TORY TECHNOLOGY CO., LTD

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TORY TECHNOLOGY CO., LTD

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TORY TECHNOLOGY CO., LTD
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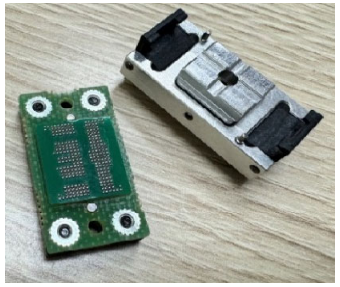
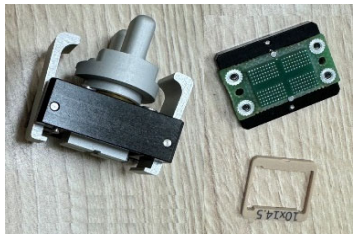
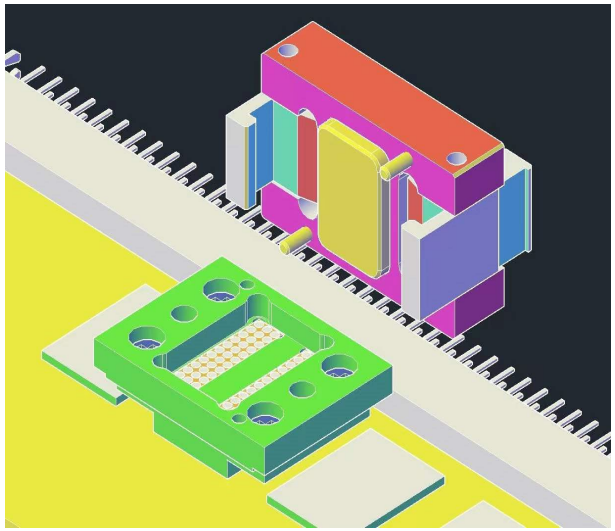
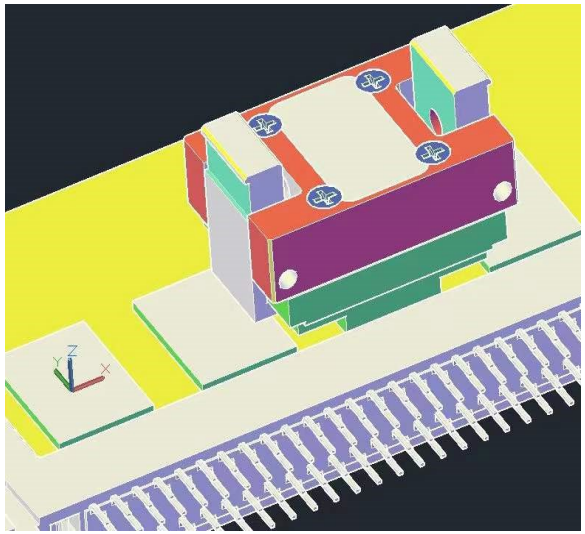
EASY LOCK SOCKET

Part No.		ELS-L	ELS-K	ELS-S	ELS-CS	ELS-C
上蓋型式		雙扣耳治具	旋扭式治具	對鎖式治具	翻蓋式治具	夾具式治具
Model		Setup lip type	Knob type	Screw type	Clam shell type	Clip type
						
材質 Material	上蓋	PEI卡勾	鋁合金	鋁合金	塑鋼+ PEI卡勾	鋁合金
	Lid	PEI clip	Aluminum Alloy	Aluminum Alloy	Ultem + PEI clip	Aluminum Alloy
	壓塊	鋁合金			塑鋼	鋁合金
	Pusher	Aluminum Alloy			Ultem	Aluminum Alloy
	上基座	鋁合金			塑鋼	鋁合金
	Housing	Aluminum Alloy			Ultem	Aluminum Alloy
耐溫 Operating Tepmerature Range		-40°C~125°C				
接通方式		導電膠			探針	導電膠
Contact Type		Rubber			Pogo pin	Rubber
轉板		Solder/Solderless				

Setup lip Socket on Long Dimm (帶轉板)

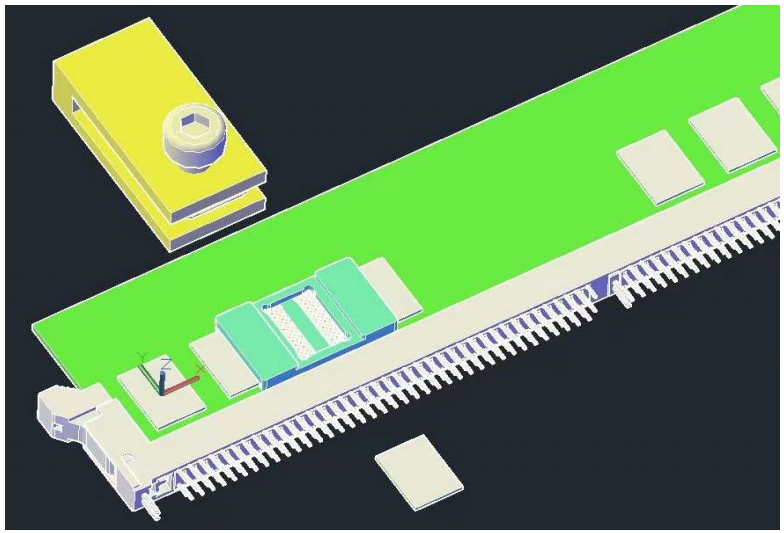
Part No.		ELS-L
上蓋型式		雙扣耳治具
Model		Setup lip type
材質 Material	上蓋	PEI卡勾
	Lid	PEI clip
	壓塊	鋁合金
	Pusher	Aluminum Alloy
	上基座	鋁合金
	Housing	Aluminum Alloy
耐溫 Operating Tepmerature Range		-40°C~125°C
接通方式		導電膠
Contact Type		Rubber
轉板		Solder/Solderless

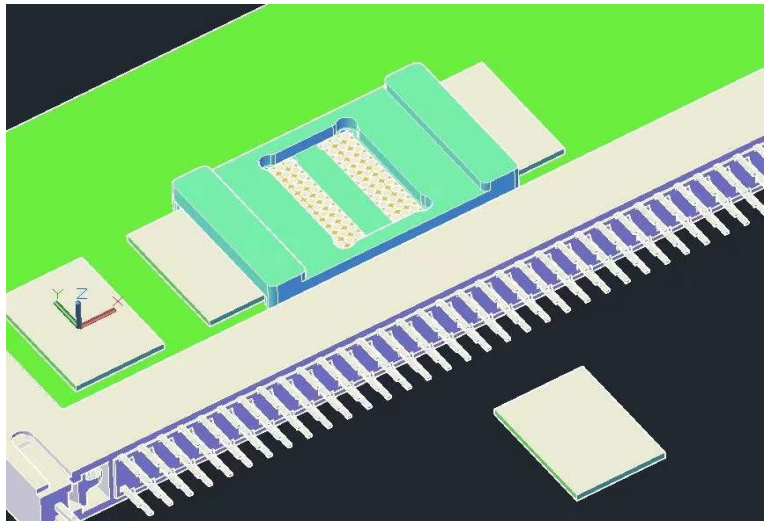




Socket on Long Dimm (不帶轉板 ⊓ 字形)

上蓋型式		抽屜式治具
Model		Drawer type
材質 Material	夾具	鋁合金
	Clip	Aluminum Alloy
	壓塊	X
	Pusher	X
	上基座	SP1
	Housing	SP1
耐溫 Operating Tepmerature Range		-40°C~125°C
接通方式		導電膠
Contact Type		Rubber
轉板		X





使用方法 : 將治具滑入2片IC之間再用夾具固定

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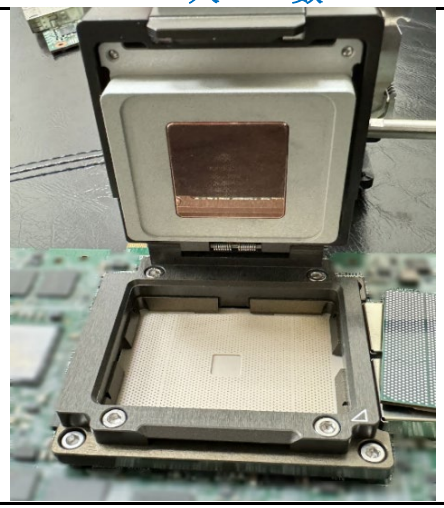
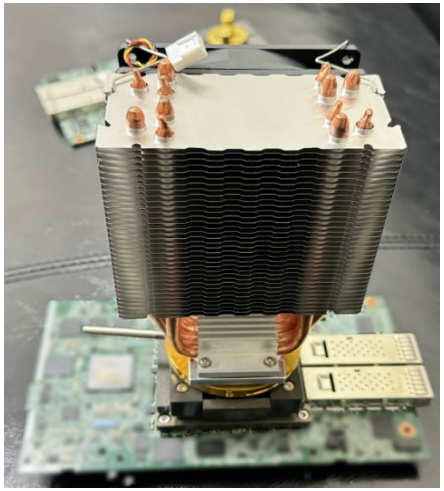
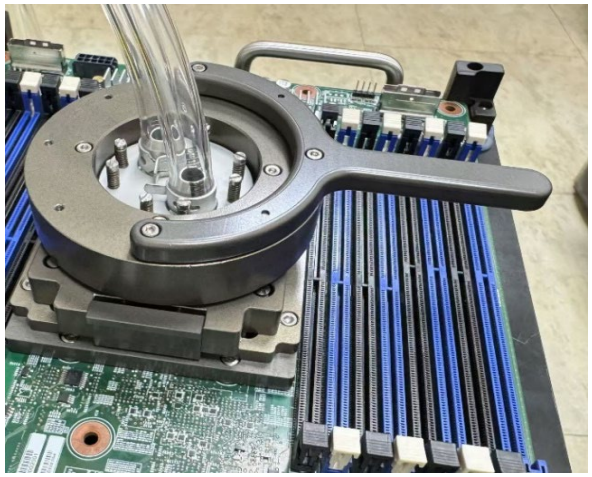
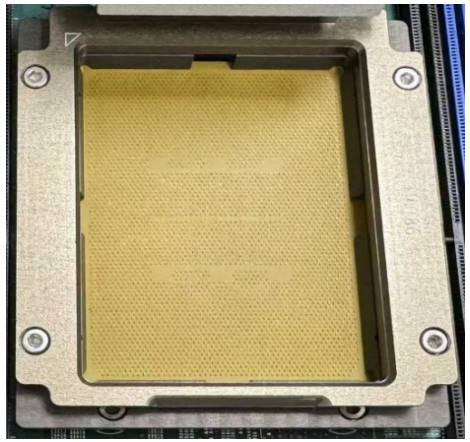
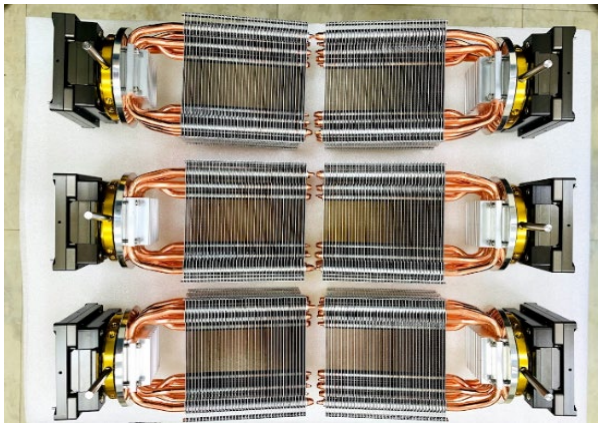
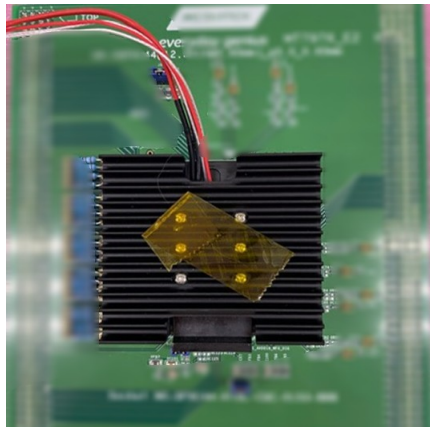
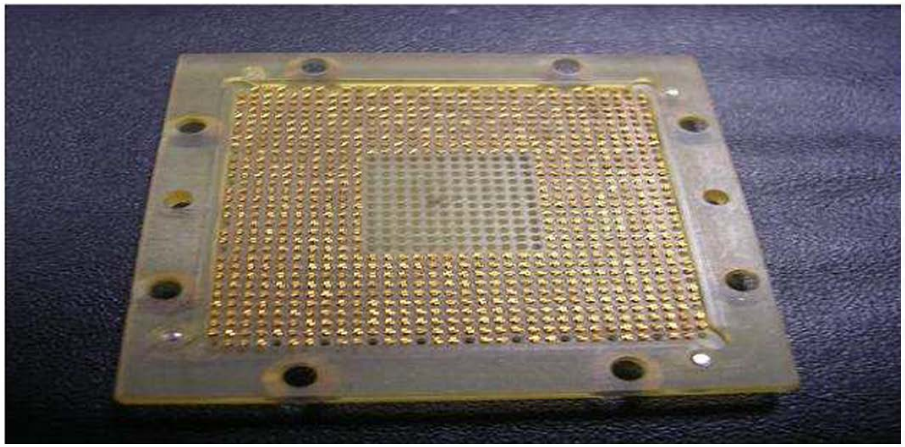
High Pin Count Socket

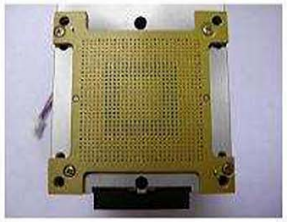
產品特色:

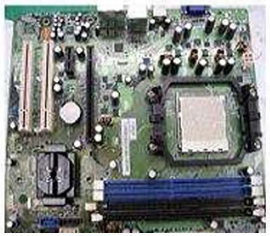
1. 大 **pin** 數 ：單顆治具可安裝多達 **1000~4000pins.**
2. 客製化的造型及搭配對應的零配件, 如: 升溫器, **Sensor**, 接地針, 電木盒…等等
3. 加強散熱: 可搭配 散熱片, 水冷風扇, 以符合**A I**處理器系列散熱要求.

大 **PIN** 數	加散熱鰭片	客製化造型
		
		

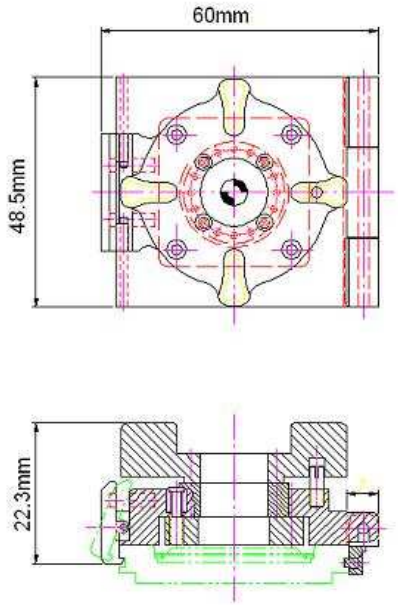
TEST SOCKET







Clam shell cover for IC package size 27~40mm

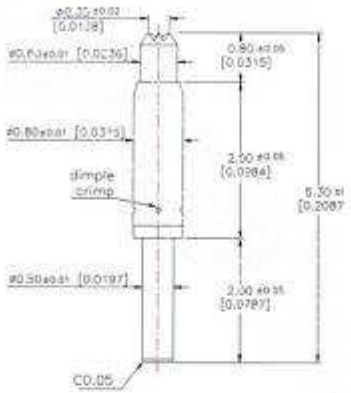


SPECIFICATION		
Socket parts	Material	Mechanical
Knob lock	Peek, AL	Life cycle 500K times
Frame	AL	
Drive Screw	Cu	
Pusher	AL or Peek	

35x35BGA socket with clam shell cover Top view

Side view

TR127-0.8-5.3



Electrical measure system

Measuring Equipment

: Agilent 8510C network analyzer.
Hewlett-Packard 54750A TDR module

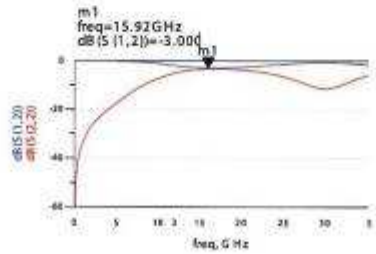
Mechanical Spec.

- Spring Force : 1.23oz (34.9g) @ .0197 (0.50mm)
- Recommended travel : .0197 (0.50mm)
- Full travel : .0314 (0.80mm)
- Material : Plunger - Hardened BeCu / Au plated
  Barrel - Brass / Au plated
  Spring - Music wire / Au plated
  Terminal - Brass / Au plated

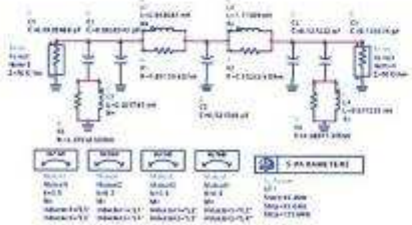
Electrical Spec.

- Current Rating : 2.0A Continuous
- Probe Resistance : Less than 50mohm
- Self Inductance : 2.01nH
- Mutual Inductance : 1.40nH(K=0.5)
- Capacitance : 0.95pF
- Propagation Delay : 65.43ps
- Bandwidth : 15.92GHz

(Dielectric material : ULTEM1000)



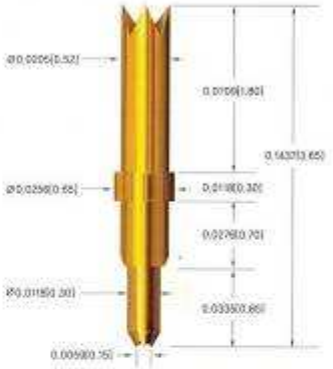
- S-parameter -



- Equivalent-circuit model -

le

TR08-0.52-3.65



Mechanical Spec.

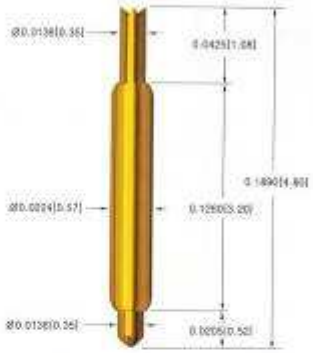
Spring Force : .71oz (20.15g) @ .0276 (0.70mm)
Recommended travel : .0276 (0.70mm)
Full travel : .0335 (0.85mm)
Material : Plunger - Hardened BeCu / Au plated
Barrel - Hardened BeCu / Au plated
Spring - Music wire / Au plated

Electrical Spec.

Current Rating : 1.0A Continuous
Probe Resistance : Less than 50mohm
Self Inductance : 0.54nH
Capacitance : 0.44pF
Bandwidth : 35.05GHz
Propagation Delay : 24.41ps

S-parameter

TR10-0.57-4.8

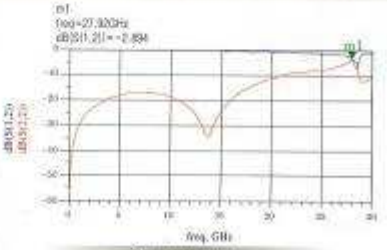


Mechanical Spec.

Spring Force : 1.16oz (33.0g) @ .0236 (0.60mm)
Recommended travel : .0236 (0.60mm)
Full travel : .0315 (0.80mm)
Material : Plunger - Hardened BeCu / Au plated
Barrel - Phosphor bronze / Au plated
Spring - Music wire / Au plated

Electrical Spec.

Current Rating : 1.0A Continuous
Probe Resistance : Less than 50mohm
Self Inductance : 0.89nH
Capacitance : 0.55pF
Bandwidth : 27.92GHz
Propagation Delay : 46.8ps



S-parameter

Test Report

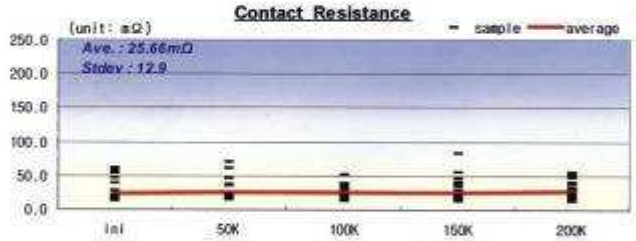
- Inspector : BS Lee
- Model name :TR127-0.8-5.3
- Test current: 100mA
- Test resolution : 0.1mOhm
- Test insertions : 200,000 insertions.

Date : Feb. 28th, 2004
Number of probes : 32 pcs
Maximum test Voltage : 350mV
Test temperature : 23℃

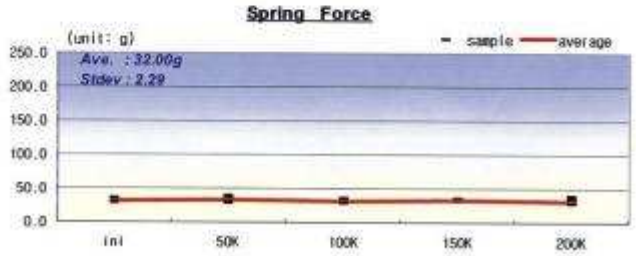
Consequence

- Contact Resistance : Ave 25.66mohm (Gold plate to Gold plate)
- Standard Deviation : 12.9mohm
- Spring Force : Ave32.00g at Recommended travel

1) Resistance vs. Insertions



2) Spring force vs. Insertions



Enplas

TEST & BURN-IN SOCKETS

1999/2000

Enplas Corporation

ISO 9001 REGISTERED
ENPLAS SOCKETS
JSA
JAB

FBGA
BALL GRID ARRAY

ORDERING PROCEDURE

OTB - □□□ - □. □□ - □□

- Socket Series
- Pin Count
- Pitch
- Design NO.

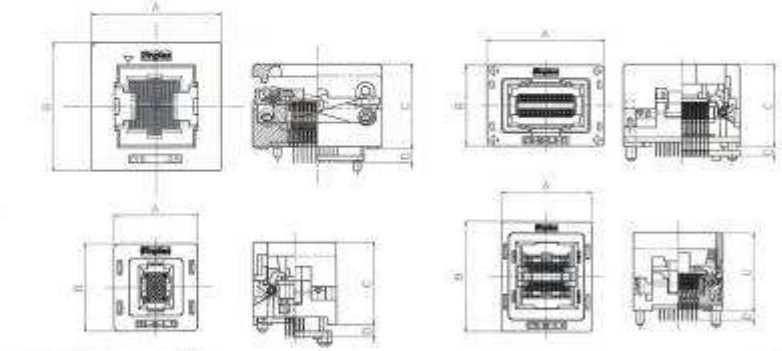
SPECIFICATIONS

Contact resistance: Initial 50 m Ω (At 10 mA) INITIAL
Maximum voltage: AC70V RMS (for 1 minute)
Insulation resistance: 1,000 MΩ or higher (At DC 500V)
Rated current: 1A
Operating temperature range: −65°C~ +150°C
Terminal strength against pulling: 0.5Kg (1 min)
Insertion: Min 10,000 times (mechanical)

MATERIAL

Body: PB, PES
Contact: BeCu, Au plating (Ni-base)

APPLICABLE IC DIMENSIONS & SOCKET DIMENSIONS



Unit: mm

OTB-60 SERIES (0.8mm PITCH)

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)				REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	D	
OTB-60-0.8-01	7.83×14.76	4×15	Fully Array	60	0.8	17.6	25.4	15	2	

OTB-48 SERIES (0.75mm PITCH)

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)				REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	D	
OTB-48-0.75-01	6.76×7.87	6×8	Fully Array	48	0.75	15	19	15	2.5	

OTB Direct RDRAM SERIES

PART NO.	APPLICABLE IC DIMENSIONS (REF.)					OUTSIDE DIMENSIONS (REF.)				REMARKS
	BODY SIZE	GRID	ROW/ARRAY	LEADS NUMBER	PITCH	A	B	C	D	
OTB-62-0.8-01	11.66×12.80	9×6	Fully Array	62	1.0×0.8	19.5	24	17	2	
OTB-54(106)-0.8-01	10.24× 9.07	9×6	Depopulated	54	1.0×0.8	26	26	15.4	2	
OTB-54(110)-0.8-101	10.50×11.00	9×6	Depopulated	54	1.0×0.8	24	20	17.1	2	PLAN

*Depopulated version available.

TSOP
THIN SMALL OUTLINE PACKAGE

ORDERING PROCEDURE

OTS - □□□ - □. □□ - □□

- Socket Series
- Pin Count
- Pitch
- Design NO.

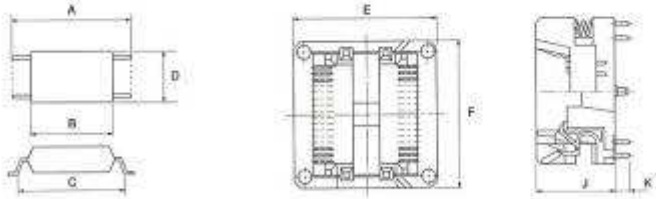
SPECIFICATIONS

Contact resistance: Initial 30m Ω ~50m Ω ~100m Ω (At 10 mA)
Maximum voltage: AC700V RMS (for 1 minute)
(Below 0.5mm Pitch
: AC500V RMS (for 1 minute))
Insulation resistance: 1,000MΩ or higher (At DC 500V)
Rated current: 1A
Operating temperature range: −65°C~ +150°C
Terminal strength against pulling: 0.5Kg (1 min)
Insertion: Min. 5,000 times, 10,000 times (mechanical)

MATERIAL

Body: PB, PES
Contact: BeCu, Au plating (Ni-base)

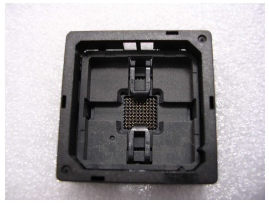
APPLICABLE IC DIMENSIONS & SOCKET DIMENSIONS

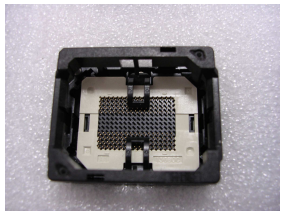


Micro Contact Solution

Test & Burn-in Socket

BGA Series: Pitch 0.5,0.65,0.8mm / open top

			
Pitch:0.5	**Pitch:0.65**	**Pitch:0.75**	**TSOP 66P,86P**

			
Pitch:0.8	**Pitch: 0.8**	**Pitch:0.8 for auto tester**	**SOT 3P/4P/5P/6P/8P**
Module socket			
DDRI 184 / DDRII 240 / DDRIII 240 module socket			

Yamaichi Electronics USA

Company Profile

www.yamaichi.de

Testing & Burn-In Socket /
YAMAICHI

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YAMAICHI

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Speciality Test Products

TEXAS INSTRUMENTS | SENSORS & CONTROLS : PRODUCTS

CONTROL PRODUCTS

IC Test & Burn - In Sockets

- BGA series
- CSP series: Chart
  0.5mm - pitch
- KGD series
- LGA series
- PGA series
- QFP series
- SOJ series: SOJ LIF SOJ ZIF
- SOP series: Chart
- TSOP series: Chart Carrier Non - Carrier

Sensors & Controls > Products > Controls >

IC Test and Burn - In Sockets

Updated August 9, 2004

Solutions for the industry's most demanding IC burn - in and test requirements.

At Texas Instruments, we are accelerating new chip - packaging technologies. We create custom - engineered and core testing solutions for the semiconductor and electronics industry to:

- Ensure Quality
- Boost Yield
- Increase Productivity

At A Glance...

- Solutions for virtually any IC burn - in and testing requirement with our proven global deployment.
- An extensive portfolio of existing burn - in test sockets to satisfy state-of-the-art customer applications.
- Innovative and wide - ranging design capabilities to support next generation package road map requirements.
- Texas Instruments (TI) offers a wide range of burn - in sockets to handle package styles servicing the memory, micro - processor, ASIC, and logic businesses.
- Our efforts are supported by an advanced analysis and computational development laboratory. TI laboratory technology focuses on streamlining our customers' engineering design processes.

HFS 810

Grid:
≥ 5,08 mm
≥ 200 Mil

Coaxial HF Test Probe, 50Ω, 4GHz
Installation Height: 11,5mm (.453)
Recommended Stroke: 4,0mm (.157)

Available Tip Styles

for replaceable Inner Conductor

Material	Tip Style	Standard Plating	Special Versions Ø mm	Special Versions Ø inch
2	01	A		
3	05	A		
3	08	A		

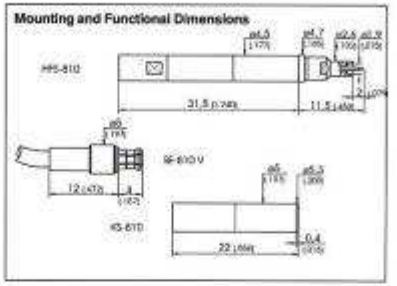
Inner Conductor replaceable; Ordering Example: GKS-051 201 051 A 1300

Available Tip Styles: Outer Plunger

Outer Plunger secured against rotation

02	
02 S	
05	
05 S	

Mounting and Functional Dimensions



Mechanical Data

Working Stroke:	4,0 mm (.157)
Max. Working Stroke:	5,0 mm (.197)
Spring Force at Working Stroke: Outer Conductor:	4,0N (14.4 oz.)
Inner Conductor:	1,3N (4.7 oz.)
Operating Temperature:	-40 up to +80 °C

Electrical Data

Frequency Range:	up to 4 GHz
Current Rating	
Outer Conductor:	5 A
Inner Conductor:	2,3 A
R_i typical: Inner Conductor:	≤ 10 mΩ
Impedance Test - Probe:	50 Ω
Impedance - Cable:	50 Ω

Mounting Hole Size

with Receptacle:	Ø 4,08-4,98 mm (.126 - .197)
without Receptacle:	Ø 4,5 mm (.177)

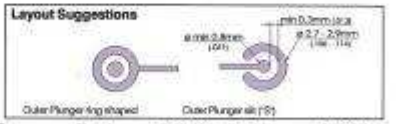
Materials: Inner Conductor

Plunger:	BeCu or Steel, gold-plated
Barrel:	Bronze, gold-plated
Spring:	Steel, gold-plated

Materials: Outer Conductor

Plunger:	BeCu or Brass, gold-plated
Barrel:	Brass, gold-plated
Spring:	Stainless Steel
Insulation:	Teflon
Receptacle:	Brass

Layout Suggestions



Ordering Example:

	Series	Tip Material 2 = Steel 3 = BeCu	Tip Style	Tip diameter (1/100 mm)	Plating A = Gold	Spring Force (cN)	Outer Plunger	Outer Plunger slit (S)
Test Probe with flat Outer Plunger:	HFS	810	2	01	051	A	53	02
Test Probe with serrated Outer Plunger:	HFS	810	2	01	051	A	53	06
MCX Plug pre-wired (Cable RG 316/U):	SE-810 V.U				SE-810 V			(for usage in Grid 5,08mm (200mil))
Receptacle:	KS-810							

All specifications are subject to change without prior notification

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	COUNT	DESCRIPTION OF REVISIONS	BY	CHKD	DATE		COUNT	DESCRIPTION OF REVISIONS	BY	CHKD	DATE
△						△					
△						△					

APPLICABLE STANDARD				
RATING	OPERATING TEMPERATURE RANGE	-40°C TO +85°C(95%RH MAX)	STORAGE TEMPERATURE RANGE	-40°C TO +85°C(95%RH MAX)
	POWER	——W	CHARACTERISTIC IMPEDANCE	50Ω (0 TO 5 GHz)
	PECULIARITY	——	APPLICABLE CABLE	——

SPECIFICATIONS

ITEM	TEST METHOD	REQUIREMENTS	QT	AT
CONSTRUCTION				
GENERAL EXAMINATION	VISUALLY AND BY MEASURING INSTRUMENT	ACCORDING TO DRAWING.	○	○
MARKING	CONFIRMED VISUALLY.		—	—
ELECTRIC CHARACTERISTICS				
CONTACT RESISTANCE	10 mA MAX (DC OR 1000 Hz)	CENTER CONTACT 10 mΩ MAX.	○	○
		OUTER CONTACT 10 mΩ MAX.	○	○
INSULATION RESISTANCE	100 V DC	500 MΩ MIN.	○	○
VOLTAGE PROOF	250 V AC FOR 1 min. CURRENT LEAKAGE 2mA MAX.	NO FLASHOVER OR BREAKDOWN.	○	○
VOLTAGE STANDING WAVE RATIO	FREQUENCY 0.045 TO 5 GHz.	VSWR 1.2 MAX.	○	—
INSERTION LOSS	FREQUENCY TO GHz	dB MAX.	—	—
MECHANICAL CHARACTERISTICS				
CONTACT INSERTION AND	[HRM] ϕ0.91 $^{+0.08}_{0}$ BY STEEL GAUGE.	EXTRACTION FORCE 1.5 ~ 4.9 N	○	○
EXTRACTION FORCES	[U.FL] ϕ0.475 $^{0}_{-0.05}$ BY STEEL GAUGE.	EXTRACTION FORCE 0.2 ~ 2 N	○	○
INSERTION AND	MEASURED BY APPLICABLE CONNECTOR.	INSERTION FORCE N MAX.	—	—
WITHDRAWAL FORCES		EXTRACTION FARCE N MAX.	—	—
MECHANICAL OPERATION	500 TIMES INSERTIONS AND EXTRACTIONS.	① CONTACT RESISTANCE: CENTER CONTACT 15 mΩMAX.CHANGE OUTER CONTACT 15 mΩMAX.CHANGE ② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.	○	—
VIBRATION	FREQUENCY TO Hz SINGLE AMPLITUDE mm, m/s² AT CYCLES FOR DIRECTIONS.	① NO ELECTRICAL DISCONTINUITY OF μs. ② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.	—	—
SHOCK	m/s² DIRECTIONS OF PULSE ms AT TIMES FOR DIRECTIONS.		—	—
CABLE CLAMP ROBUSTNESS (AGAINST CABLE PULL)	APPLYING A PULL FORCE THE CABLE AXIALLY AT N MAX.	① NO WITHDRAWAL AND BREAKAGE OF CABLE. ② NO BREAKAGE OF CLAMP.	—	—
ENVIRONMENTAL CHARACTERISTICS				
DAMP HEAT,CYCLIC	EXPOSED AT -10 TO +65 °C, 90~98 % TOTAL 10 CYCLES (240 h)	① INSULATION RESISTANCE: 10 MΩ MIN. (AT HIGH HUMIDITY) ② INSULATION RESISTANCE: 500 MΩ MIN. (AT DRY) ③ NO DAMAGE, CRACK AND LOOSENESS OF PARTS.	○	—
RAPID CHANGE OF TEMPERATURE	TEMPERATURE -40 →5~35 → +85 →5~35 °C TIME 30 → 3 → 30 → 3 min. UNDER 5 CYCLES.	NO DAMAGE, CRACK AND LOOSENESS OF PARTS.	○	—
CORROSION SALT MIST	EXPOSED IN 5 % SALT WATER SPRAY FOR 48 h.	NO HEAVY CORROSION.	○	—

REMARKS	DRAWN	DESIGNED	CHECKED	APPROVED	RELEASED
Unless otherwise specified, refer to JIS C 5402.	K. Shimizu '01.1.9	K. Shimizu '01.1.9	J. Mitani '01.01.10	Y. Kobayashi '01.01.10	

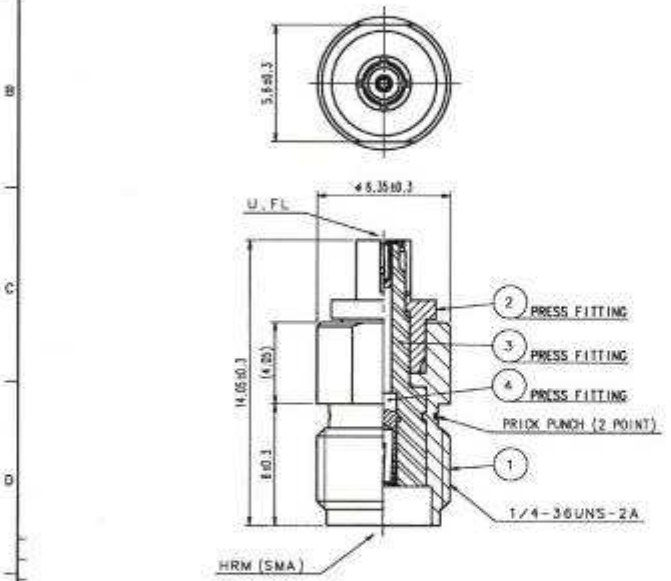
Note QT:Qualification Test AT:Assurance Test ○:Applicable Test

HRS HIROSE ELECTRIC CO., LTD.	SPECIFICATION SHEET	PART NO. HRMJ-U.FLP	
CODE NO.(OLD) CL	DRAWING NO. ELC4-131960	PART NO. CL311-0301-5	1/1

FORM No.231-1

TO / RF

	COUNT	DESCRIPTION OF REVISIONS	BY	CHKD	DATE		COUNT	DESCRIPTION OF REVISIONS	BY	CHKD	DATE
△						△					
△						△					
△						△					



NO.	MATERIAL	FINISH, REMARKS	NO.	MATERIAL	FINISH, REMARKS
2	BERYLLIUM COPPER	NICKEL PLATING	4	BERYLLIUM COPPER	GOLD PLATING
1	BRASS	NICKEL PLATING	3	PTFE	

CODE NO.(OLD) CL	DRAWN	DESIGNED	CHECKED	APPROVED	RELEASED
	K. Shimizu '01.1.9	K. Shimizu '01.1.9	J. Mitani '01.01.10	Y. Kobayashi '01.01.10	

SCALE 5:1 UNITS (mm)	DRAWING NO. EDC4-131960	PART NO. HRMJ-U.FLP
HRS HIROSE ELECTRIC CO., LTD.		CODE NO. CL311-0301-5 1/1

FORM NO.228

TO / RF

Ball & Flux For BGA

High Quality & High Tech

BGA用高精度、高純度錫球適合各式細微部品焊接使用BGA、MCM、CSP、COB.....ETC。
備庫量5000KK以上，在台現貨供應。

63/37、10/90各式高低溫合金錫球，
球徑0.1mm~0.35mm（公差10μm）
球徑0.4mm~0.76mm（公差20μm）
Glass Package內含不活性氣體，防止氧化，提供穩定品質。

千住特別開發防靜電包裝ESD Bottle，提供最完善之品質，減少產業廢棄物，減少過度包裝，縮小體積以利存放取用，提供保存期間及運途安定之品質。

千住特別開發ECO SOLDER，保護地球環境的無鉛焊材系列，高信賴性、主導趨勢潮流。

BGA 專用FLUX免洗、水洗TYPE對應不同製程需要，各式黏度、顏色及包裝可滿足各式塗佈工程。

印刷鋼板塞孔清除劑NON-STOP 90/96
經日本SONY指定使用，輕鬆噴灑版面，有效去除阻塞物並保護版面。

千住錫球 SENJU

BGA用高精度、高純度錫球適合各式細微部品焊接使用BGA、
MCM、CSP、COB、FC...etc。本公司備庫量5000kk以上，在台現貨供應。

	球徑(mm)	球徑(mil)	誤差(mm)
63/37	0.127mm	(5mil)	±0.01mm
63/37	0.15mm	(6mil)	±0.01mm
63/37	0.25mm	(10mil)	±0.01mm
63/37	0.3mm	(12mil)	±0.01mm
63/37	0.35mm	(14mil)	±0.02mm
63/37	0.4mm	(16mil)	±0.02mm
63/37	0.45mm	(18mil)	±0.02mm
63/37	0.5mm	(20mil)	±0.02mm
63/37	0.55mm	(22mil)	±0.02mm
63/37	0.6mm	(24mil)	±0.02mm
63/37	0.65mm	(26mil)	±0.02mm
63/37	0.76mm	(30mil)	±0.02mm
63/37	1.0mm	(40mil)	±0.02mm
62/36/2	0.3mm	(12mil)	±0.01mm
62/36/2	0.4mm	(16mil)	±0.02mm
62/36/2	0.5m	(20mil)	±0.02mm
62/36/2	0.76mm	(30mil)	±0.02mm
Sn10-Pb90	0.5m	(20mil)	±0.02mm
Sn10-Pb90	0.76mm	(30mil)	±0.02mm
Sn90-Pb10	0.5mm	(20mil)	±0.02mm
Sn90-Pb10	0.6mm	(20mil)	±0.02mm
#295(高溫錫球)	0.5mm	(20mil)	±0.02mm
#295(高溫錫球)	0.76mm	(30mil)	±0.02mm
#139(高溫錫球)	1.0mm	(40mil)	±0.02mm
#240 (高溫錫球)	1.0mm	(40mil)	±0.02mm
#7050 (高溫錫球)	0.5mm	(20mil)	±0.02mm

Vancuum Pen/UST

V9025 / V9038 / V9013-ESD

A. 防靜電材質
B. 適用於 −55°C ~ +230°C
C. 尺寸有：3mm、6.3mm、9.5mm、12.7mm

SMD-VAC-GP

A. 通用型真空吸筆台
B. 堅固耐用的結構設計
C. 附6支吸筆頭
D. 符合ESD規格
E. 操作時無干擾，可供應 100V 或 220V

V8920E-X-ESD

A. 中長型吸筆 (長:127mm)
B. 200g以下吸力
C. 鋁製柄身，符合ESD規格
D. 附6支吸筆頭

HV-4P

A. 簡易型吸筆 (長:69.85mm)
B. 符合ESD規格
C. HANDI經濟型
D. 附4支吸筆頭

TORY TECHNOLOGY CO., LTD
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