

CONNECTOR FOR LCD

WE LISTEN

WE TAILOR

WE SUPPORT

WE DELIVER

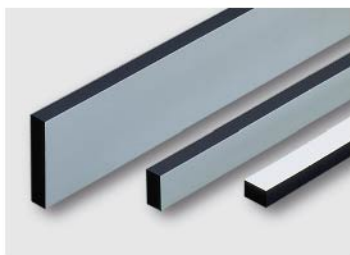
PRODUCT RANGE



YL TYPE / 型號



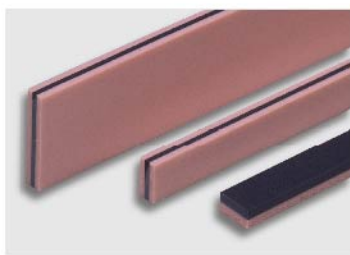
YF TYPE / 型號



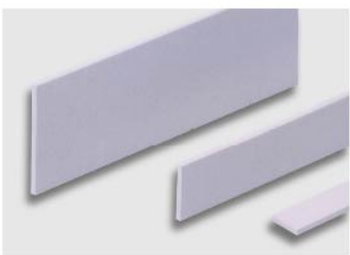
YI TYPE / 型號



CDM TYPE / 型號



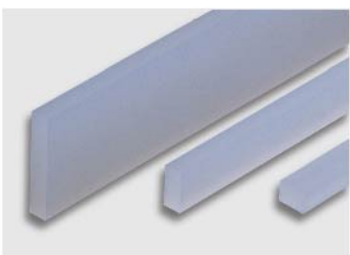
YP TYPE / 型號



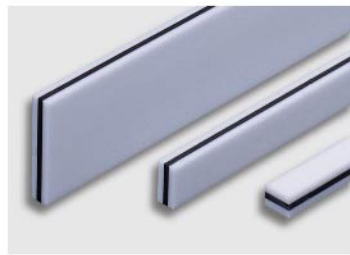
DM TYPE / 型號



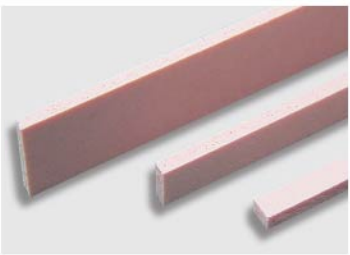
YS/SYS TYPE / 型號



SR TYPE / 型號



YE TYPE / 型號



SPONGE TYPE / 型號

YL



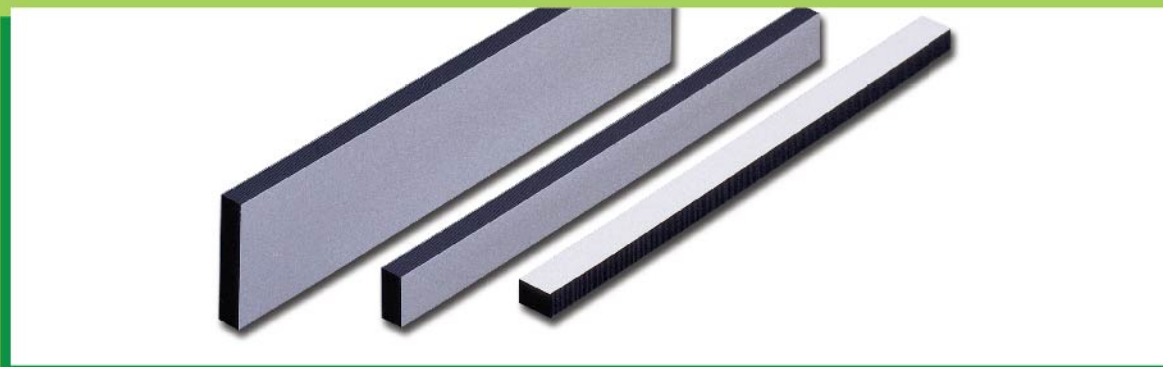
YL type of inter-connectors constitute alternate layers of conductive and insulating silicone rubber. YL type of inter-connectors are widely used to connect small size LCD's to PCB's. Since conductive layers are exposed on four surfaces, a non-conductive housing should be designed.

YL 型號導電膠條由導電體與絕緣體交替而成，並且沒有外層的。它是廣泛地應用於連接小型的液晶顯示器與電路板，由於它沒有外層(可以四面導電)，因此需配合絕緣的外殼而使用。

APPLICATIONS - 可應用之產品

- Numerous including Digital Watch & Digital Multi-Meter (DMM)
- 電子錶及多功能電子測量器。

YI



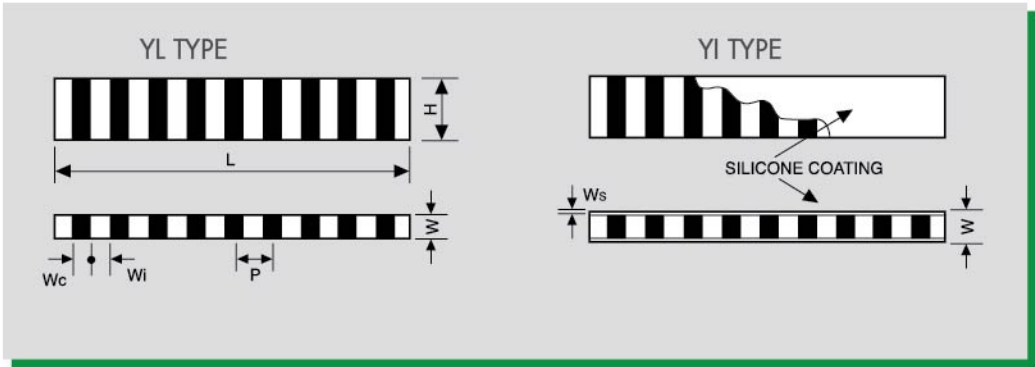
YI type is basically YL type of inter-connector with two surfaces coated with silicone insulation ink to prevent short circuit if metal housing is used.

YI 型號導電膠條是在YL型號表面與底部兩面塗上絕緣的硅樹脂油墨，目的是可應用於金屬外殼內。

APPLICATIONS - 可應用之產品

- Numerous including Digital Watch & small-sized LCD.
- 電子錶及小型液晶顯示器。

YL/YI DIMENSIONS

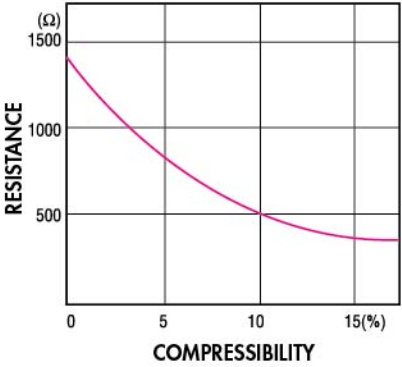
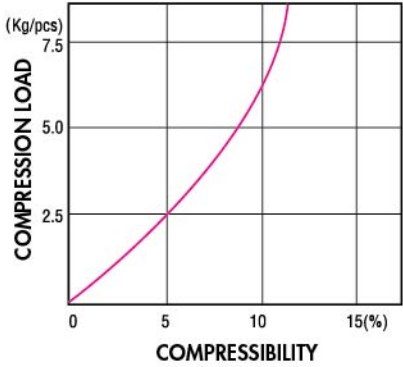


TOLERANCES - 公差

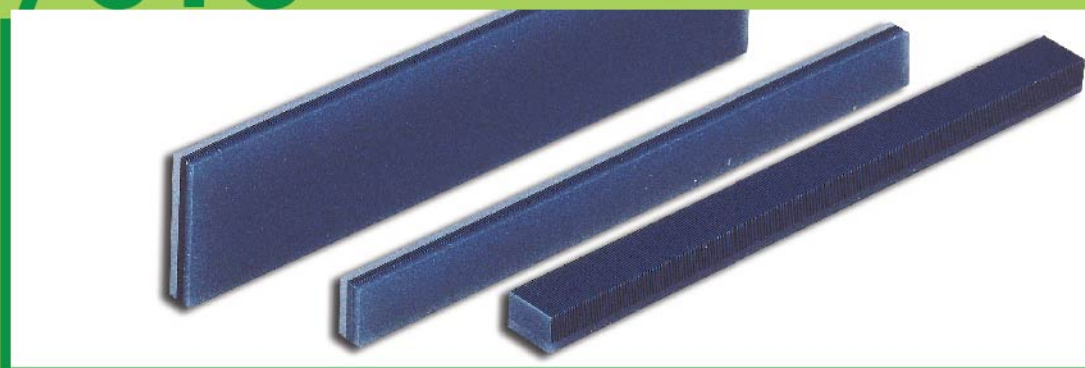
		0.05P	0.1P	0.18P
P	PITCH 密度	0.05 ± 0.015	0.1 ± 0.03	0.18 ± 0.04
L	LENGTH 長度	$L \leq 10 \pm 0.2$	$10 \leq L \leq 70 \pm 0.3$	$70 < L \leq 120 \pm 0.4$
			$120 < L \leq 200 \pm 0.5$	$200 < L \leq 300 \pm 0.8$
H	HEIGHT 高度	$1.0 < H \leq 5.0 \pm 0.1$		$5.0 < H \leq 20 \pm 0.15$
W	WIDTH 寬度	$0.3 < W \leq 1.5 \pm 0.08$	$1.5 < W \leq 2.5 \pm 0.1$	$2.5 < W \leq \pm 0.15$
Wc	CONDUCTOR WIDTH 導電層寬度	0.025	0.05	0.09
Wi	INSULATOR WIDTH 絕緣層寬度	0.025	0.05	0.09
Ws	COATING 外層塗料	0.02 - 0.04 (YI type only) (只供YI型號)		

COMPRESSION CURVES

SAMPLE SIZE 0.18P x 30 x 2.0 x 2.0 (mm)
THE WIDTH OF ELECTRODE (Au Plated) : 1.0mm



YS/SYS



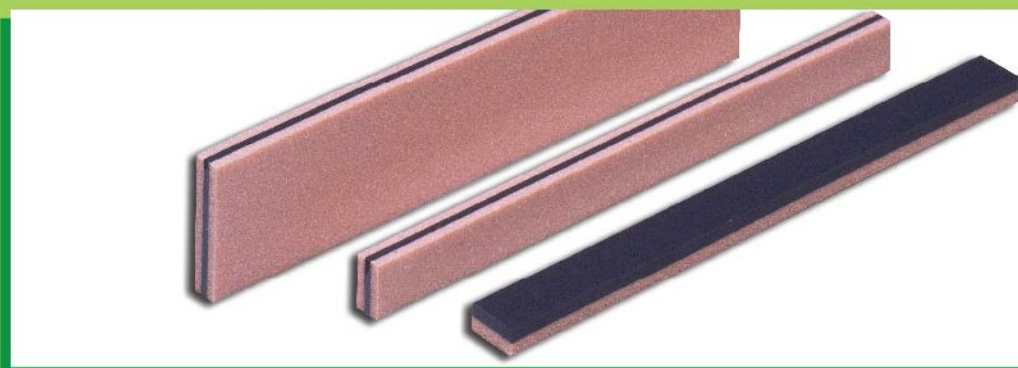
YS/SYS type of inter-connectors are basically YL type connectors fitted with solid rubber insulators on both sides. Since rubber insulators are used, YS/SYS type inter-connectors are more compressible than YL type, making them suitable for connecting medium sized LCD's to PCB's. YS & SYS types vary basically in supporter shore 'A' hardness. SYS is relatively softer than YS type.

YS/SYS 型號導電膠條是在YL型號的兩面加上絕緣的外層，增加其可壓縮性能。它適用於連接中型的液晶顯示器與電路板。YS型號與SYS型號導電膠條的分別是絕緣外層的硬度不同，YS外層略為堅硬。

APPLICATIONS - 可應用之產品

- General LCD products such as Calculator, Electronic Toy, Telecommunication, Audio and Visual products.
- 適合於所有液晶顯示器產品，如計算機，電子玩具，通訊及視聽產品等。

YP



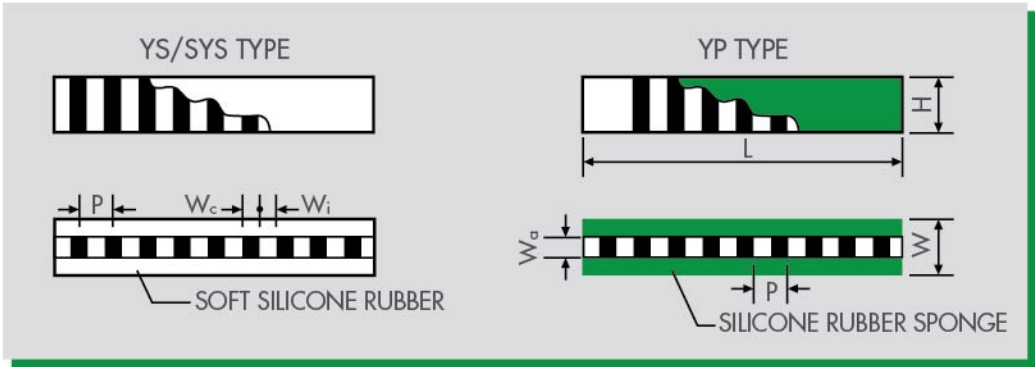
YP type of inter-connectors are basically YL type connectors fitted with sponge rubber insulators on both sides. Since sponge rubber insulators are more compressible than those in YS type products, YP type inter-connectors are suitable for connecting large sized LCD's to PCB's.

YP 型號導電膠條是在YL型號兩邊加上經發泡的海綿狀外層，增加其可壓縮性能，它適用於連接大型液晶顯示器與電路板。

APPLICATIONS - 可應用之產品

- Same as YS/SYS Type.
- 應用範圍與YS/SYS型號相同。

YS/SYS/YP DIMENSIONS & TOLERANCE

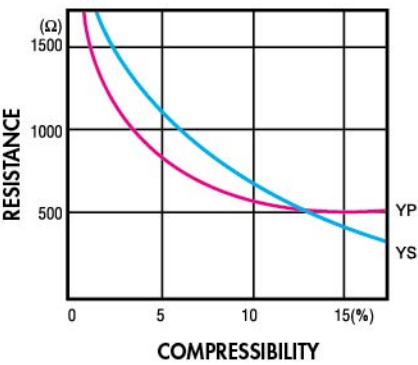
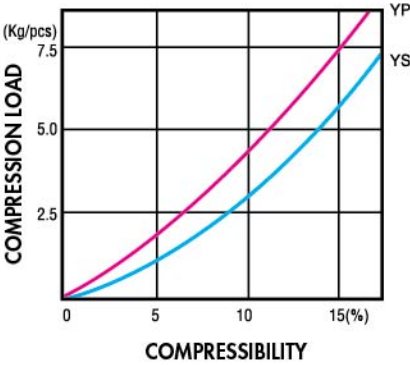


TOLERANCES - 公差

		0.05P	0.1P	0.18P
P	PITCH 密度	0.05 ± 0.015	0.1 ± 0.03	0.18 ± 0.04
L	LENGTH 長度	$L \leq 10 \pm 0.2$	$10 \leq L \leq 70 \pm 0.3$ $120 < L \leq 200 \pm 0.6$	$70 < L \leq 120 \pm 0.45$ $200 < L \leq 300 \pm 0.8$
H	HEIGHT 高度		$1.5 < H \leq 5.0 \pm 0.1$	$5.0 < H \leq 15 \pm 0.15$
W	WIDTH 寬度		$1.2 < W \leq 2.5 \pm 0.1$	$2.5 < W \leq 4 \pm 0.15$
Wa	CORE WIDTH 中心寬度		$Wa = 0.4 \pm 0.1\text{mm}$ when $W \leq 1.2\text{mm}$ $Wa = 0.5 \pm 0.1\text{mm}$ when $W = 1.3\text{mm}$ $Wa \geq 0.6 \pm 0.1\text{mm}$ when $W \geq 1.4\text{mm}$	

COMPRESSION CURVES

SAMPLE SIZE 0.18P x 30 x 2.0 x 2.0 (mm)
THE WIDTH OF ELECTRODE (Au Plated) : 1.0mm



SPECIAL SHAPE

DOUBLE-STRIP



YD

OFF-CENTER



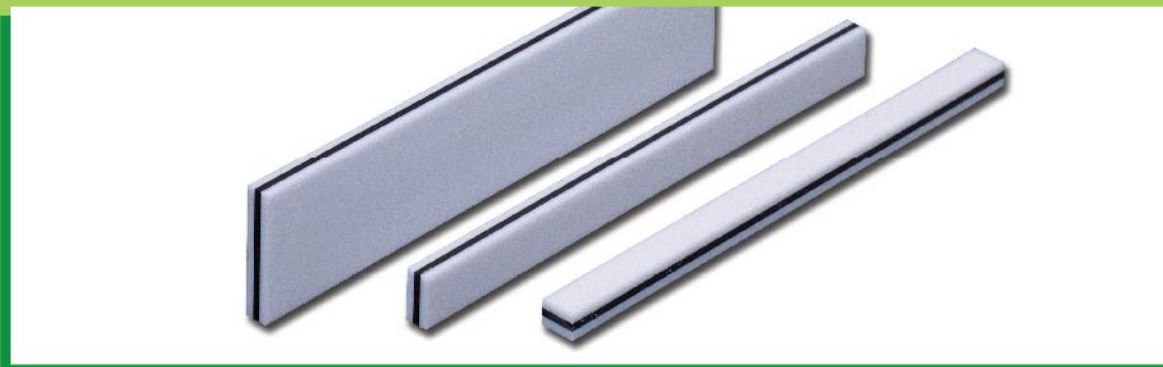
ASYM (YS,SYS,YP)

ONE-SIDE



YPS/YSS

YE



YE type inter-connectors are designed to match higher requirement entailed by graphics LCD. YE type constitutes of conductive core (Wa) made out of low ohm material and its supporters also undergo an additional treatment to ensure lower resistance as well as provide better contact, hence overcome the reliability concerns.

YE 型號導電膠條是專為點陣式液晶體顯示器的精密和高品質而設計，此型號之導電膠條的中心部份是採用低電阻材料製造，外層用特別技術製作以增強導電條的接觸效果，從而進一步減低電阻，增加可靠性。

APPLICATIONS - 可應用之產品

- YES type : Dot matrix & Graphics LCD (點陣式及圖象液晶顯示器)
- YET type : Dot matrix & Graphics LCD with LED back light (點陣式及圖象有背光效果之液晶顯示器)

CDM



CDM type is manufactured from conductive silicone rubber. It is widely used to connect PCB and EL. It can be also used for testing PCB and some conductive testing equipment.

CDM 型號膠條全採用導電的硅膠製造而成。它廣泛應用於連接電路板與發光片，另亦適用於測試電路板及導電測試器材。

APPLICATIONS - 可應用之產品

- PCB to EL, PCB to PCB, testing equipment.
- 電路板與發光片的連接，電路板之間的連接，測試器材。

YF

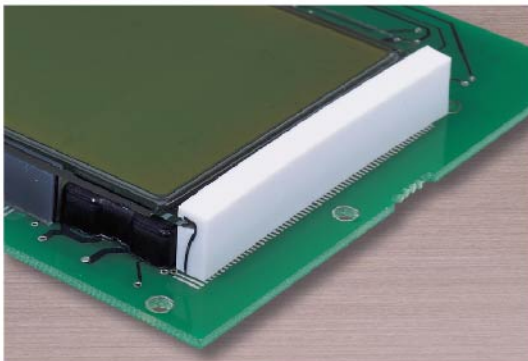


YF type is used mainly for Graphics LCD, having contact pads on the upper surface of common side. The greatest advantage for YF type over other conventional inter-connectors is that the top of LCD can be connected directly to PCB.

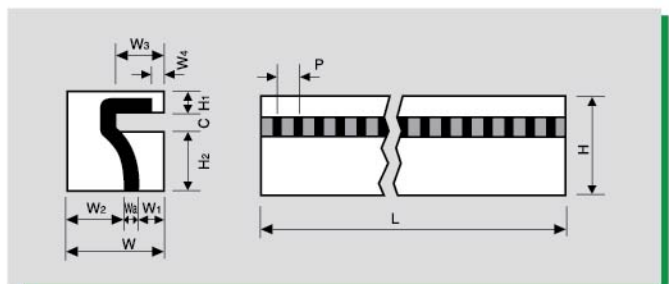
YF 型號導電膠條主要應用於點陣式液晶顯示器的橫向顯示部份，其最大優點是能將液晶顯示器的向上面連接其下面的電路板。

APPLICATIONS - 可應用之產品

- Common Pattern for Graphics LCD (點陣式的橫向顯示部份)



YF DIMENSIONS

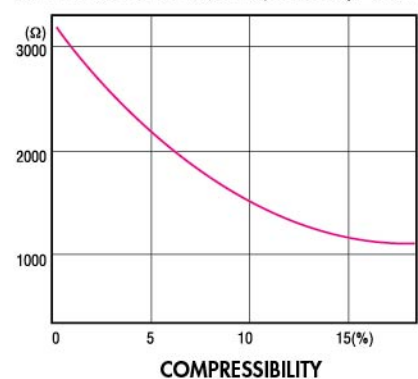


TOLERANCES - 公差

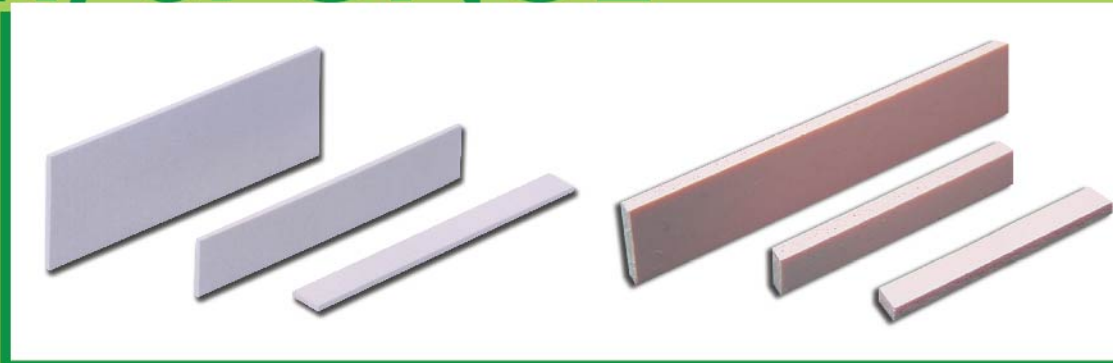
		0.05P	0.1P	0.18P
P	PITCH 密度	0.05 ± 0.025	0.10 ± 0.03	0.18 ± 0.04
L	LENGTH 長度	L ≤ 10 ± 0.3 10 ≤ L ≤ 70 ± 0.4 70 < L ≤ 120 ± 0.6 120 < L ≤ 200 ± 1.0 200 < L ≤ 300 ± 1.5		
H		4.5 < H ≤ 7.0 ± 0.4 7.0 < H ≤ 10.0 ± 0.6		
H1	HEIGHT 高度	± 0.15		
H2		2.0 < H ₂ ≤ 5.0 ± 0.4 5.0 < H ₂ ≤ 8.0 ± 0.6		
W	WIDTH 寬度	3.5 < W ≤ 4.5 ± 0.2 4.5 < W ≤ 6.5 ± 0.4		
Wα		± 0.1		
W1		± 1.0		
W2		± 1.0 W2 = W - W1 - Wα		
W3		± 1.0		
W4		1.0 ± 0.7		
C 接合顯示器距離		± 0.2		

RESISTANCE

SAMPLE SIZE: 0.10P x 30 x 4.0 x 5.0 (mm)
THE WIDTH OF ELECTRODE: (Au Plated) : 1.0mm



DM/SPONGE



DM type is manufactured from insulation silicone rubber while **SPONGE** type is manufactured from insulation sponge silicone rubber. They are used as spacer in combination with YP, YE & YS / SYS type inter-connectors to balance LCD. When LCD design entails single-sided conductive pattern, it is important to use DM / SPONGE type to ensure even distribution of weight. **SPONGE** type is more compressible than DM type due to blowing process included.

DM 型膠條全採用絕緣的硅膠製造而成，而 **SPONGE** 型膠條則使用絕緣海棉的硅膠。它們適用於作為間隔物，可配合YP、YE及YS/SYS型號一起使用，使液晶顯示器得到平衡的狀態。由於**SPONGE**型號條多加了發泡工序，因而增加其可壓縮的性能。

APPLICATIONS - 可應用之產品

- Supporting LCD with Single-Sided Conductive Pattern.
- 適用於單邊導電的液晶顯示器。

SR



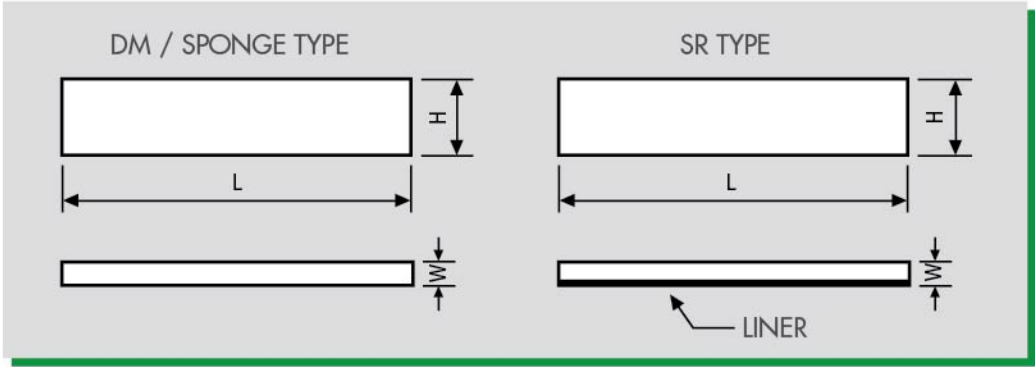
SR type is used for TFT LCD as well as high quality STN LCD fitted with flexible connector. Due to the smooth surface, SR type is self-sticking. However, SR type affixed with double adhesive tape is also available. Sponge type is also available for certain applications.

SR 型號膠條主要用於高品質的TFT液晶顯示器及STN液晶顯示器以配合可摺式導電片之設計。由於此型號的表面十分平滑，且帶有自黏性能。若有需要，此型號也可加上雙面膠紙使用。

APPLICATIONS - 可應用之產品

- Protect the glass surface & Conductive lines from Vibration Impact.
- 可保護玻璃面液晶顯示器及達至防震功能。

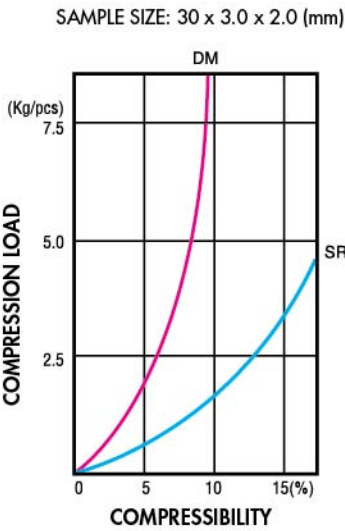
DM/SPONGE/SR DIMENSIONS



TOLERANCES - 公差

L	LENGTH 長度	$L \leq 10 \pm 0.2$	$10 \leq L \leq 70 \pm 0.3$	$70 < L \leq 120 \pm 0.45$
H	HEIGHT 高度		$1.5 < H \leq 5.0 \pm 0.1$	$5.0 < H \leq 20 \pm 0.15$
W	WIDTH 寬度	$0.3 < W \leq 1.0 \pm 0.1$	$1.1 < W < 2.5 \pm 0.15$	$2.5 \leq W \pm 0.2$

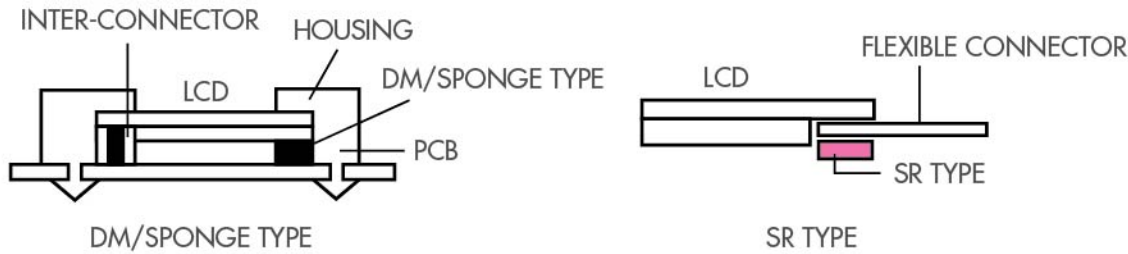
COMPRESSION CURVES



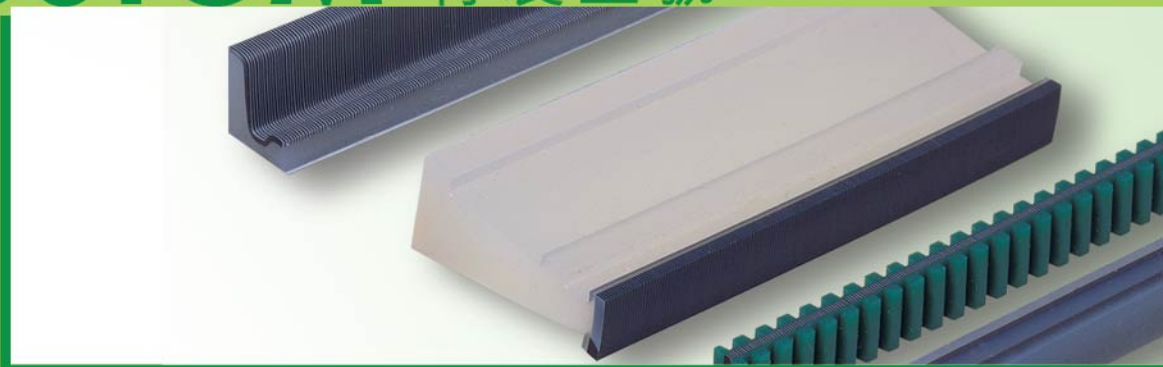
ADHESION OF STICKY (SR TYPE)

	WITH DOUBLE COATED ADHESIVE	WITHOUT DOUBLE COATED ADHESIVE
THICKNESS (t)	0.06mm	
ADHESION (g/20mm)	Silicone:300 Metals or plastics:800	50
LINER	Paper	PE film
STRUCTURE	<p>SR</p> <p>Liner (paper)</p> <p>Acryl type adhesive</p> <p>Silicone type adhesive</p>	<p>SR</p> <p>Liner (PE film)</p>

TYPICAL ASSEMBLY



CUSTOM 特製型號



We can develop custom designed conductive silicone inter-connectors to support customer's designs. In such cases, we suggest consulting our R&D engineers prior to designing LCD module, to enable them recommend the appropriate type of inter-connector, especially when the following situations are encountered.

客戶如在產品上有特別設計或形狀，歡迎與我們的開發部聯絡及研究，工程師很樂意為客戶提供建議及開發特別形狀之導電膠條。尤當客戶遇到以下三種之情況：

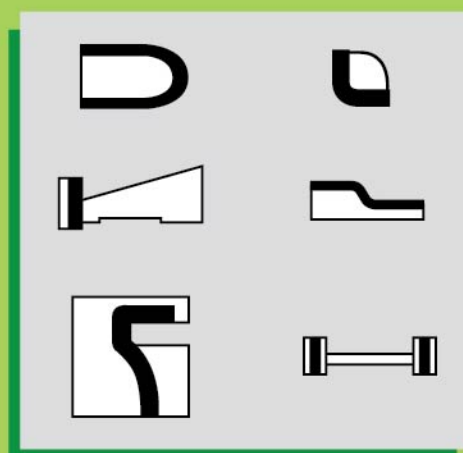
- (1) When LCD and PCB are nonparallel.
- (2) When it is difficult to design LCD module due to constraints on other parts.
- (3) When more than two conductive lines are needed.

- (1) 液晶顯示器與印刷電路板處於不平衡狀態。
- (2) 設計液晶顯示器模塊時，受到其他零件限制及阻礙。
- (3) 同一位置需要兩條或以上導電線。

DEVELOPING FLOW OF SPECIAL TYPE 開發特製型號流程



SHAPES FOR REFERENCES 參考形狀



SILVER INTER-CONNECTOR 銀製導電膠條

SILVER type is designed to match ultra-low resistance requirement entailed by some applications such as Chip-On-Glass (COG) & MIC Holder. It is made of alternative layers of conductive and insulating silicone rubber. For the conductive layers, silver particles are added and hence, resistance can be very low. You Eal has YAL type & YAS type Silver Inter-connector to match customers' product design.

銀製 導電膠條是專為一些需要超低電阻的模塊而製造的，例如：晶片鐸接在玻璃上(COG)，咪套 (MIC HOLDER)等等。銀製導電膠條是由導電與絕緣橡膠交替而成的，與YL型號相似，且其導電層是用銀的金屬粒子，並再經特別的生產程序而製造，目的是使其能達到超低電阻的特殊效果。唯一的銀製導電膠條分別有YAL及YAS型號，以配合客戶不同的產品設計。

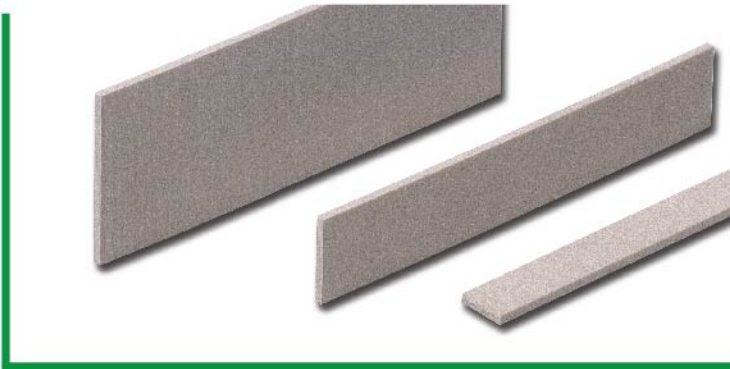
APPLICATIONS - 可應用之產品

- Chip-On-Glass type LCDs, PCB to PCB, Flex Circuit to PCB etc.
- 晶片鐸接在玻璃的液晶顯示器，電路板之間的連接，軟性電路與電路板之連接。

YAL

YAL type is made of alternative layers of conductive and insulating silicone rubber. It is widely used to connect small size PCB to PCB.

YAL 型號導電膠條是由導電體與絕緣體交替而成，並且沒有外層的。它廣泛應用於連接兩片小型的電路板。



YAS

YAS type is basically YAL type connectors fitted with solid rubber insulators on both sides. Since rubber insulators are used, YAS type is more compressible than YAL type and make it suitable for connecting small size PCB to PCB.

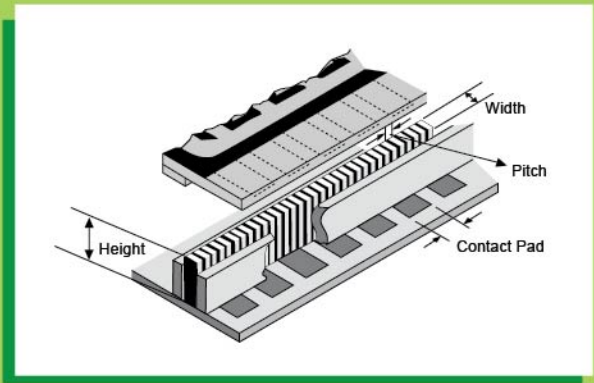
YAS 型號導電膠條是在YAL型號的兩面加上絕緣的外層，增加其可壓縮性能。它適用於連接小型的電路板。



TOLERANCES - 公差 YAL/YAS TYPE

		0.1P	0.18P
P	PITCH 密度	0.1 ± 0.03	0.18 ± 0.04
L	LENGTH 長度	$L \leq 10 \pm 0.1$ $40 < L \leq 70 \pm 0.3$	$10 < L \leq 40 \pm 0.2$ $200 < L \leq 100 \pm 0.4$
H	HEIGHT 高度	$1.0 < H \leq 5.0 \pm 0.1$	$5.0 < H \leq 10 \pm 0.15$
W	WIDTH 寬度	$0.6 < W \leq 1.5 \pm 0.1$	$1.5 \leq W < 2.5 \pm 0.15$ $2.5 \leq W \pm 0.2$
Wa	CORE WIDTH 中心寬度	$Wa = 0.4 \pm 0.1 \text{ mm when } W \leq 1.2 \text{ mm}$ $Wa = 0.5 \pm 0.1 \text{ mm when } W = 1.3 \text{ mm}$ $Wa \geq 0.6 \pm 0.1 \text{ mm when } W \geq 1.4 \text{ mm}$	

DESIGN GUIDE



PITCH (P)

- ◆ Distance from center-center of each conductor in a connector
- ◆ Alternate layers of insulation width (W_i) & conductor width (W_c) silicone material evenly spread over the entire length or inter-connector
- ◆ 2 conductors per electrode are often adequate, but 3 conductors per electrode are always recommended to ensure all connections are reliable
- ◆ Applications: $P = 0.18\text{mm}$ for simple segment LCD
 $P = 0.10\text{mm}$ for Dot matrix LCD
 $P = 0.05\text{mm}$ for Graphics LCD

◆ Conductors per inch	◆ Pitch (in mm)	◆ Pitch (in inch)
◆ 63	◆ 0.40	◆ 0.016"
◆ 100	◆ 0.25	◆ 0.010"
◆ 143	◆ 0.18	◆ 0.007"
◆ 170	◆ 0.15	◆ 0.006"
◆ 254	◆ 0.10	◆ 0.004"
◆ 508	◆ 0.05	◆ 0.002"

LENGTH (L)

- ◆ $L >$ Length of LCD pads
- ◆ The overall length is recommended to be extended a min. of 0.5mm beyond the edge of the contact at each end of the connector

WIDTH (W)

- ◆ $W \leq$ width of LCD slot
- ◆ Its design is critical in eliminating buckle when clamping force is applied to the connector
- ◆ If the buckle is too severe, contact can be lost completely

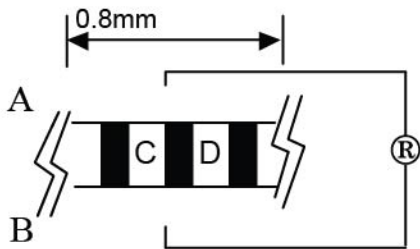
HEIGHT (H)

- ◆ Connector height is determined by the separation distance between LCD & PCB, including tolerance variations
- ◆ Compression (deflection rate) to be applied to connectors varies with different types, dimensions of inter-connectors
- ◆ To avoid bending, we recommend to use holders especially for tall height inter-connector. Holder should give space for horizontal expansion of the inter-connector during compression

SPECIFICATION

ITEM (UNIT) 目錄(單位)	POSITION 位置	YL	YI	YP	SYS	YS	YE		YF	CDM	DM	SPONGE	SR	YAL	YAS
							YES	YET							
SPECIFIC GRAVITY 比重	INSULATOR 絕緣層	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	-	1.15	-	1.05	1.22	1.22
	CONDUCTOR 導電層	1.20	1.20	1.20	1.20	1.20	1.10	1.10	1.10	1.20	-	-	-	2.1	2.1
	SUPPORTER 外層	-	1.15	0.75	1.05	1.05	1.05	1.15	1.05	-	-	0.75	-	-	1.08
HARDNESS (SHORE . A) 硬度	INSULATOR 絕緣層	55~65	55~65	55~65	55~65	55~65	55~65	55~65	55~65	-	55~65	-	12~25	55~65	55~65
	CONDUCTOR 導電層	65~75	65~75	65~75	65~75	65~75	65~75	65~75	65~75	65~75	-	-	-	60~70	60~70
	SUPPORTER 外層	-	-	20~30	25~35	35~45	25~35	35~45	20~30	-	-	20~30	-	-	22
TENSILE STRENGTH (kg/cm ²) 拉力強度	INSULATOR 絕緣層	70~80	70~80	70~80	70~80	70~80	70~80	70~80	70~80	-	70~80	-	20~30	78	78
	CONDUCTOR 導電層	50~60	50~60	50~60	50~60	50~60	60~70	60~70	60~70	60~70	-	-	-	70	70
	SUPPORTER 外層	-	-	10~15	20~25	30~40	20~25	30~40	20~30	-	-	10~15	-	-	55
OPERATING TEMPERATURE RANGE (°C) 溫度範圍		-30 °C ~ +120 °C												-25 °C ~ +85 °C	
VOLUME RESISTIVITY (Ω · cm) 電阻系數	INSULATOR 絕緣層	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	-	10 ¹²	-	10 ¹²	6X10 ¹¹	6X10 ¹¹
	CONDUCTOR 導電層	2.5	2.5	2.5	2.5	2.5	1.1	1.1	1.1	1.1	-	-	-	4X10 ³	4X10 ³
	SUPPORTER 外層	-	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	10 ¹²	-	-	10 ¹²	-	-	4X10 ¹¹
COMPRESSION SET (%) 壓縮率		15~20	15~20	10~18	10~16	10~16	15~20	15~20	15~20	5~15	5~15	10~18	5~15	8~10	8~10
RATED CURRENT DENSITY(mA/mm ²) 已定電流密度	CONDUCTOR 導電層	1	1	1	1	1	1	1	1	1	-	-	-	500	500
VOLTAGE (kV/mm) 絕緣體電壓	INSULATOR 絕緣層	20~25	20~25	20~25	20~25	20~25	20~25	20~25	20~25	-	20~25	20~25	20~25	25	25
	SUPPORTER 外層	-	15~20	2~3	20~25	20~25	20~25	20~25	20~25	-	-	2~3	-	-	22
ELONGATION (%) 延伸率	INSULATOR 絕緣層	150~250	150~250	150~250	150~250	150~250	150~250	150~250	150~250	-	150~250	-	300~400	300	300
	CONDUCTOR 導電層	150~200	150~200	150~200	150~200	150~200	200~300	200~300	200~300	170~290	-	-	-	160	160
	SUPPORTER 外層	-	100~150	250~350	300~400	300~400	250~350	250~350	300~400	-	-	250~350	-	-	600
INSULATOR RESISTANCE DC. 500V (MΩ) 絕緣層的電阻值		MIN. 1000	MIN. 1000	MIN. 1000	MIN. 1000	MIN. 1000	MIN. 1000	MIN. 1000	MIN. 1000	-	MIN. 1000	MIN. 1000	MIN. 1000	10 ⁶	10 ⁶

DIAGRAMS



- a. RESISTIVITY BETWEEN A AND B
: UNDER 2,000 OHMS
- b. RESISTIVITY BETWEEN C AND D
: OVER 10 M OHMS

* TESTING CONDITION OF A AND B
TEMPERATURE 20 - 25°C
RELATIVE HUMIDITY 50 ~ 70%



POWER OF STABILITY



唯一電子有限公司
YouEal (H.K.) Ltd.

Hong Kong Office 香港公司

香港荃灣美環街1號時貿中心17樓
17/F, Mega Trade Centre, 1 Mei Wan Street,
Tsuen Wan, Hong Kong
Tel: (852) 3511 3333 Fax: (852) 2412 0828
Email: youeal@youeal.com.hk

Mainland Factory 內地工廠

惠州市惠陽區秋長鎮將軍路振興工業園
Qiu Chang Town, Huiyang District, Huizhou, China

Korea R&D Office 韓國研發部

#710 Unitechvill, 1141-2 Baekseok-dong,
Ilisan Dong-gu, Goyang-si, 410-722, Korea

www.youeal.hk