



## Thermal Interface Material

PT- 810, PT-811, PT, PT-812, PT- 813, PT-814, PT-815

**Description:** POLYONICS Thermal Interface Material is a thermally conductive, silicone based, interface material designed to provide reliable and consistent thermal characteristics even with extended high temperature conditions.

### Features:

- Up to 250°C max operating temperature tested to 1000 hrs
- 0.30-0.65 (°C-in<sup>2</sup>/W) thermal impedance
- Excellent wetting for void elimination
- Uniform, thin bond lines
- Able to be die cut for mess free application
- Carrier film and thickness choices to meet variety of application needs
- Tack at room temperature
- UL94 V-O flame retardant <sup>1</sup>
- REACH, RoHS compliant & Halogen-Free
- ESD-Safe™

### Technical Data:

	AVG PROPERTIES	PT-815	PT-814	PT-813	PT-812	PT-810	PT-811	METHOD
PHYSICAL	<b>Color</b>	Black	Black	Black	Black	Black	Black	Visual
	<b>Total Thickness <sup>3</sup></b> , inch (mm)	0.003 (0.08)	0.0015 (0.04)	0.0075 (0.19)	0.0045 (0.11)	0.0035 (0.09)	0.005 (0.13)	ASTM D-1000
	<b>Reinforcement Carrier</b>	None	None	1.5mil Kapton MT+ Polyimide	1.5mil Kapton MT+ Polyimide	0.5mil Polyimide	2 mil Aluminum	-
	<b>Thickness TIM</b> inch (mm)	0.003 (0.08)	0.0015 (0.04)	0.003 (0.08) each side	0.0015 (0.04) each side	0.0015 (0.04) each side	0.0015 (0.04) each side	ASTM D-1000
	<b>Continuous Use Temp <sup>5</sup></b> , °C (°F)	0°C to 250°C (32°F to 482°F)	0°C to 250°C (32°F to 482°F)	0°C to 200°C (32°F to 392°F)	0°C to 200°C (32°F to 392°F)	0°C to 200°C (32°F to 392°F)	0°C to 175°C ( 32°F to 347°F)	Polyonics (1000hrs)
<b>Condition Rating <sup>5</sup></b> - High Temp testing of solid state devices for 1000hrs	Condition E	Condition E	Condition D	Condition D	Condition D	Condition C	JEDEC 22 - A103C	
THERMAL	<b>Thermal Impedance @50psi</b> , °C-in <sup>2</sup> /W	0.35	0.30	0.65	0.55	0.50	0.35	ASTM 5470 (post 1000hr @ max Temp)
	<b>Thermal Conductivity</b> W/m-K	0.7	0.7	0.7	0.7	0.7	0.7	ASTM D5470
MECH	<b>Adhesion</b> (oz/in) 180° peel strength on Alum w/ 24 hr dwell	70	30	30	24	36	37	Polyonics 80313
	<b>Lap Shear</b> (psi)	4	4	13	15	30	8	ASTM D1002
	<b>Probe Tack</b> (g/in)	57	77	77	54	34	52	ASTM D2927
ELEC	<b>Voltage Breakdown <sup>4</sup></b> (Vac)	800	900	5800	5300	2700	500	ASTM D149
	<b>Vol. Resistivity <sup>4 2</sup></b> (Ω/cm)	4x10 <sup>7</sup>	7x10 <sup>7</sup>	4x10 <sup>11</sup>	7x10 <sup>6</sup>	4x10 <sup>7</sup>	< 10 <sup>2</sup>	Polyonics method
	<b>Flame Rating <sup>1</sup></b>	V-0	V-0	V-0	V-0	V-0	V-0	UL-94 <sup>1</sup>

<sup>1</sup> Tested to the UL94 standard by Polyonics

<sup>2</sup> Volume Resistivity is tested per Polyonics method, not per ASTM D149, which is designed for electrically isolating materials

<sup>3</sup> Does not include double liners, which add 4-4.5mil thickness total.

<sup>4</sup> Not recommended for applications that require electrical isolation

<sup>5</sup> 1000 hrs at max temperature rating as tested by JESD22-A103E conditions. Cond E= +250C; Cond D= +200C, Cond C= + 175C

**NOTE:** All values shown are averages and should not be used for specification purposes. Test data and test results contained in this document are for general information only and shall not be relied upon by POLYONICS customers for designs and specifications, or be relied on as meeting specified performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact POLYONICS for further information.

References: ASTM: American Society for Testing and Materials (U.S.A.) SI: International Systems of Units.

## Polyonics Material Compliance

<b>RoHS</b> (Restriction of Hazardous Substances) EU Directive 2002/95/EC	Limits set forth in Directive 2005/618/EC amending Directive 2002/95/EC
<b>REACH</b> (Registration Evaluation and Authorization of Chemicals) EU Directive 1907/2006/EC	Limits set forth in Directive 1907/2006/EC Article 7 (2)
<b>Halogen Free</b> - Restriction use of Halogen (IEC 61249-2-21)	Limits set forth in International Electrochemical Commission

### WARRANTY-LIMITATION

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