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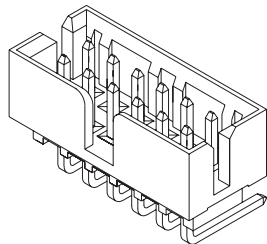
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Jameco Part Number 1978641

## 2.00mm (.079") Pitch Milli-Grid™ Header

### 87833 Shrouded Right Angle



#### Features and Benefits

- Sizes 4 to 50 circuits
- Fully shrouded to protect pins during mating/unmating
- Center slot for polarization
- Front latches for mechanical locking
- Center polarization slot (6 to 12 circuits); center polarization slot and front latches (14 to 50 circuits)
- Surface Mount Compatible
- Contact Molex for embossed tape

#### Reference Information

Product Specification: PS-87831-027  
 Packaging: Tube (contact Molex for tape and reel)  
 UL File No.: E29179  
 CSA File No.: LR19980  
 Mates With: 50394, 51110 and 87568  
 Designed In: Millimeters

#### Electrical

Current: 2.0A  
 Dielectric Withstanding Voltage: 1000V  
 Insulation Resistance: 1000 Megohms min.

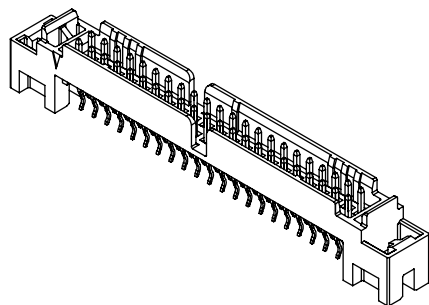
#### Physical

Housing: Black 4/6 nylon, UL 94V-0  
 Contact: Phosphor Bronze  
 Plating: See Table  
 Operating Temperature: -55 to +105°C

Circuits	Order No.		Lead-free	Circuits	Order No.		Lead-free
	15µm Select Gold	30µm Select Gold			15µm Select Gold	30µm Select Gold	
4	<a href="#">87833-0420</a>	<a href="#">87833-0421</a>	Yes	28	<a href="#">87833-2820</a>	<a href="#">87833-2821</a>	Yes
6	<a href="#">87833-0620</a>	<a href="#">87833-0621</a>		30	<a href="#">87833-3020</a>	<a href="#">87833-3021</a>	
8	<a href="#">87833-0820</a>	<a href="#">87833-0821</a>		32	<a href="#">87833-3220</a>	<a href="#">87833-3221</a>	
10	<a href="#">87833-1020</a>	<a href="#">87833-1021</a>		34	<a href="#">87833-3420</a>	<a href="#">87833-3421</a>	
12	<a href="#">87833-1220</a>	<a href="#">87833-1221</a>		36	<a href="#">87833-3620</a>	<a href="#">87833-3621</a>	
14	<a href="#">87833-1420</a>	<a href="#">87833-1421</a>		38	<a href="#">87833-3820</a>	<a href="#">87833-3821</a>	
16	<a href="#">87833-1620</a>	<a href="#">87833-1621</a>		40	<a href="#">87833-4020</a>	<a href="#">87833-4021</a>	
18	<a href="#">87833-1820</a>	<a href="#">87833-1821</a>		42	<a href="#">87833-4220</a>	<a href="#">87833-4221</a>	
20	<a href="#">87833-2020</a>	<a href="#">87833-2021</a>		44	<a href="#">87833-4420</a>	<a href="#">87833-4421</a>	
22	<a href="#">87833-2220</a>	<a href="#">87833-2221</a>		46	<a href="#">87833-4620</a>	<a href="#">87833-4621</a>	
24	<a href="#">87833-2420</a>	<a href="#">87833-2421</a>		48	<a href="#">87833-4820</a>	<a href="#">87833-4821</a>	
26	<a href="#">87833-2620</a>	<a href="#">87833-2621</a>		50	<a href="#">87833-5020</a>	<a href="#">87833-5021</a>	

## 2.00mm (.079") Pitch Milli-Grid™ Header

### 87981/87982/87983/87984 With Latch Hook



#### Features and Benefits

- Early entry system provides long pin wipe
- Polarization slot to prevent reversed mating
- Polarization peg in vertical type (series 87982/87983) ensures proper orientation during mounting to PCB

#### Reference Information

Product Specification: PS-87981-018  
 Packaging: See table  
 Mates With: 87985 IDT Receptacle

#### Electrical

Voltage: 125V AC  
 Current: 2.0A max.  
 Contact Resistance: 30 milliohms max.  
 Dielectric Strength: 500V AC  
 Insulation Resistance: 1000 Megohms min.

#### Mechanical

Contact Retention to Housing: 0.85kgf  
 Mating Force: 200gf per circuit max.  
 Unmating Force: 40gf per circuit min.  
 Durability: 30 cycles

#### Physical

Housing: See table  
 Contact: Phosphor Bronze  
 Plating: Contact Area—0.38µm (15µm) min. Gold  
 Solder Tail Area—Tin  
 Underplating: Nickel  
 PCB Thickness: 1.60mm +/-0.10mm  
 Operating Temperature: -40 to +85°C

Circuits	Order No.	Orientation	PCB Mounting	Packaging	Housing	Lead-free
30	<a href="#">87982-3030</a>	Vertical	Through Hole	Tube	Black glass-filled nylon, UL 94V-0	Yes
40	<a href="#">87982-3040</a>	Vertical	Through Hole	Tube	Black glass-filled nylon, UL 94V-0	
40	<a href="#">87984-3040</a>	Right Angle	Through Hole	Tube	Black glass-filled nylon, UL 94V-0	
44	<a href="#">87981-3044</a>	Right Angle	Straddle Mount	Tube	Black glass-filled LCP, UL 94V-0	
44	<a href="#">87982-3044</a>	Vertical	Through Hole	Tube	Black glass-filled nylon, UL 94V-0	
44	<a href="#">87983-3044</a>	Vertical	SMT	Tape and Reel	Black glass-filled nylon, UL 94V-0	
50	<a href="#">87981-3050</a>	Right Angle	Straddle Mount	Tube	Black glass-filled LCP, UL 94V-0	
50	<a href="#">87982-3050</a>	Vertical	Through Hole	Tube	Black glass-filled nylon, UL 94V-0	

Contact Molex for availability of other circuit sizes (4-50 circuits)



# PRODUCT SPECIFICATION

## 1.0 SCOPE

This specification covers the performance requirements for Milli-Grid 2mm Dual Row Shrouded Headers.

## 2.0 PRODUCT DESCRIPTION

2.1 Product covered by this specification are for series number

Product Name	Part Number
MGrid Headers (Vertical)	87831 Series
MGrid Headers (SMT)	87832 Series
MGrid Headers (R/A)	87833 Series

These series mate with Molex :

- a. Milli-Grid 2mm Grid Wire to Board Connector, Crimp Receptacle Housing, 51110 series and Crimp Terminal, 50394 series.
- b. 2mm Milli-Grid Dual Row IDT, 87568 series.

2.2 For dimensions, materials & plating, refer to the appropriate product drawings.

2.3 Safety Agency Approvals:

UL File Number : E29179  
 CSA File Number : LR19980

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

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

MIL-STD-202 Test Methods for Electrical and Electronic Component Parts.

MIL-STD-1344 Test Methods of Electrical Connector

Reference Product Specifications

PS-51110-001 Milli-Grid 2mm Grid Wire to Board Connector

PS-87568-004 2mm Milli-Grid Dual Row IDT Receptacle

REVISION: <b>A1</b>	ECR/ECN INFORMATION: EC No: <b>S2006-0204</b> DATE: <b>2005/08/08</b>	TITLE: <b>MILLIGRID 2MM DUAL ROW SHROUDED HEADERS</b>	SHEET No. <b>1 of 3</b>
DOCUMENT NUMBER: <b>PS-87831-027</b>	CREATED / REVISED BY: <b>YLQIAO 2005/08/08</b>	CHECKED BY: <b>BOKOK 2005/08/23</b>	APPROVED BY: <b>PTLIM 2005/08/23</b>



# PRODUCT SPECIFICATION

## 4.0 RATINGS

- 4.1 Voltage : 125
- 4.2 Current : 2.00 Amp MAXIMUM
- 4.3 Operating Temperature : -55°C to +105°C

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Insulation Resistance</b>	Apply 500 VDC for 1 minute per MIL-STD -1344A, METHOD 3003.1	<b>1000</b> Megaohms Minimum
2	<b>Dielectric Strength</b>	1000 Vrms for 1 minute between adjacent terminals.	No breakdown

### 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
3	<b>Pin/ Terminal Retention Force (in Housing)</b>	Apply an axial load on the terminal in the housing to dislodge the terminals from the connector at a rate of 0.50 inch per minute	Retention Force: 850 g Min per pin. (Before heat soldering)

REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
<b>A1</b>	EC No: <b>S2006-0204</b> DATE: <b>2005/08/08</b>	<b>MILLIGRID 2MM DUAL ROW SHROUDED HEADERS</b>		<b>2 of 3</b>
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:	
<b>PS-87831-027</b>	<b>YLQIAO 2005/08/08</b>	<b>BOKOK 2005/08/23</b>	<b>PTLIM 2005/08/23</b>	



# PRODUCT SPECIFICATION

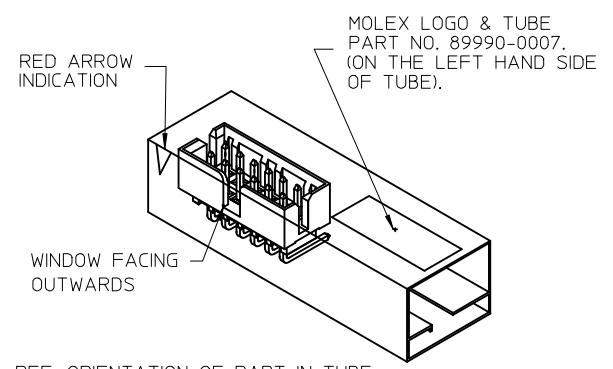
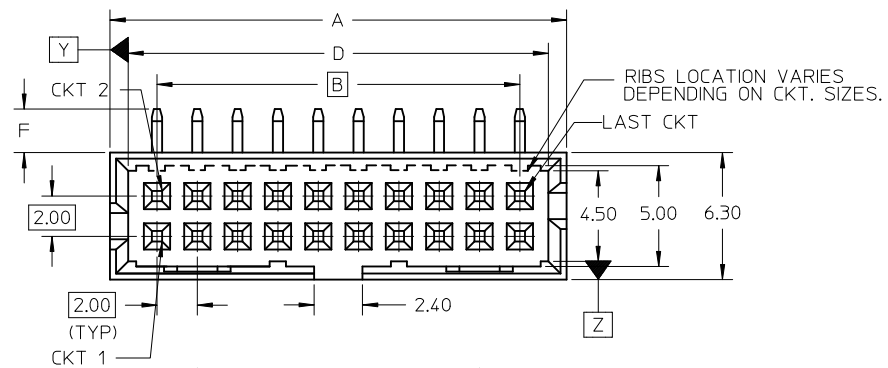
## 5.3 ENVIROMENT REQUIREMENTS

4.	<b>Solderability</b>	Solder Time: 5 +/-0.5 secs. Solder Temperature: 260+/- 5°C	95% of the immersed area must show no voids, pin holes.
5.	<b>Resistance to Soldering Heat (Through Hole)</b>	Solder tail to be dipped in flux as per MIL-STD-202F method 210 condition B.  Solder Temperature: 260 +/- 5°C Solder Time: 10 +/- 1 secs	No damage in appearance of the connector
	<b>Resistance to IR reflow heat (SMT)</b>	Pass product through IR machine for 3 cycles of the following reflow profile:  Average Ramp Rate           3°C/sec max. Preheat Temp. (Min.)       150 °C Preheat Temp. (Max.)       200°C Preheat Time                 60 – 180 sec Ramp to Peak                 3°C/sec max. Time over liquidus (217°C) 60 – 150 sec Peak Temperature           260 +/-5°C Time within 5°C of peak    20 – 40 sec. Ramp – Cool Down           6°C/sec max. Time 25°C to Peak           8 mins max.	No damage in appearance of the connector
6.	<p><b><u>Reflow Temperature Profile</u></b></p> <p>The graph shows a reflow temperature profile with the following stages: Room Temperature (RT), Preheat, Ramp to Peak, Peak Temperature, and Cool Down. The y-axis is labeled 'Temp' and the x-axis is labeled 'Time'.</p>		

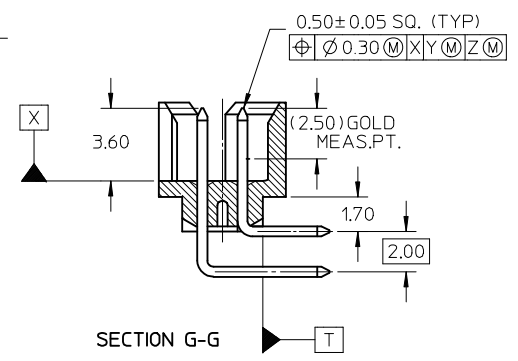
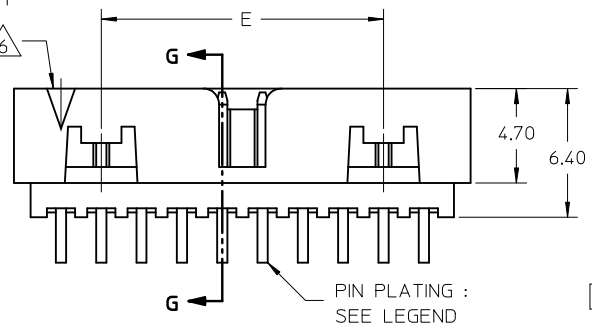
## 6.0 Packaging

Product shall be packed in either Tube or Tape & Reel and protected against damage during handling, transportation and storage.

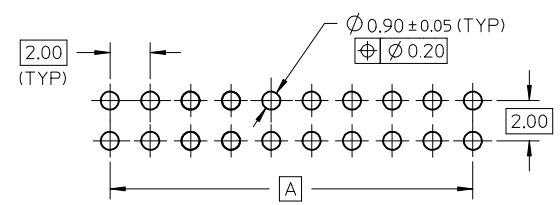
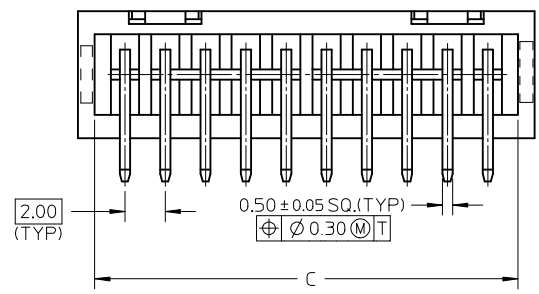
REVISION:  <b>A1</b>	ECR/ECN INFORMATION: EC No: <b>S2006-0204</b> DATE: <b>2005/08/08</b>	TITLE:  <b>MILLIGRID 2MM DUAL ROW SHROUDED HEADERS</b>	SHEET No.  <b>3 of 3</b>
DOCUMENT NUMBER:  <b>PS-87831-027</b>	CREATED / REVISED BY:  <b>YLQIAO 2005/08/08</b>	CHECKED BY:  <b>BOKOK 2005/08/23</b>	APPROVED BY:  <b>PTLIM 2005/08/23</b>



REF: ORIENTATION OF PART IN TUBE  
(FOR THE REFERENCE OF PART/TUBE ASSEMBLY)



- NOTES:
- FOR ILLUSTRATION PURPOSES, 20 CIRCUIT SIZE WAFER IS SHOWN.
  - MATERIAL :  
HOUSING : NYLON 46, UL94V-0, COLOR BLACK.  
PIN : 0.50MM SQ.PHOSPHOR BRONZE.
  - PRODUCT SPECIFICATION PS-87831-027 APPLIES.
  - NO CENTRE POLARIZATION SLOT FOR CKT SIZE 4 AND 6.
  - NO SIDE LOCKING SLOT FROM 4 TO 12 CKT SIZE.
  - CKT 4 & 6 HAS NO IDENTIFICATION TAG.
  - THIS HEADER MATES WITH MOLEX:
    - CRIMP RECEPTACLE HOUSING, 51110 SERIES WITH CRIMP TERMINAL, 50394 SERIES.
    - 2MM MILLIGRID DUAL ROW IDT, 87568 SERIES.
  - PARTS TO BE PACKED IN TUBE WITH MOISTURE BARRIER BAG.
  - PLATING SPECIFICATION REFERRED TO SHEET 2.



REVISED VOID PIN #14 FOR 87835121 EC NO: S2009-0335 DRWN:SKANG 2008/11/06 CHKD:ATSEE 2008/11/06 APPR:MLONG 2008/11/06	QUALITY SYMBOLS ▽=0 ◻=0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE NTS	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION		
			mm	INCH	DRAWN BY	DATE	TITLE			
		4 PLACES	± ---	± ---	ATSEE	2003/10/23	MGRID, SHROUDED HEADER W/SLOT AND STANDOFF, R/A			
		3 PLACES	± ---	± ---	CHECKED BY	DATE				
2 PLACES	± 0.2	± ---	KCL ING	2003/11/07	MOLEX INCORPORATED					
1 PLACE	± ---	± ---	APPROVED BY	DATE						
ANGULAR ± 3 °		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SKTOH	2003/11/07	DOCUMENT NO.		SHEET NO.		
				SEE TABLE		SD-87833-010		1 OF 2		
				THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION						

PART NO.	CKT SIZE	VOID PIN LOCATION	DIMENSION						F	PLATING OPTION
			A	B	C	D	E	F		
87833-04**	4	-	6.65	2.00	5.00	4.85	-----	2.16	19,20 OR 21	
87833-06**	6	-	8.65	4.00	7.00	6.85	-----			
87833-08**	8	-	10.65	6.00	9.00	8.85	-----			
87833-10**	10	-	12.65	8.00	11.00	10.85	-----			
87833-12**	12	-	14.65	10.00	13.00	12.85	-----			
87833-14**	14	-	16.65	12.00	15.00	14.85	8.00			
87833-16**	16	-	18.65	14.00	17.00	16.85	10.00			
87833-18**	18	-	20.65	16.00	19.00	18.85	12.00			
87833-20**	20	-	22.65	18.00	21.00	20.85	14.00			
87833-22**	22	-	24.65	20.00	23.00	22.85	16.00			
87833-24**	24	-	26.65	22.00	25.00	24.85	18.00			
87833-26**	26	-	28.65	24.00	27.00	26.85	20.00			
87833-28**	28	-	30.65	26.00	29.00	28.85	22.00			
87833-30**	30	-	32.65	28.00	31.00	30.85	24.00			
87833-32**	32	-	34.65	30.00	33.00	32.85	26.00			
87833-34**	34	-	36.65	32.00	35.00	34.85	28.00			
87833-36**	36	-	38.65	34.00	37.00	36.85	30.00			
87833-38**	38	-	40.65	36.00	39.00	38.85	32.00			
87833-40**	40	-	42.65	38.00	41.00	40.85	34.00			
87833-42**	42	-	44.65	40.00	43.00	42.85	36.00			
87833-44**	44	-	46.65	42.00	45.00	44.85	38.00			
87833-46**	46	-	48.65	44.00	47.00	46.85	40.00			
87833-48**	48	-	50.65	46.00	49.00	48.85	42.00			
87833-50**	50	-	52.65	48.00	51.00	50.85	44.00			
87833-7000	34	21	36.65	32.00	35.00	34.85	28.00			
87833-5121	26	14	28.65	24.00	27.00	26.85	20.00			
87833-5120	10	7	12.65	8.00	11.00	10.85	-----			
87833-5520	40	21	42.65	38.00	41.00	40.85	34.00			
87833-5620	20	14	22.65	18.00	21.00	20.85	14.00			
87833-5720	24	13	26.65	22.00	25.00	24.85	18.00			
87833-5820	14	1	16.65	12.00	15.00	14.85	8.00			
87833-53**	14	-	16.65	12.00	15.00	14.85	8.00			
87833-5420	34	-	36.65	32.00	35.00	34.85	28.00			

PLS REFER TO PART 87833-\*\*\*3\* FOR CENTER LOCKING SLOT OPTION.

PART NUMBER LEGEND:  
87833 - \* \* \* \* \*

- 9 PLATING OPTIONS:
- 18 - 0.38um/15uin PdNi WITH GOLD FLASH IN CONTACT AREA AND 1.88um/75uin MIN.TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.
  - 19 - 0.05 - 0.13um/2 - 5uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN.TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.
  - 00/ 20 - 0.38um/15uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN.TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.
  - 21 - 0.76um/30uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN.TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.

PLATING OPTION
19,20 OR 21
18,19,20 OR 21
19,20 OR 21
00
21
20
20 OR 21
20

REVISED VOID PIN #14 FOR 878335121 EC NO: S2009-0335 DRWN:SKANG 2008/11/06 CHKD:ATSEE 2008/11/06 APPR:MLONG 2008/11/06	QUALITY SYMBOLS	GENERAL TOLERANCES (UNLESS SPECIFIED)	DIMENSION STYLE	SCALE	DESIGN UNITS	THIRD ANGLE PROJECTION
	▽=0 □=0	mm INCH	MM ONLY	NTS	METRIC	
	DESCRIPTION	4 PLACES ± --- ± ---	DRAWN BY DATE	TITLE		
	REV	3 PLACES ± --- ± ---	ATSEE 2003/10/23	MGRID, SHROUDED HEADER W/SLOT AND STANDOFF, R/A		
	2 PLACES ± 0.2 ± ---	CHECKED BY DATE	MOLEX MOLEX INCORPORATED			
	1 PLACE ± --- ± ---	KCLING 2003/11/07	DOCUMENT NO.			
	ANGULAR ± 3 °	APPROVED BY DATE	SHEET NO.			
		SKTOH 2003/11/07	2 OF 2			
		MATERIAL NO.	SEE TABLE SD-87833-010			
			THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			