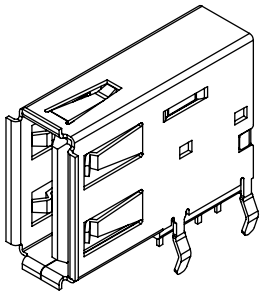
Jameco Part Number 1933558

Universal Serial Bus (USB) I/O Receptacle

48204

Type A, Surface Mount Right Angle, Shielded



Order No.	Lead-free
48204-0001	Yes

Features and Benefits

- Small footprint saves PCB real estate
- Metal shell with back shield offers all-around EMI/RFI shielding
- Spring-beam shell contacts offer plug retention force
- Four beveled metal pins provide strong board retention

Reference Information

Product Specification: PS-48204-001
Packaging: Tray
Designed in: Millimeters

Electrical

Voltage: 30V
Current: 1.5A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35.00N
Unmating Force: 10.00N
Durability: 1500 cycles

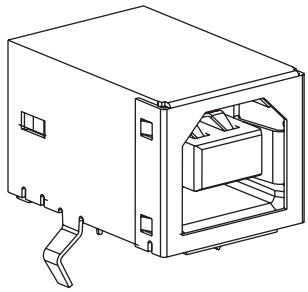
Physical

Housing: Glass-filled high-temperature thermoplastic, UL 94V-0
Contact: Phosphor Bronze
Plating: Contact Area—30µ" Gold
Solder Tail Area—Tin
Underplating: Nickel
Operating Temperature: -55 to +85˚C

Universal Serial Bus (USB) Shielded I/O Type 'B' Receptacle

67068

Single Right Angle, Kinked Version



Circuits	Order No.	Housing Color	Plating	Lead-free
4	67068-8000	Black	Gold Flash	Yes
	67068-8001		30µ" Gold	
	67068-9000	White	Gold Flash	
	67068-9001		30µ" Gold	

Features and Benefits

- Metal shell with back-shield provides all round EMI/RFI shielding
- Staked-housing provides excellent solder tail alignment facilitating PCB mounting
- Multiple internal grounding fingers
- Stand-offs for anti-solder bridging
- Kinked boardlocks provide strong board retention

Reference Information

Product Specification: PS-67998-0000
UL File No.: E29179
CSA File No.: LR19980A
Packaging: Tray
Mates With: USB 'B' Plug
Designed In: Millimeters

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N max.
Withdrawal Force: 10N min.
Durability: 1500 cycles min.

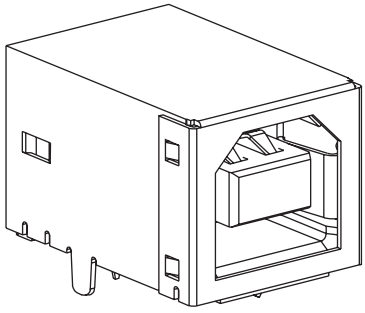
Physical

Housing: Black or white glass fiber-filled polyester, UL 94V-0
Contact: Phosphor Bronze
Metal Shell: Copper Alloy
Plating: Gold Flash or 30µ" Gold
Operating Temperature: 0 to +40˚C

Universal Serial Bus (USB) Shielded I/O Type 'B' Receptacle

67068

Single Right Angle with Straight Tabs



Features and Benefits

- Straight tabs suited for pick-and-place feeder
- Metal shell provides full EMI/RFI shielding
- Staked housing provides excellent solder-tail alignment facilitating PCB mounting
- Housing stand-offs for anti-solder bridging
- Housing available in black or white

Reference Information

Product Specification: PS-67998-0000
Packaging: Tray or tube
Mates With: USB 'B' Plug
Designed In: Millimeters

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N max.
Unmating Force: 10N min.
Durability: 1500 cycles

Physical

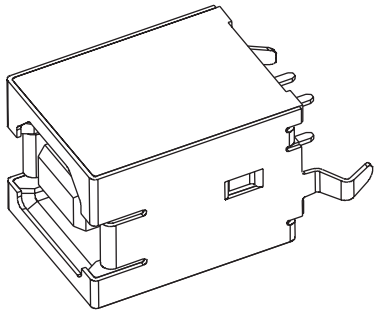
Housing: Black or white glass fiber-filled polyester, UL 94V-0
Contact: Phosphor Bronze
Metal Shell: Copper Alloy
Plating: Gold Flash or 30µ" Gold
Operating Temperature: 0 to +40˚C

Circuits	Order No.		Packaging	Plating	Lead-free
	Black	White			
4	67068-8010	67068-9010	Tray	Gold Flash	Yes
	67068-8011	67068-9011		30µ" Gold	
	67068-8110	67068-9110	Tube	Gold Flash	
	67068-8111	67068-9111		30µ" Gold	

Universal Serial Bus (USB) Shielded I/O Type 'B' Receptacle

67171

Vertical



Features and Benefit

- Dual kinked boardlocks provide secure PCB retention
- Housing stand-off for anti-solder bridging
- Housing available in black or white

Reference Information

Product Specification: PS-67998-0000
Packaging: Tray
Mates With: USB 'B' Plug
Designed In: Millimeters

Electrical

Voltage: 30V
Current: 1.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 750V AC
Insulation Resistance: 1000 Megohms min.

Mechanical

Mating Force: 35N max.
Unmating Force: 10N min.
Durability: 1500 cycles

Physical

Housing: Black or white glass fiber-filled polyester, UL 94V-0
Contact: Phosphor Bronze
Metal Shell: Copper Alloy
Plating: Gold Flash or 30µ" Gold
Operating Temperature: 0 to +40˚C

Circuits	Order No.		Plating	Lead-free
	Black	White		
4	67171-2000	67171-3000	Gold Flash	Yes
	67171-2001	67171-3001	30µ" Gold	

TITLE :	
	USB CONNECTOR

1.0 SCOPE

This specification covers the USB series product.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herewith. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of the specification and the referenced documents, this specification shall take precedence.

MIL-STD-202 Test Mthods for Electronic and Electrical Component Parts
MIL-STD-1344 Test Methods for Electrical Connectors

3.0 MATERIAL SPECIFICATIONS

3.1 Design and Construction
Connector shall be of the design, construction and physical dimensions specified on the applicable sales drawing

3.2 Materials
a) Contacts : Refer To Respective Molex Sales & Engineering Drawings

b) Housing : Refer To Respective Molex Sales & Engineering Drawings

c)Metal Shell : Refer To Respective Molex Sales & Engineering Drawings

d)Plating : Refer To Respective Molex Sales & Engineering Drawings

4.0 RATINGS

4.1	Rated current	1.5 Amp
4.2	Rated voltage	30 VRMS Max.
4.3	Operating temperature range	0˚C to +50˚C
4.4	Storage temperature range	-20˚C to +60˚C

ELECTRICAL

5.0 Performance and Test Description

Connector shall be designed to meet the electrical, mechanical and environmental performance requirements specified in 5.1

5.1 Test Requirments and Procedures.

Item	**Requirement**	**Test methods**
Contact Resistance	**30** mΩ max	Maximum applied Voltage 20mV
(initial value)		at a current of 100mA per EIA 364-23

Dielectric	No Breakdown	Test between adjacent contacts
Withstanding		at 750 V AC (rms) and 60 seconds
Voltage		hold time, per Mil-Std-1344A
		Method 3001.1, Test Condition I.

Insulation	**1000** Mega Ω	Test between adjacent contacts
Resistance	min	at 500 V dc for 2 minutes,
		per Mil-Std-1344A Method 3003.1

Capacitance	**2** picofarad	Test between adjacent contacts
	max	to 1 Megahertz max per EIA 364-30

Current Rating	30 deg C temp. rise max	Apply the rated current to
1.5 Amp		connector for 96 hours per
(Temperature rise)		EIA 364-70-Method B

MECHANICAL

Item	Requirement	Test methods
Durability (Au flash	Contact Resistance	Mate this connector with its mating
Plating)	**30** mohm max	part. Other conditions follow
	after **1500** cycles.	per EIA364-09
Terminal	**0.8** Kg min	Apply a pull out force in the axial
Retention		direction of the contact per Mil-Std-
		1344A method 2007.1
Vibration	a. Contact Resistance	Subject mated connector to simple
	30 mohm max	harmonic motion with double
	b. No discontinuity	amplitude displacement of 0.03 inch
	greater than **1** μsec.	or 5.35 G's and frequency sweep of
		10 to 55 and return to 10 Hz in 2 hours
		in each direction. Total 5 cycles.
		per EIA 364-28
Mechanical	a. No Damage	Subject mated connector to
Shock	b. Contact Resistance	30 G half sine in 11 msec
	30 mohm max	according to EIA 364-27
	b. No discontinuity	
	greater than **1** μsec.	
Mating and Unmating	a. Mating = **3.57** Kg (35 N)	Mate the connector with its mating
Forces	max	part and measure force per
	b. Unmating = **1.02** Kg (10 N)	EIA 364-13
	min	
Cable pull out	4.08 Kg for one minute	Follow EIA 364-38 test condition A
Torque force with upper flange	2.50 Kg Min	

ENVIRONMENTAL

Item	Requirement	Test methods
Thermal Shock	Contact Resistance	Subject mated connector to
	30 mΩ max	10 cycles of exposure at
		- 55 deg C and 85 deg C
		per EIA 364-32

Steady State	Contact Resistance	Expose mated connector to
Humidity	**30** mΩ max	40 deg C and 90-95% RH for
		168 hours according to
		EIA 364-31

Temperature	Contact Resistance	Subject mated connector to
Life (Thermal	**30** mΩ max	ambient temperature of 125 deg C
aging)		for 250 hours per Mil-Std-1344A
		Method 1005.1 Condition B

Solderability	Solder tails shall pass 95% cover	PER EIA 364-52
	-age after one hour steam aging as	
	specified in Category 2	

Resistance to soldering	Appearance : No damage	Dip solder-tails into the molten
heat		solder as follows :
		Soldering time : 5+/-0.5 seconds
		Solder temperature: 260 +/-5 degree C

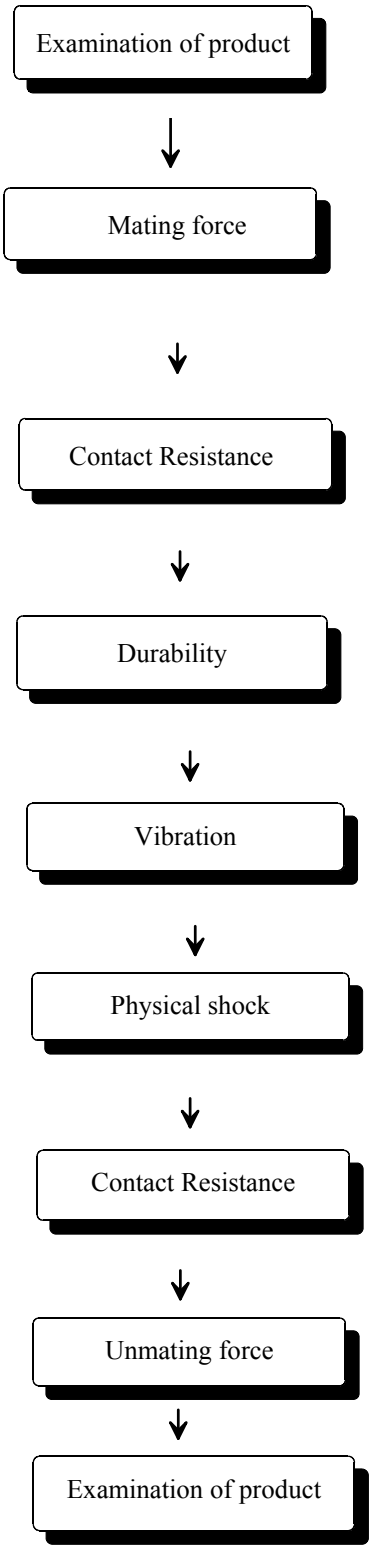
5.2 Test Groups and Test Sequences :

The tests are categorized into 3 major groups. The test sequences are defined as follow .

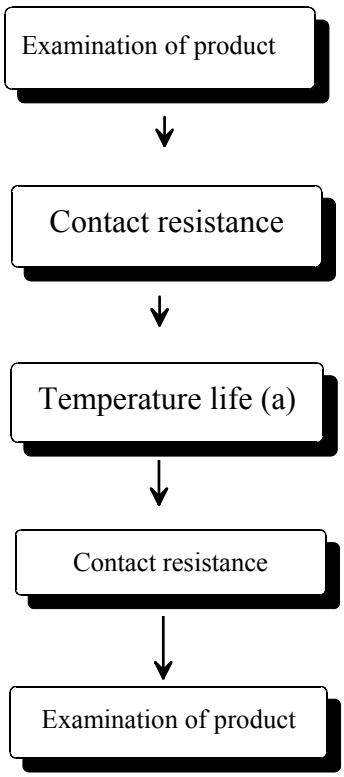
***The tests for Solderability, Terminal Retention are performed independently.**

Sample selection: All test groups shall consist a minimum of eight connectors.A minimum of 30 contacts shall be selected and identified.

GROUP I

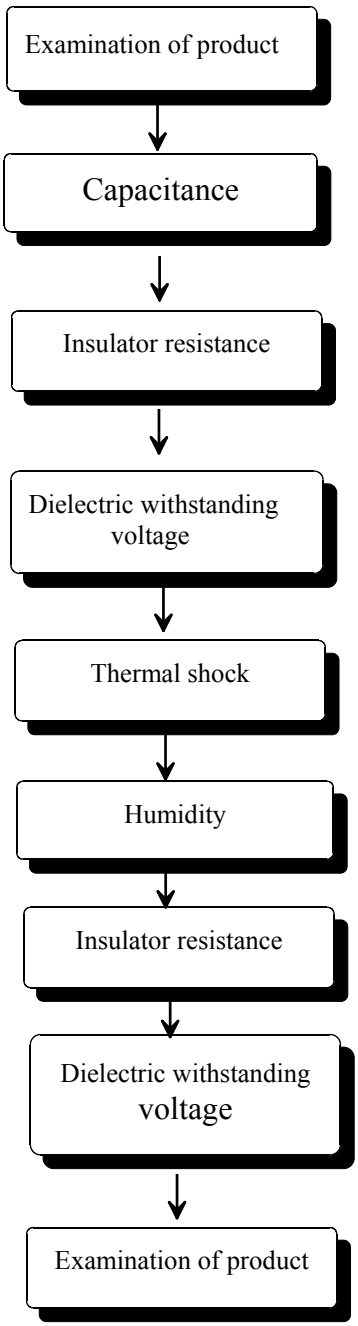

Examination of product
Mating force
Contact Resistance
Durability
Vibration
Physical shock
Contact Resistance
Unmating force
Examination of product

GROUP II



(a): Pre-mating and unmating 10 cycles

GROUP III


Examination of product
Capacitance
Insulator resistance
Dielectric withstanding voltage
Thermal shock
Humidity
Insulator resistance
Dielectric withstanding voltage
Examination of product

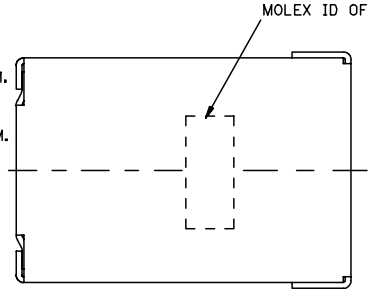
NOTES :

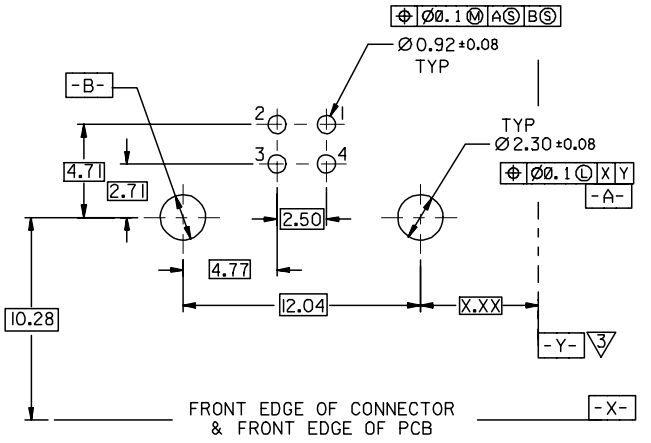
1. MATERIAL :
   HOUSING : (a) HIGH TEMP. NYLON ,GLASS FIBER FILLED,UL94V-0, COLOR: BLACK,
   (b) POLYESTER , GLASS FIBER FILLED,UL94V-0, COLOR: WHITE,
   TERMINAL : PHOSPHOR BRONZE
   METAL SHELL : COPPER ALLOY

2. PLATING :
   TERMINAL :
   CONTACT AREA : (a) GOLD FLASH.
   (b) GLOD (Au), THICKNESS = 30 MICROINCH MINIMUM.
   /0.76 MICROMETER MINIMUM.
   SOLDER TAIL :
   PURE TIN(Sn) THICKNESS= 75 MICROINCH MINIMUM .
   / 1.9 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (Ni), THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   METAL SHELL :
   PURE TIN(Sn) , THICKNESS= 50 MICROINCH MINIMUM.
   / 1.27 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (Ni) , THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.

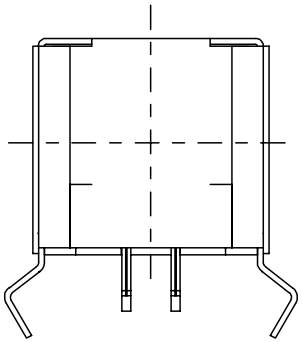
3 DATUM AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER
RECOMMENDED PCB THICKNESS : 1.60±0.05

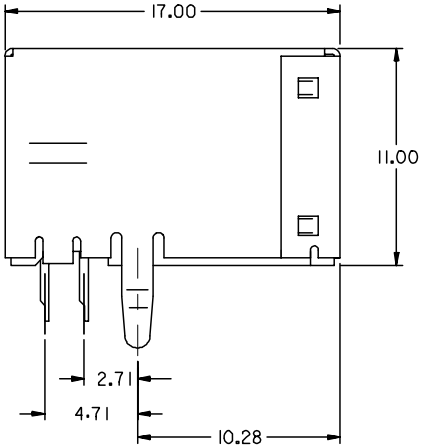
4 PRODUCT SPECIFICATION : REFER TO PS-67998-0000

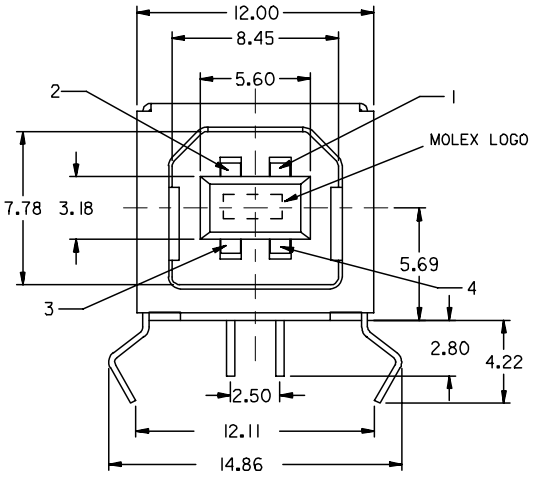




RECOMMENDED PCB LAYOUT







PART NUMBER LEGEND:

67068- * * 0 *

8 : BLACK HOUSING
9 : WHITE HOUSING

0 : TRAY PACKAGING
1 : TUBE PACKAGING

KINK TYPE BOARD LOCK

0 : GOLD FLASH
1 : 0.76 MICROMETER/30 MICROINCH GOLD

REV	DESCRIPTION	DRWN	CH'KD	APPR	EC NO
A	NEW RELEADE	DAVID HU 2004/11/5	HARVEY 2004/11/25	YTYAP 2004/11/25	SH2005-0142

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.25	± ---
1 PLACE	± 0.25	± ---
ANGULAR ± 3 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE	MM ONLY
SCALE	4:1
DESIGN UNITS	METRIC
	THIRD ANGLE PROJECTION
DRAWN BY	DAVID HU
DATE	2004/11/05
CHECKED BY	HARVEY
DATE	2004/11/05
APPROVED BY	
DATE	
TITLE	USB B TYPE CONNECTOR KINK TYPE BOARD LOCK (LEAD-FREE)
	MOLEX INCORPORATED
MATERIAL NO.	SEE NOTES
DOCUMENT NO.	SD-67068-003
SHEET NO.	1 OF 4
SIZE	A3

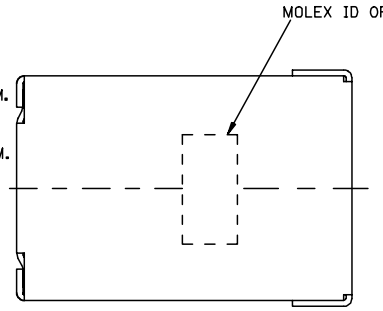
NOTES :

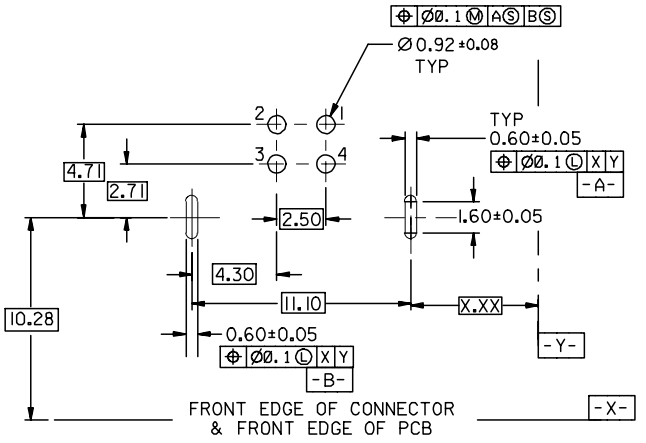
1. MATERIAL :
   HOUSING : (a) HIGH TEMP. NYLON, GLASS FIBER FILLED,UL94V-0, COLOR: BLACK,
   (b) POLYESTER , GLASS FIBER FILLED,UL94V-0, COLOR: WHITE,
   TERMINAL : PHOSPHOR BRONZE
   METAL SHELL : COPPER ALLOY

2. PLATING :
   TERMINAL :
   CONTACT AREA : (a) GOLD FLASH.
   (b) GLOD (Au), THICKNESS = 30 MICROINCH MINIMUM.
   /0.76 MICROMETER MINIMUM.
   SOLDER TAIL :
   PURE TIN(Sn) THICKNESS= 75 MICROINCH MINIMUM .
   /1.9 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (Ni), THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   METAL SHELL :
   PURE TIN(Sn) THICKNESS= 50 MICROINCH MINIMUM.
   / 1.27 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (Ni) , THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.

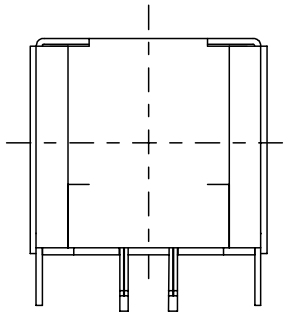
3 DATUM AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER
   RECOMMENDED PCB THICKNESS : 1.60±0.05

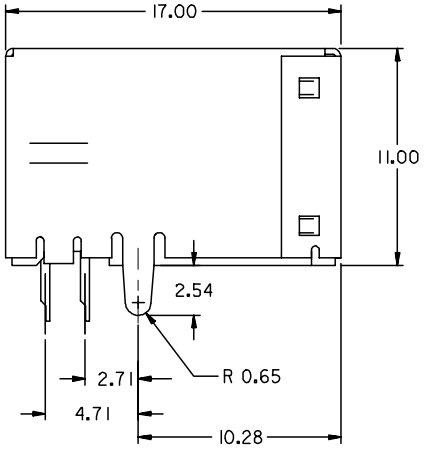
4 PRODUCT SPECIFICATION : REFER TO PS-67998-0000

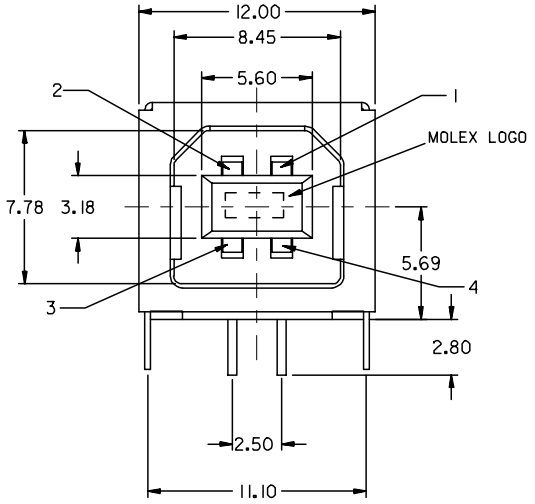




RECOMMENDED PCB LAYOUT







PART NUMBER LEGEND:

67068- * * I *

8 : BLACK HOUSING
9 : WHITE HOUSING

0 : TRAY PACKAGING
I : TUBE PACKAGING

0 : GOLD FLASH
I : 0.76 MICROMETER/30 MICROINCH GOLD

STRAIGHT TAB

EC NO: SH2005-0142	DESCRIPTION	REV
DRWN: DAVID HU 2004/11/5		
CH'KD:HARVEY 2004/11/25		
APPR:YTYAP 2004/11/25	NEW RELEASE	A

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.25	± ---
1 PLACE	± 0.25	± ---

ANGULAR ± 3 °

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: MM ONLY
SCALE: 4:1
DESIGN UNITS: METRIC
THIRD ANGLE PROJECTION

DRAWN BY: DAVID HU DATE: 2004/11/05
CHECKED BY: 2004/11/05 DATE: 2004/11/05
APPROVED BY: DATE:
MATERIAL NO.: SEE NOTES

TITLE: USB B TYPE CONNECTOR WITH STRAIGHT TAB (LEAD-FREE)

molex MOLEX INCORPORATED

DOCUMENT NO.: SD-67068-003
SHEET NO.: 2
SIZE: A3

NOTES :

1. MATERIAL :
   HOUSING : (a) HIGH TEMP. NYLON, GLASS FIBER FILLED,UL94V-0, COLOR: BLACK,

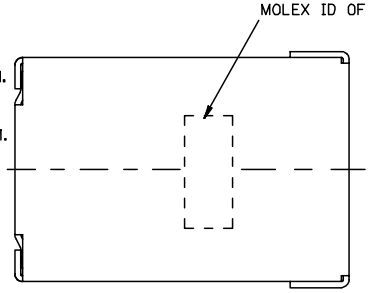
   TERMINAL : PHOSPHOR BRONZE
   METAL SHELL : COPPER ALLOY

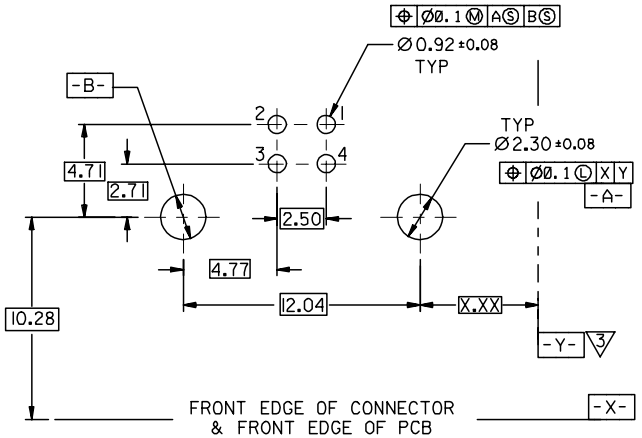
2. PLATING :
   TERMINAL :
   CONTACT AREA : (a) GOLD FLASH.
   (b) GLOD (Au), THICKNESS = 30 MICROINCH MINIMUM.
   /0.76 MICROMETER MINIMUM.
   SOLDER TAIL :
   PURE TIN(Sn) THICKNESS= 75 MICROINCH MINIMUM .
   /1.9 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (NI), THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   METAL SHELL :
   PURE TIN(SN), THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (NI) , THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.

3 DATUM AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER

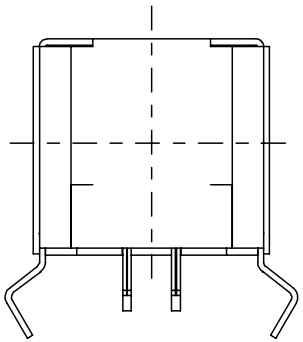
RECOMMENDED PCB THICKNESS : 1.60±0.05

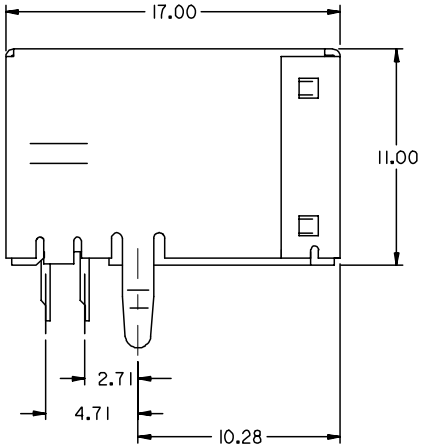
4 PRODUCT SPECIFICATION : REFER TO PS-67998-0000

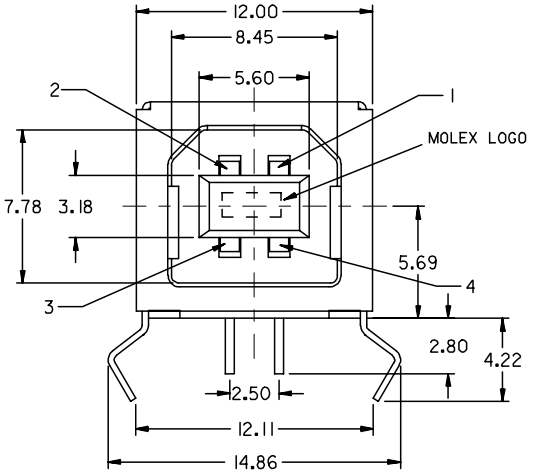




RECOMMENDED PCB LAYOUT







PART NUMBER LEGEND:

67068- 7041

LTR	REVISION RECORD	ECN	DR	DATE
A	NEW RELEASE FOR LEAD-FREE		DAVID HU	2004/11/5

REVISE ONLY ON CAD SYSTEM

MATERIAL :	SEE NOTES
FINISH :	SEE NOTES
WIRE RANGE :	
INS. RANGE :	
DRAWN BY	2004/11/5 DAVID HU
CHK'D BY	
APPR'D BY	
SCALE	4 : 1

MOLEX TAIWAN LTD.
SHEET 3 OF 4

GENERAL TOLERANCES
ANGLE : ± 3° DIM : ± .25/.010

ENG. NO.: SD-67068-003 REV A

TITLE : HIGH TEMP,USB B TYPE CONNECTOR KINK TYPE BOARD LOCK (LEAD-FREE)

ENG. NO | EDP NO. | SIMILAR ITEM | CAD FILE : | DO NOT SCALE DRAWING

MXT , Sa - 13

ENG. NO SDA-67068-****

EDP NO.

SIMILAR ITEM

CAD FILE : S6706802

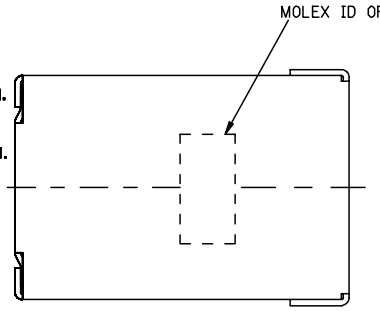
DO NOT SCALE DRAWING

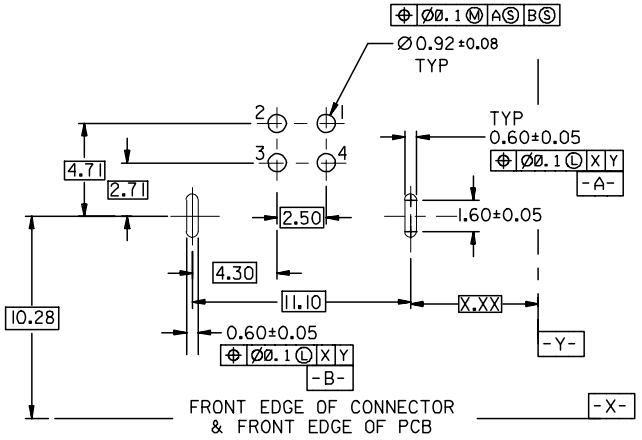
NOTES :

1. MATERIAL :
   HOUSING : (a) HIGH TEMP. NYLON, GLASS FIBER FILLED,UL94V-0, COLOR: BLACK,

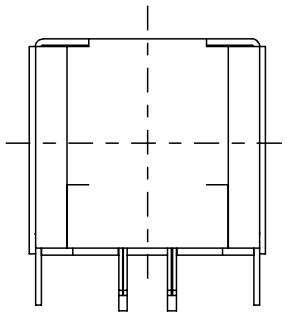
   TERMINAL : PHOSPHOR BRONZE
   METAL SHELL : COPPER ALLOY

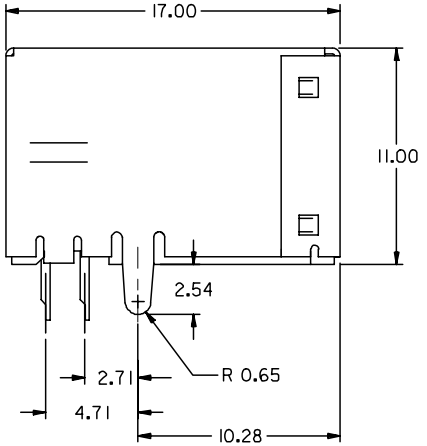
2. PLATING :
   TERMINAL :
   CONTACT AREA : (a) GOLD FLASH.
   (b) GLOD (Au), THICKNESS = 30 MICROINCH MINIMUM.
   /0.76 MICROMETER MINIMUM.
   SOLDER TAIL :
   PURE TIN(Sn) THICKNESS= 75 MICROINCH MINIMUM .
   /1.9 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (NI), THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   METAL SHELL :
   PURE TIN(SN) THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
   UNDER PLATE : NICKEL (NI) , THICKNESS= 50 MICROINCH MINIMUM.
   /1.27 MICROMETER MINIMUM.
3. DATUM AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER
   RECOMMENDED PCB THICKNESS : 1.60±0.05
4. PRODUCT SPECIFICATION : REFER TO PS-67998-0000

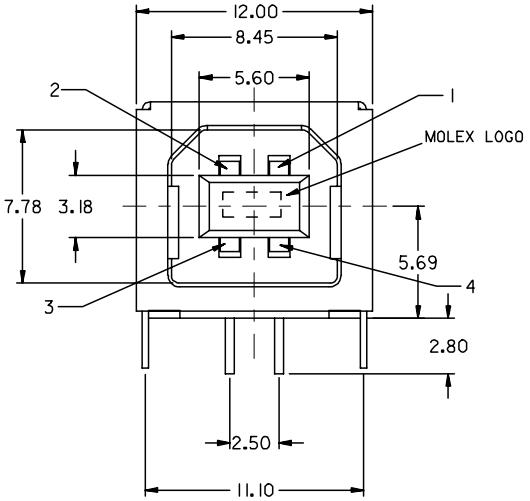




RECOMMENDED PCB LAYOUT







PART NUMBER LEGEND:

67068- 7051

LTR	REVISION RECORD	ECN	DR	DATE
A	NEW RELEASE FOR LEAD-FREE		DAVD HU	2004/11/5

REVISE ONLY ON CAD SYSTEM

MATERIAL :	SEE NOTES
FINISH :	SEE NOTES
WIRE RANGE :	
INS. RANGE :	
DRAWN BY 2004/11/5 DAVID HU	CHK'D BY
APPR'D BY	SCALE 4 : 1

MOLEX TAIWAN LTD.
SHEET 4 OF 4

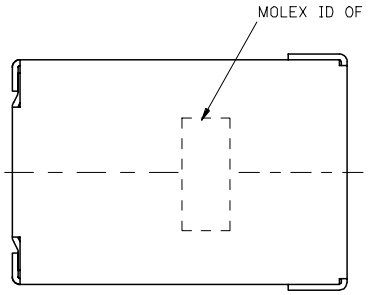
GENERAL TOLERANCES
ANGLE : ± 3° DIM : ± .25/.010

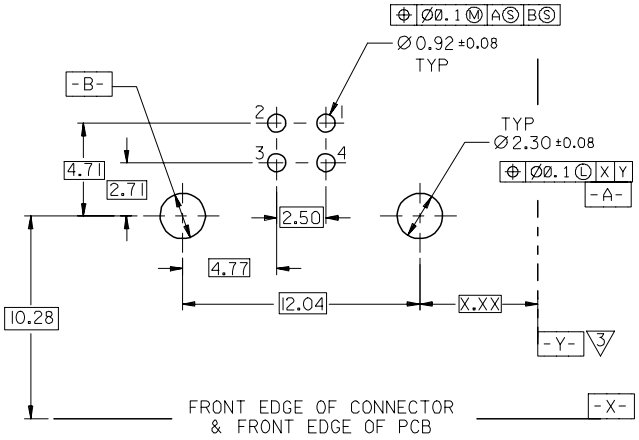
ENG. NO.: SD-67068-003 REV A

TITLE : HIGH TEMP,USB B TYPE CONNECTOR WITH STRAIGHT TAB (LEAD-FREE)

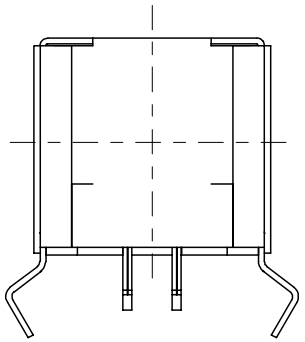
MXT , Sa - 13

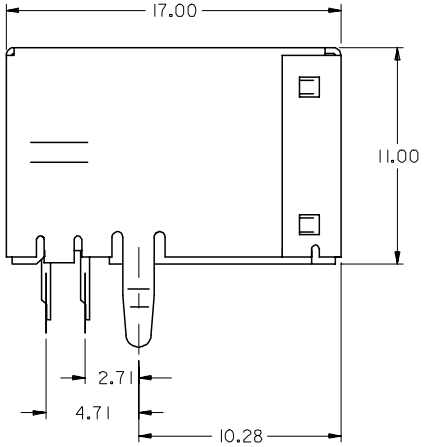
NOTES:
1.MATERIAL:
HOUSING:
(a)HIGH TEMP.NYLON,GLASS FIBRE FILLED,UL94V-0,COLOR: 8:BALCK
(b)POLYESTER(PBT),30% GLASS FIBER FILLED,UL94V-0,COLOR: 9:WHITE
TERMINAL: PHOSPHOR BRONZE
METAL SHELL: COPPER ALLOY
2.PLATING:
TEMINAL:
(c)GOLD FLASH ON CONTACT AREA,75 MICROINCH MINIMUM PURE TIN(Sn) ON SOLDER TAIL,UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
(d)30 MICROINCH MINIMUM GOLD(Au) ON CONTACT AREA,75 MICROINCH MINIMUM PURE TIN(Sn) ON SOLDER TAIL,UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
(e)GOLD FLASH ON CONTACT AREA,75 MICROINCH MINIMUM MATTE TIN(Sn) ON SOLDER TAIL,UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
(f)30 MICROINCH MINIMUM GOLD(Au) ON CONTACT AREA,75 MICROINCH MINIMUM MATTE TIN(Sn) ON SOLDER TAIL,UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
METAL SHELL:
(g)50 MICROINCH MINIMUM PURE TIN(Sn),UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
(h)50 MICROINCH MINIMUM MATTE TIN(Sn),UNDER 50 MICROINCH MINIMUM NICKEL(Ni) PLATE.
3. DATUM AND BASIC DIMENSIONS ESTABLISHED BY CUSTOMER.
RECOMMENDED PCB THICKNESS : 1.60±0.05
4.PRODUCT SPECIFICATION : REFER TO PS-67998-0000

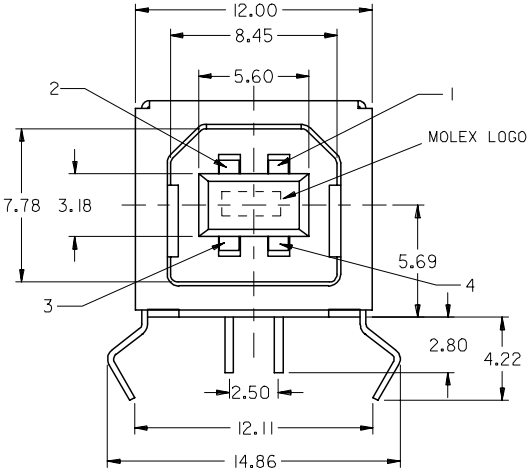




RECOMMENDED PCB LAYOUT







P/N	HOUSING COLOR	PLATING
67068-8000	BLACK	GOLD FLASH SEE NOTES[2-(c),2-(g)]
67068-8001	BLACK	30MICROINCH Au SEE NOTES[2-(d),2-(g)]
67068-9000	WHITE	GOLD FLASH SEE NOTES[2-(c),2-(g)]
67068-9001	WHITE	30MICROINCH Au SEE NOTES[2-(d),2-(g)]
67068-8012 B	BLACK	30MICROINCH Au SEE NOTES[2-(f),2-(h)]
67068-8013 B	BLACK	GOLD FLASH SEE NOTES[2-(e),2-(h)]

REVISED
EC NO: SH2007-0468 2007/01/19
DRWN:HYHE01 2007/01/19
CHKD: WANG
APPR: JNCHEN 2007/01/26
DESCRIPTION
REV B

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.25	± .010
1 PLACE	± 0.25	± .010
ANGULAR ± 3 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: MM ONLY
SCALE: 4:1
DESIGN UNITS: METRIC
THIRD ANGLE PROJECTION

DRAWN BY: DAVID HU DATE: 2004/11/05
CHECKED BY: HARVEY DATE: 2004/11/05
APPROVED BY: DATE:

TITLE: USB B TYPE CONNECTOR LEAD-FREE

molex MOLEX INCORPORATED

MATERIAL NO.: SEE NOTES
DOCUMENT NO.: SD-67068-004
SHEET NO.: 1 OF 1
SIZE: A3