass reinforced silicone	Silicone	Fibreglass reinforced silicone	Fibreglass reinforced silicone	Fibreglass reinforced silicone	Fibreglass reinforced silicone	-
Thickness range	<0,5	<0,5	<0,5	<0,5	<0,5	<0,5	<0,5	<0,5	<0,5	mm
Hardness	80±5 Shore A	80 Shore A	10-80 Shore 00	85 Shore A ±5	50-80 Shore 00	15-80 Shore 00	10-60 Shore 00	30-80 Shore 00	40-80 Shore 00	Shore
Density	1,6	2,5	2,05	2,5	2,5	2,98	3,1	3,1	3,5	g/cm³
Flammability rating	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	-
Working temperature	-60 to 180	-40 to 180	-40 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 200	-40 to 200	°C
Tensile strength	6	27,6	17,6	9	0,2	17,6	44	44	0,22	Mpa
Total mass loss TML	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	<0,5%	@24h/125° vakuum
RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

PHASE CHANGE MATERIAL



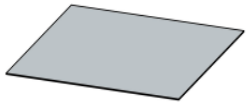
PROPERTY	TCPC-PI-1,6	TCPC-3,0	TCPC-5,0	UNIT
Thermal conductivity	1,6	3,0	5,0	W/m*K
Breakdown voltage	5	>5	3	kV/mm
Volume resistivity	10 ¹²	10 ¹⁴	10 ⁷	Ω-cm
Phase change temperature	50 to 60	50 to 60	50 to 60	°C
Material	EPDM	EPDM	EPDM	-
Shelf Life	12	12	12	months
Density	1,8	2,7	2,3	g/cm ³
Hardness	90 Shore A	-	-	Shore
RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-

GRAPHITE FOILS



PROPERTY	TCGR	UNIT
Thermal conductivity X-Y Axis	240-1500	W/m*K
Thermal conductivity Z Axis	5-12	W/m*K
Composition	Natural or synthetic graphite	-
Graphene tickness	0,017-0,5	mm
PSA thickness	12	µm
Temperature range	-40 to 400	°C
RoHS & REACH	<input checked="" type="checkbox"/>	-

EMI ABSORBERS



	PROPERTY	TCMWA-2,0	TCMWA-3,0	TCMWA-4,0	UNIT
	Thermal conductivity	2,0	3,0	4,0	W/m*K
	Material	Silicone	Silicone	Silicone	-
	Hardness	50±	50±	50±	Shore 00
	Density	4,4	>3,9	3,6	g/cm³
	Temperature range	-60 to 180	-60 to 180	-60 to 180	°C
	Flammability rating	acc. to UL94 V-0	acc. to UL94 V-0	acc. to UL94 V-0	-
	Total mass loss TML	0,14%	0,07%	0,04%	@24h/150°C
	EMI Attenuation @5GHz	21	17	11	dB/cm
	EMI Attenuation @7GHz	27	26	17	dB/cm
	Volume resistivity	>10 ¹²	>10 ¹²	>10 ¹²	Ω-cm
	Thermal impedance @10psi	0,76	0,63	0,46	°C-in ² /W
	Thermal impedance @30psi	0,61	0,57	0,40	°C-in ² /W
	Thermal impedance @50psi	0,53	0,51	0,35	°C-in ² /W
	Thickness range	0,5-12	0,5-12	0,5-12	mm
	RoHS & REACH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-



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