

# **FUJIPOLY<sup>®</sup>**

## **New High Performance Silver ZEBRA<sup>®</sup> Connector**

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**FUJIPOLY DATA SHEET NUMBER FPDS 01-34 / Version 2**

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- Attention -

1) High Performance Silver ZEBRA®  
 SZ125 Type. 0.125mm Pitch  
 FujiPoly Data Sheet FPDS 2K-27

2) New High Performance Silver ZEBRA®  
 SZ100 Type. 0.100mm Pitch  
 FujiPoly Data Sheet FPDS 01-34

# **FUJIPOLY<sup>®</sup> DATA SHEET** FPDS 01- 34 (Version 2)

## **1] Product Name :**

New High Performance Silver ZEBRA<sup>®</sup> Connector.(SZ100 / 0.10mm pitch)

## **2] Features :**

FUJIPOLY<sup>®</sup> New High performance Silver ZEBRA<sup>®</sup> connectors are constructed of alternating parallel layers of electrically conductive and nonconductive silicone elastomer. The electrically conductive layer is filled with silver-metal particles.

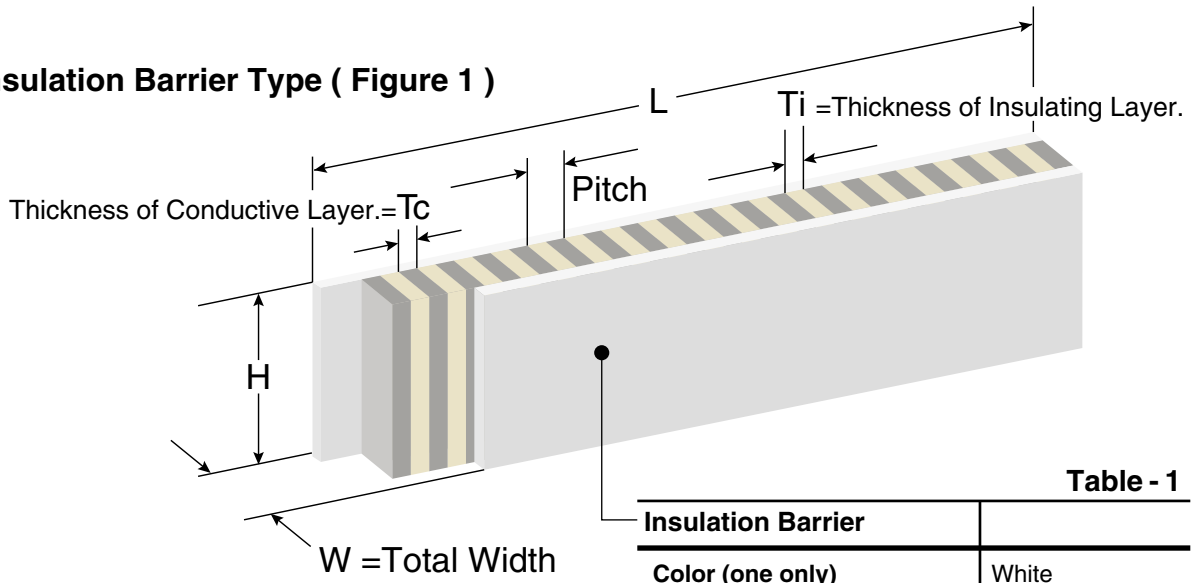
The composite alternating layers provide reliable electrical connection when placed between two aligned conducting surfaces.

The New High Performance Silver ZEBRA<sup>®</sup> Connector provides a redundant connection with a minimum of two conductive layers recommended per PCB contact pad. The connector is available with insulating barrier or silicone supports. The connectors are used for connecting electroluminescent ( EL ) and plasma type displays to PC boards or for connecting hybrid circuits to PC boards, among other applications.

The New High Performance Silver ZEBRA<sup>®</sup> connector is positioned between two aligned surfaces and is mechanically clamped together with a lid or another PCB. The connectors may be free standing or positioned in a retainer depending on packaging profiles and design.

### 3] Variety of New High Performance Silver ZEBRA® Connector.

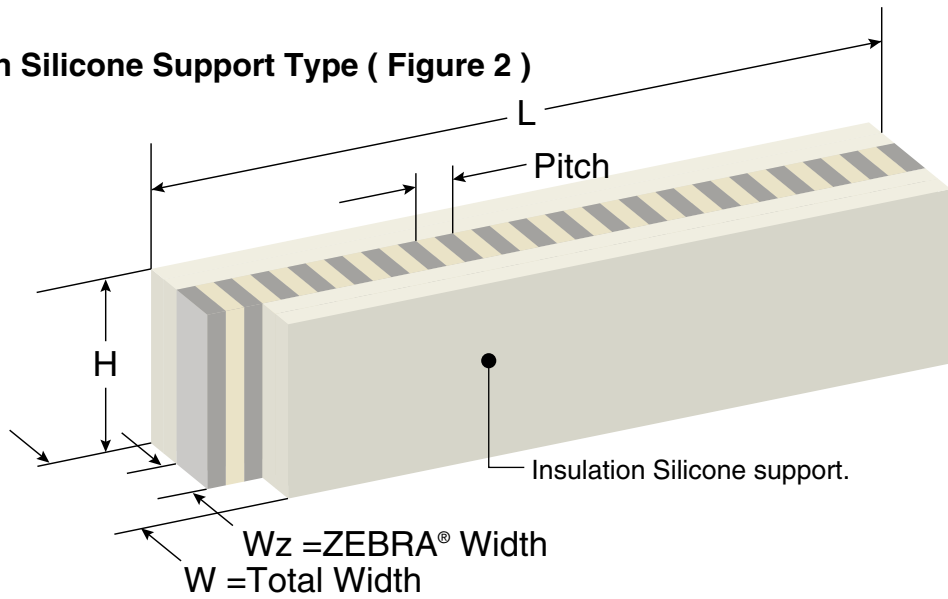
#### 3] -1) Insulation Barrier Type ( Figure 1 )



**Table - 1**

Insulation Barrier	
Color (one only)	White
Thickness	0.002"(0.05mm)
Dielectric Strength	500 Volts/mil
Resistance (ohms)	$10^{12}$

#### 3] -2) Insulation Silicone Support Type ( Figure 2 )



#### 4] Available size and Tolerance.

Table - 2

Mesurement	Mark	MM : size and Tolerance	inche : size and Tolerance
Length	L	6.35mm ± 0.12 ~ 127.00mm ± 0.64	0.250" ± 0.005in ~ 5.000" ± 0.025in
Heigh	H	1.00mm ± 0.08 ~ 12.70mm ± 0.18	0.040" ± 0.003in ~ 0.500" ± 0.007in
Width	W	0.50mm ± 0.08 ~ 2.54mm ± 0.127	0.020" ± 0.003in ~ 0.100" ± 0.005in

#### 5] Design Recommendations.

Recommended deflection range is 5-25% of free height. Minimum deflection will vary with packaging applications and should consider overall height, PCB warpage, finish, etc.

Design recommendations for Solid type and Insulation Barrier type over 10.00mm deflect 1.27mm maximum. Insulation silicone support type. Over 10.00mm defect 1.50mm.

The use of an insulating barrier type or silicoon self-support material on one or both sides of the connetor is recommehded. The silicone support is utilized to reduce clamp force and provide an element of environmental protection for a cost-effective connection.

Table - 3

6] Dimentional specifications.		MM	inch
Contact Spacing Center - to -Center	Minimum	0.050	0.002
	No minal	0.100	0.004
Pich : Sum of the thickness of an adjacent conductive and Insulation layer	Maximum	0.150	0.006
	No minal	10 <sub>Line/mm</sub>	254 <sub>Line/inch</sub>
Individual conductive and Insulation Layer Thinckness	Minimum	0.030	0.001
	Maximum	0.075	0.003

#### 7] Typical Product Properties.

Table - 4

Operating Temperature Range	Minimum	-40°C ( -40°C F )
	Maximum	+85°C ( 185°C F )
Current Carrying Capacity	700 mA	1.0mm Pitch ( 0.50mm / 0.50mm ) 0.040" x 0.040" pad
Resistance Between Layers	10 <sup>12</sup> ohms	

## 8] Typical Material Properties.

Table - 5

Item Unit	Conductive Layer	Insulating Layer	Support Rubber
material	Silver Filled Silicone Rubber	Non-conductive Silicone Rubber	Non-conductive Silicone Rubber
Color	Silver Grey	Off-white	Light blue
Hardness Shore A	80	58	30
Tensile Strength MPa	2.0	7.7	4.0
Elongation %	120	380	400
Tear Strength KN/m	13	17	—
Volume Resistivity MΩ·m	1x10 <sup>-12</sup>	1x10 <sup>6</sup>	1x10 <sup>6</sup>

## 9] Calculation of Resistance and Force Deflection.

### 9] -1) Resistance

For the purpose of calculating the resistance of High Performance Silver ZEBRA Connector and testing them for compliance please use the following formula :

Table - 6

MM ( Metric )

$$R = \frac{H \times 0.01}{W \times Ew} + 0.10$$

Where :

R = Resistance in ohms.

W = Width of ZEBRA Portion (mm)

Ew = PCB Electrode Pad width (mm)

H = Height of ZEBRA Portion (mm)

For the purpose of calculating the resistance of SZ Connector and testing them for compliance please use the formula.

### 9] -2) Force Deflection

Connector should be deflection 10 to 15% of Heigh (H) to calculate for deflection, use following formula.

#### Insulation Barrier Type.

$$F = 10.0 \times CR \times W \times L$$

#### Insulation Silicone Support Type.

$$F = (10.0 \times CR \times Wz \times L) + \{1.8 \times CR \times (W1 - Wz) \times L\}$$

Where : F = Force :gram

CR = Compression Rate :%

W = Width of ZEBRA Portion :cm

Wz = Width of ZEBRA Portion :cm

L = Length of Connector :cm

W1 = Width of Connector :cm

## 10] Others

Fuji Poly website <http://www.fujipoly.com>

## 11] Trade Marks.



**ZEBRA®**

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version 2

ISSUED : January.12th 2001

version 1

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