



Product Training Module: PC94 – Non Silicone Gap Fillers

Jan 2012

Introduction

- Purpose
 - This training module is used to give an introduction to t-Global Technology's PC94 product range of non-silicone gap fillers
- Objectives
 - To identify the key properties of PC94
 - To identify the key design criteria for product selection
 - To identify common applications for the product
- Content
 - Introduction and background to PC94
- Learning time
 - 30 mins



PC93 /94 - Series

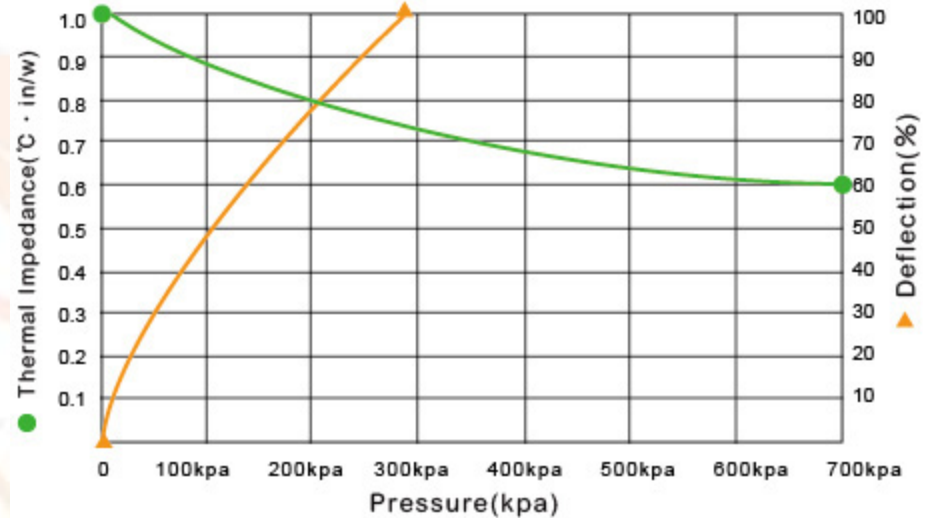
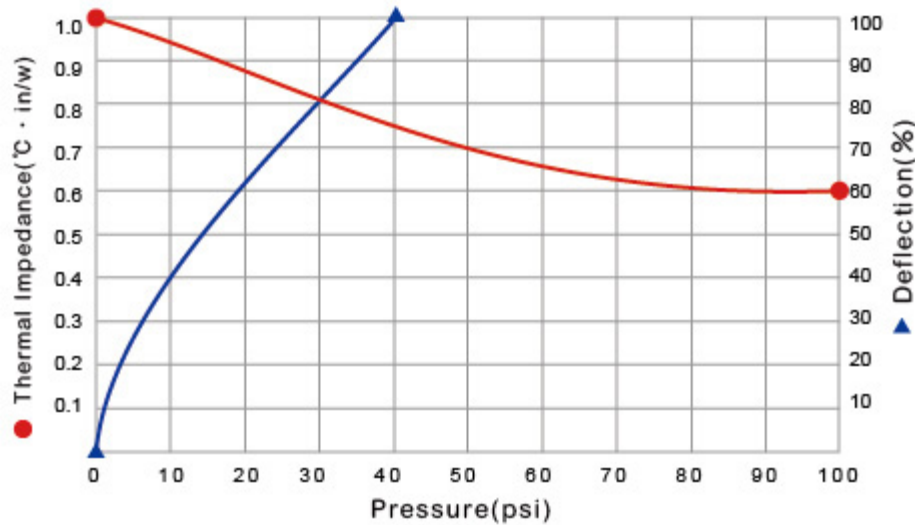
- The PC93/94 series is t-Global Technology's high performance non-silicone based thermal interface products
- Each member in the family has been developed to address specific industrial needs
- All products are available as standard sheets, custom-die cuts and on rolls
- All products can be supplied with a pressure sensitive adhesive applied to one or both sides

PC93

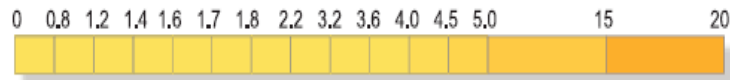
- PC93 is a non-silicone thermal gap filler
- It has a thermal conductivity of 2W/m.k
- It offers
 - An non-silicone based formulation
 - Low contact thermal impedance
 - Long term stability
- Common applications include:
 - Optical electronics
 - Automotive electronics
 - Consumer devices



PC93 Performance

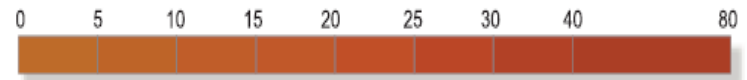


Thermal Conductivity: 2 W/m.k
(W / m.k - Z Axis)



Testing sample thickness : 1.0 mm

Hardness: 60 (Shore 00)
(Shore 00)



PC93 - Datasheet

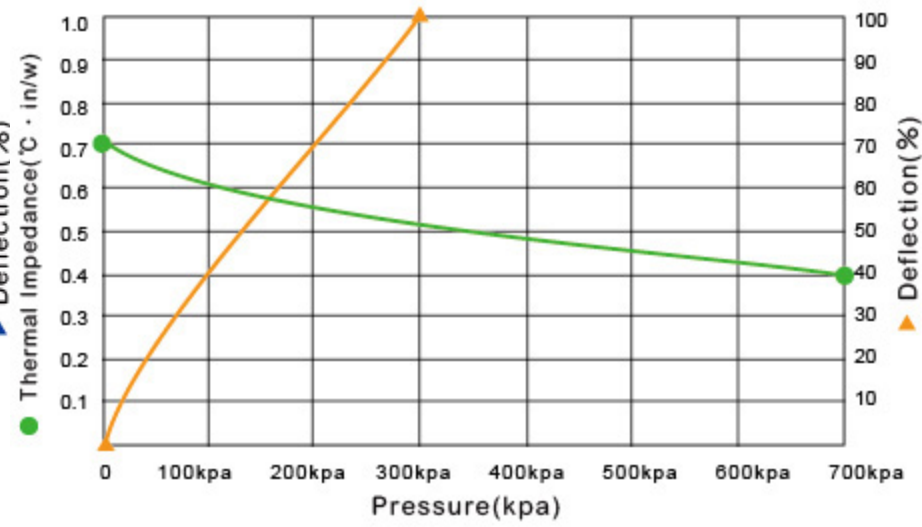
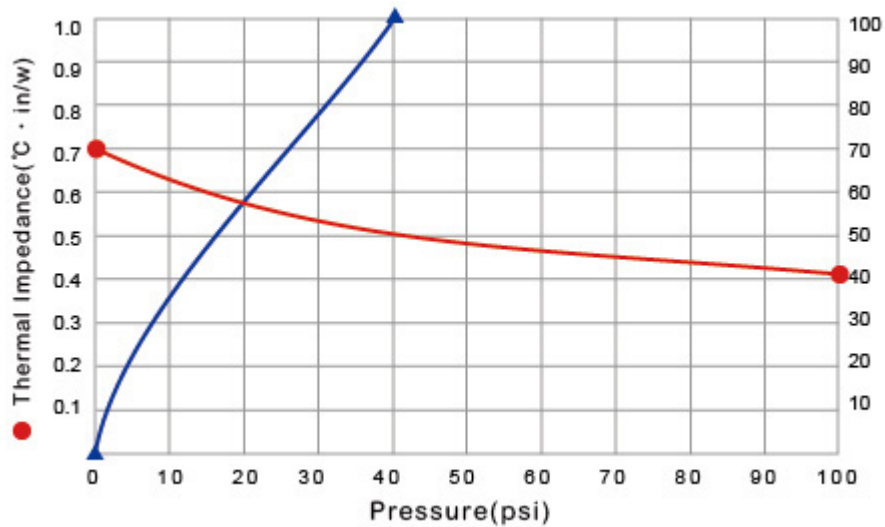
Property	PC93	Unit	Tolerance	Test Method
Colour	Grey	-	-	Visual
Thickness (The thickness can be ordered)	0.25 / 5.0	mm	-	ASTMD 374
	0.0098 / 0.1969	inch	-	ASTM D374
Thermal Conductivity	2	W/m.k	-	ASTM D5470
Flame Rating	V-0	-	-	UL94
Dielectric Breakdown Voltage	10	kV/mm	-	ASTM D149
Weight Loss	<1	%	-	ASTM E595
Specific Gravity	1.5	g/cm ³	±0.2	ASTMD 792
Working Temperature	-30 to 150	°C	-	-
Volume Resistance	10 ¹²	Ohm	-	ASTMD 257
Elongation	350	%	±13	ASTMD 412
Tensile Strength	1	Kgf/mm ²	±2	ASTMD 412
Standard Shape	Sheet ones	-	-	-
Hardness	60	Shore 00	±5	ASTMD 2240

• REACH Compliant • RoHS Compliant

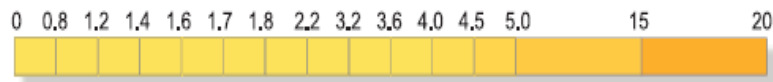
PC94

- PC94 is a high performing non-silicone thermal gap filler
- It has a thermal conductivity of 4W/m.k
- It offers
 - An non-silicone based formulation
 - Low contact thermal impedance
 - Long term stability
- Common applications include:
 - Optical electronics
 - Automotive electronics
 - Consumer devices

PC94 - Performance

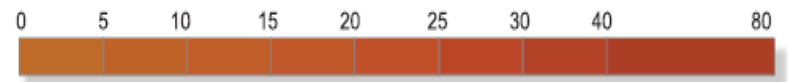


Thermal Conductivity: 4 W/m.k
(W / m.k - Z Axis)



Testing sample thickness : 1.0 mm

Hardeness: 60 (Shore 00)
(Shore 00)



PC94 - Datasheet

Property	PC94	Unit	Tolerance	Test Method
Colour	Red	-	-	Visual
Thickness (The thickness can be ordered)	0.25 / 5.0	mm	-	ASTMD 374
	0.0098 / 0.1969	inch	-	ASTM D374
Thermal Conductivity	4	W/m.k	-	ASTM D5470
Flame Rating	V-1	-	-	UL94
Dielectric Breakdown Voltage	10	kV/mm	-	ASTM D149
Weight Loss	<1	%	-	ASTM E595
Specific Gravity	2.5	g/cm ³	±0.2	ASTMD 792
Working Temperature	-40 to 105	°C	-	-
Volume Resistance	10 ¹⁰	Ohm	-	ASTMD 257
Elongation	100	%	±13	ASTMD 412
Tensile Strength	2	Kgf/mm ²	±2	ASTMD 412
Standard Shape	Sheet ones	-	-	-
Hardness	60	Shore 00	±2	ASTMD 2240

• REACH Compliant • RoHS Compliant

Design Guide Lines

- For effective thermal management PC 93/94 should be used under a compression of 20 – 45% based on the original thickness
- PC 93/94 should only be used within the temperature range of:
 - 150C for PC93
 - 105C for PC94
 - For applications outside of this range please contact t-global

Frequently Asked Questions

- **Can PC 93/94 Series be reworked?**
 - With care the product can be removed and repositioned without an appreciable loss in thermal performance
- **What is the shelf-life of the product?**
 - Shelf-life for most gap-pads is one year. For gap-pads with an adhesive the shelf life is six months from the date of manufacture. After these dates adhesive strength and inherent tack must be re-characterised
- **Will the pads soften with temperature?**
 - Up to the maximum working temperature, as specified on the individual product datasheet, the materials will not suffer with temperature

Frequently Asked Questions

- Can the PC93/94 series be supplied in different formats?
 - H48-2 can be supplied in sheet form, die-cuts, moulded parts and with adhesive applied to one or both sides
- How does PC93/94 respond to ageing and thermal cycling tests?
 - PC93/94 does not exhibit any measurable changes in property when tested using all common industry standard environmental test regimes

Summary

- PC 93/94 are high performing, non-silicone gap fillers from t-Global technology
- Thermal conductivity ranges from 2 – W/m.k
- These products can be used for applications sensitive to silicone oils, such as automotive electronics, optical devices and military hardware
- PC93/94 can be supplied in a number of different formats depending on the customer needs, this includes kiss-cuts,