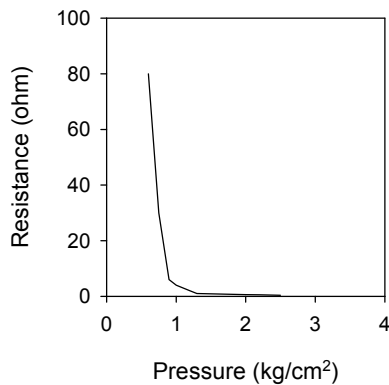


## ZOFLEX® ZL45.1 Pressure-Activated Conductive Rubber Sheets

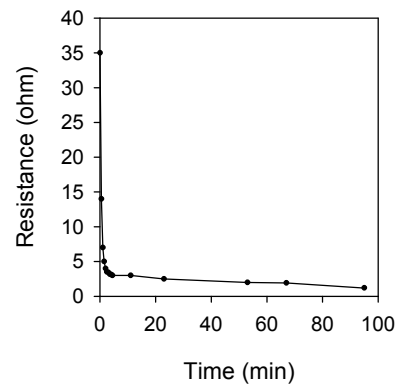
**ZOFLEX® ZL45.1** is a pressure sensitive conductive rubber with a Shore A hardness of 45. Its resistance change with pressure is very drastic: the material is at a high resistance state  $>30M\Omega$  when applied pressure is below the actuation pressure; the material is at a very low resistance state (can be  $\leq 0.1\Omega$ ) when applied pressure is equal or above the actuation pressure. It can be used in applications such as conductive rubber keypads, mechanical pressure switches, RF gaskets and etc... Its unique pressure activated conductivity simplifies product design since it can rest on the conductive media without creating electrical shorts. Compared to typical carbon pills (0.15" diameter, 0.015" thick), it has a similar actuation force ( $<200g$ ) but has a lower contact resistance ( $200\Omega$  typical for carbon pills), and does not create potential shorts due to carbon residue accumulation on PCB traces.

Characteristic	Data	Conditions
Operating Voltage Range	0-30V	DC or AC
Resistance Without Pressure	$>30M\Omega$	25°C
Min. Resistance Under Pressure	$0.1\Omega$	25°C
Max. Continuous Power Dissipation	$0.30W/cm^2$	$1cm^2$ , 1mm thick
Shore A Hardness	45	25°C
Thermal Operating Range	-40°C to 220°C	--
% Elongation	70%	25°C
Max. Pressure	$15kg/cm^2$ or 210 psi	25°C
Density	$1.75g/cm^3$	25°C



Sample thickness: 1mm

Fig.1: resistance change with pressure during a press stroke



Sample thickness: 1mm

Pressure:  $0.7kg/cm^2$  or 10psi

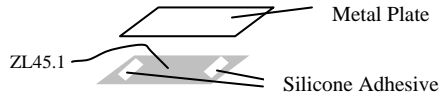
Fig.2: Resistance change over time under constant pressure

## Application notes:

### 1. Attaching ZL45.1 to a metal plate:

**Method A:** RTV silicone adhesive/sealant can be used to bond ZL45.1 to a metal plate. Please make sure that silicone adhesive does not cover the contact area between the metal plate and ZL45.1.

1. Make sure the surfaces are clean.
2. Apply a thin bead of silicone
3. Cure at 25°C for ~1-2 hrs
4. Cure at 45°C for ~4-5 hrs

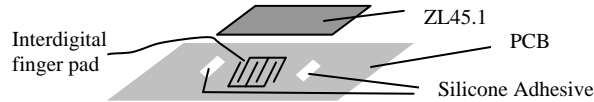


**Method B:** Our FL series of Liquid Conductive Rubber (sold separately) can be used to bond ZL45.1 to a metal plate. It can be applied in the same fashion as silicone adhesive/sealant or it can cover the entire contact area if desired.

**Method C:** Foam tape can be used to make a frame on the metal plate and then place ZL45.1 inside the frame.

### 2. Attaching ZL45.1 to an interdigital “finger” pad on PCB:

**Method A:** RTV silicone adhesive/sealant can be used to bond ZL45.1 to a PCB. Please make sure that silicone adhesive does not cover the contact area between the interdigital finger pad and ZL45.1.

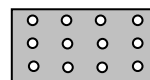


**Method B:** Foam tape can be used to make a frame on PCB and then place ZL45.1 inside the frame.

**Note:** For surface areas larger than 1in<sup>2</sup>, to prevent rubber from forming a vacuum with the metal plate or PCB, some relief holes should be punched in the rubber, for example:



Solid Sheet



Sheet w/ Relief Holes