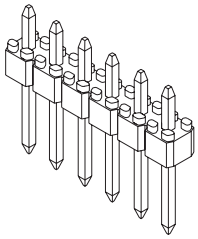
Jameco Part Number 1303652

2.54mm (.100") Pitch C-Grid III™ Header

90120
Single Row Vertical



Features and Benefits
- Sizes 2 to 40 circuits
- Easy breakaway to smaller sizes
- Contact and plating orientation according to DIN 41651
- North/south contact orientation avoids overstress
- High pin retention
- High mechanical stability after soldering

Reference Information
Product Specification: PS-99020-0001
Packaging: Bag
Mates With: C-Grid III Housing and Connectors
Designed In: Inches

Electrical
Voltage: 350V
Current: 3.0A
Contact Resistance: 20 milliohms max.
Insulation Resistance: 5000 Megohms min.

Mechanical
Contact Retention to Housing: 20N (2.0kgf) min.
Mating Force: 1N max. Gold and 3N max. Tin
Unmating Force: 0.2N min. Gold and 0.2N min. Tin
Normal Force: 1N

Physical
Housing: Black glass-filled polyester, UL 94V-0
Contact: Copper Alloy, 0.64mm (.025") square pins
Plating: See Table
Operating Temperature: -55 to +125˚C

Plating A: 4µm (160µ") Tin over Nickel
Plating E: 0.38µm (15µ") selective Gold over Nickel and 4µm (160µ") Tin over Nickel
Plating F: 0.76µm (30µ") selective Gold over Nickel and 4µm (160µ") Tin over Nickel

Not For Use With Molex SL™ Components

Circuits	Order No.			Lead-free
	Plating A	Plating E	Plating F	
3	90120-0123	90120-0763	90120-0923	Yes
4	90120-0124	90120-0764	90120-0924	
5	90120-0125	90120-0765	90120-0925	
6	90120-0126	90120-0766	90120-0926	
7	90120-0127	90120-0767	90120-0927	
8	90120-0128	90120-0768	90120-0928	
9	90120-0129	90120-0769	90120-0929	
10	90120-0130	90120-0770	90120-0930	
11	90120-0131	90120-0771	90120-0931	
12	90120-0132	90120-0772	90120-0932	
13	90120-0133	90120-0773	90120-0933	
14	90120-0134	90120-0774	90120-0934	
15	90120-0135	90120-0775	90120-0935	
16	90120-0136	90120-0776	90120-0936	
17	90120-0137	90120-0777	90120-0937	
18	90120-0138	90120-0778	90120-0938	
19	90120-0139	90120-0779	90120-0939	
20	90120-0140	90120-0780	90120-0940	
21	90120-0141	90120-0781	90120-0941	

Circuits	Order No.			Lead-free
	Plating A	Plating E	Plating F	
22	90120-0142	90120-0782	90120-0942	Yes
23	90120-0143	90120-0783	90120-0943	
24	90120-0144	90120-0784	90120-0944	
25	90120-0145	90120-0785	90120-0945	
26	90120-0146	90120-0786	90120-0946	
27	90120-0147	90120-0787	90120-0947	
28	90120-0148	90120-0788	90120-0948	
29	90120-0149	90120-0789	90120-0949	
30	90120-0150	90120-0790	90120-0950	
31	90120-0151	90120-0791	90120-0951	
32	90120-0152	90120-0792	90120-0952	
33	90120-0153	90120-0793	90120-0953	
34	90120-0154	90120-0794	90120-0954	
35	90120-0155	90120-0795	90120-0955	
36	90120-0156	90120-0796	90120-0956	
37	90120-0157	90120-0797	90120-0957	
38	90120-0158	90120-0798	90120-0958	
39	90120-0159	90120-0799	90120-0959	
40	90120-0160	90120-0800	90120-0960	

For other available versions contact Molex

1.0 SCOPE

This specification covers the performance requirements of the Molex C-Grid III product series for those products listed in Appendix 3.

2.0 PRODUCT DESCRIPTION

See sales drawings for information.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and any other sections of this specification for the relevant reference documents and specifications. In cases where this product specification differs from the product drawings, the product drawings take precedence.

Crimp Specification 90119: See Application Specification AS-90119

90146: See Application Specification AS-90146

Product Class Definitions

	PLATING	
CLASS	FEMALE	MALE
1	Tin	Tin
2	0.38um to 0.64um Gold	0.15um to 0.30um Gold
3	0.76um to 1.02um Gold	0.38um to 0.64um Gold
4	0.76um to 1.02um Gold	0.76um to 1.02um Gold

4.0 ELECTRICAL SPECIFICATIONS

4.1 Operating Voltage according to IEC 130-1: ≤ 350 V DC/AC

4.2 Current Carrying Capacity: ≤ 3A

4.3 Contact Resistance :≤ 20mΩ initial,
≤ 10mΩ max. change after each test

4.4 Insulation Resistance at 500 VDC after each test:
- shrouded and unshrouded headers: ≥ 5000MΩ
- PCB connectors, crimp housings and modules: ≥ 1000MΩ

4.5 Dielectric Withstand Voltage: ≥ 1000V

5.0 MECHANICAL SPECIFICATIONS

5.1 Contact Retention in housing according to IEC 512-8 test 15b:
- shrouded and unshrouded headers:
  -straight (two directions): ≥ 20N
  -right angle (one direction): ≥ 20N
- PCB connectors: -90147, 90148, 90151: ≥ 15 N
  -90152:≥ 8.8
- 90119 loaded in crimp housings and modules: ≥ 15 N

5.2 Insertion Force per contact according to IEC 512-7 test 13b using gauge P11 in Appendix 1:

- PCB connectors (90147, 90148, 90151 & 90152)
  and 90119 loaded in crimp modules and housings

-Gold plated:	≤ 1 N
-Tin plated:	≤ 3 N

5.3 Withdrawal Force per contact according to IEC 512-7 test 13b using gauge P12 in Appendix 1:

- PCB connectors (90147,90148,90151 & 90152)
  and 90119 loaded in crimp modules and housings

-Gold plated:	≥ 0.2 N
-Tin plated:	≥ 0.2 N

5.4 Durability according to IEC 512-5 test 9a:

Class 1:	30 cycles
Class 2:	100 cycles
Class 3:	200 cycles
Class 4:	500 cycles

5.5 Solderability according to IEC 512-6 test 12a method 1: 235°C/2s

95% of immersed area must not show voids, pinholes, etc.

.

5.6 Resistance to Soldering Heat according to IEC 512-6 test 12d: 260°C/10s

There shall be no damage that will impair normal operation.

5.7 Shock according to IEC 512-4 test 6c: 50g/11ms

5.8 Vibration according to IEC 512-4 test 6d with mountings per Appendix 2:

Class 1: 10 - 500 Hz, 0.35mm or 5g
Duration: 2 hours each, 3 Directions

Class 2,3,4: 10 - 2000 Hz, 1.50mm or 20g
Duration: 2 hours each, 3 directions

5.9 Tensile Strength of crimp termination according to IEC 512-8 test 16d:

75% of wire tensile strength

6.0 ENVIRONMENTAL SPECIFICATIONS

6.1 Operating Temperature:

- unshrouded and shrouded headers and PCB connectors: -55°C to +125°C
- crimp modules and housings: -55°C to +105°C

6.2 Damp Heat according to IEC 512-6 test 11c:

Class 1,2:55°C 90- 95% R.H.
Duration: 21 days

Class 3,4:55°C 90 - 95% R.H.
Duration: 56 days

6.3 Dry Heat according to IEC 512-6 test 11i:

- unshrouded and shrouded headers and PCB connectors: 125°C Duration: 16 hours
- crimp modules and housings: 105°C Duration: 16 hours

6.4.1 Industrial Atmosphere according to IEC 68-2-43 test Kd:

Class	$SO_{2\ at\ 10ppm}$
1:	Not Applicable
2,3:	4 days
4:	10 days

6.4.2 Industrial Atmosphere according to IEC 68-2-42 test Kc:

Class	$H_{2S\ at\ 1ppm}$
1:	Not Applicable
2,3:	4 days
4:	10 days

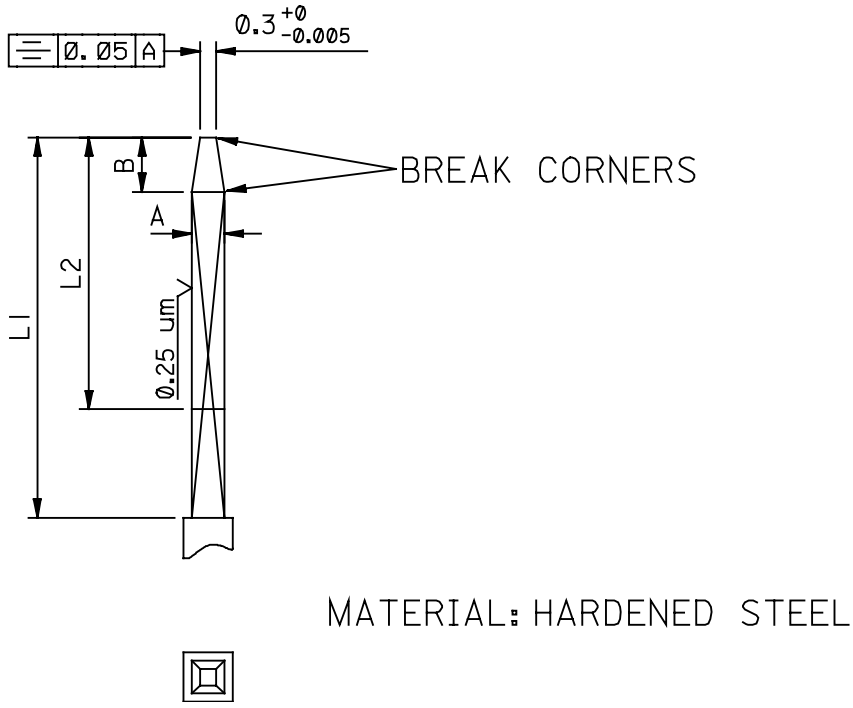
6.4.3 Thermal Shock according to IEC 512-6 test 11d:

- unshrouded and shrouded headers and PCB connectors: -55°C to +125°C, 10 cycles
- crimp modules and housings: -55°C to +105°C, 10 cycles

APPENDIX 1

INSERTION AND WITHDRAWAL GAUGES

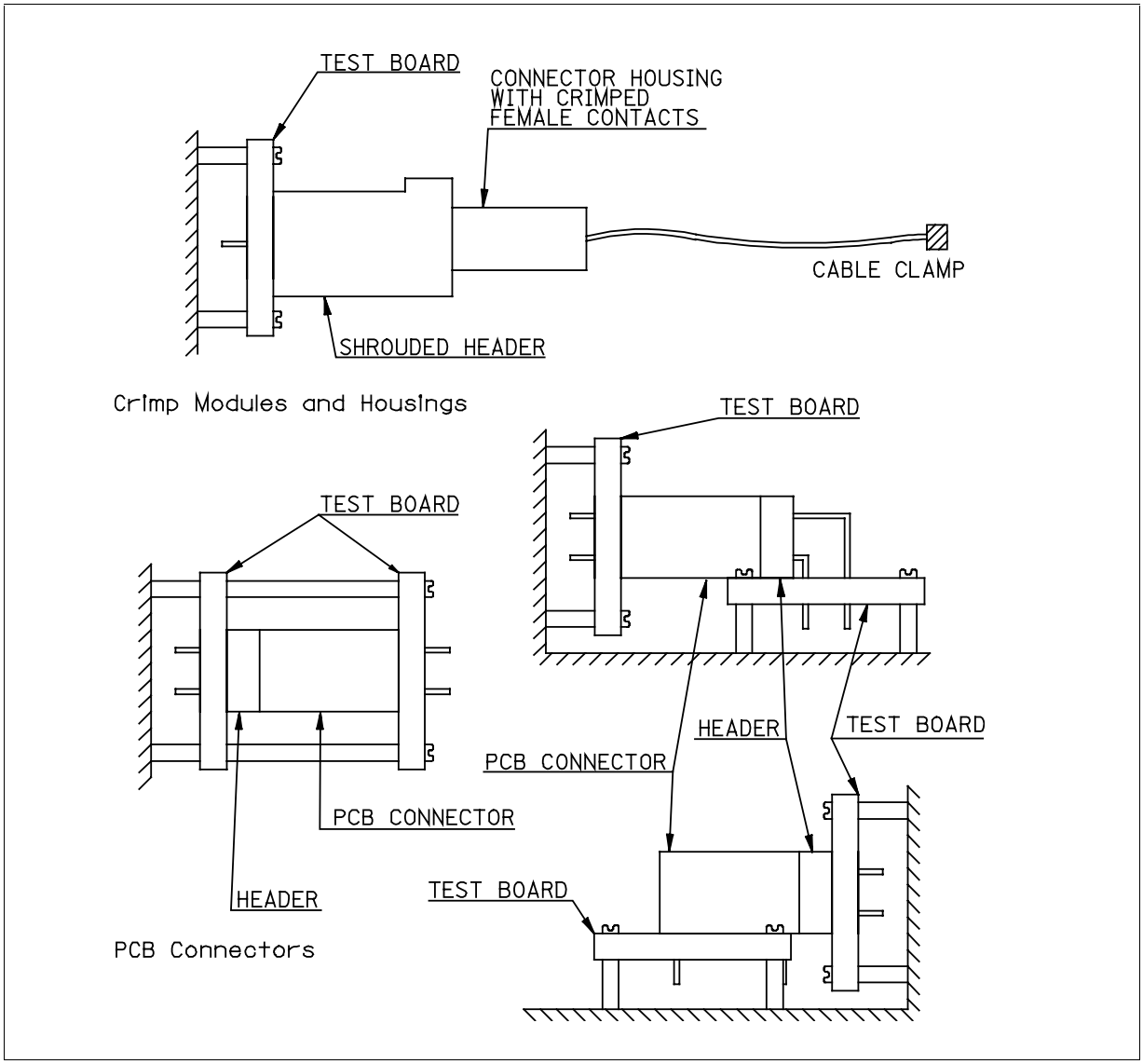
GAUGE	A	B	L1	L2(MIN)	WEIGHT
P11	$0.65^{+0}_{-0.005}$	$1^{+0}_{-0.10}$	$7^{+0}_{-0.10}$	5	20 g
P12	$0.60^{+0}_{-0.005}$	$1^{+0}_{-0.10}$	$6.5^{+0}_{-0.10}$	5	-



MATERIAL: HARDENED STEEL

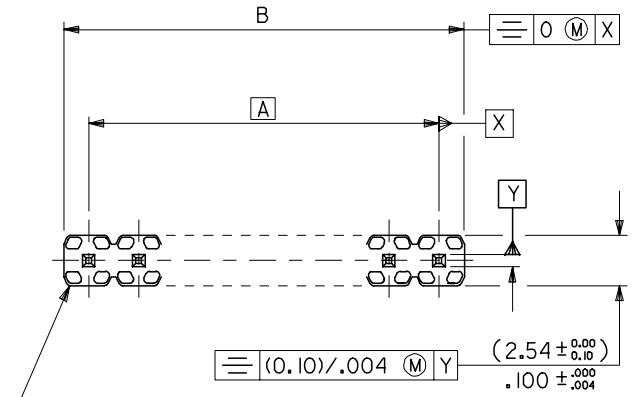
APPENDIX 2

VIBRATION MOUNTINGS



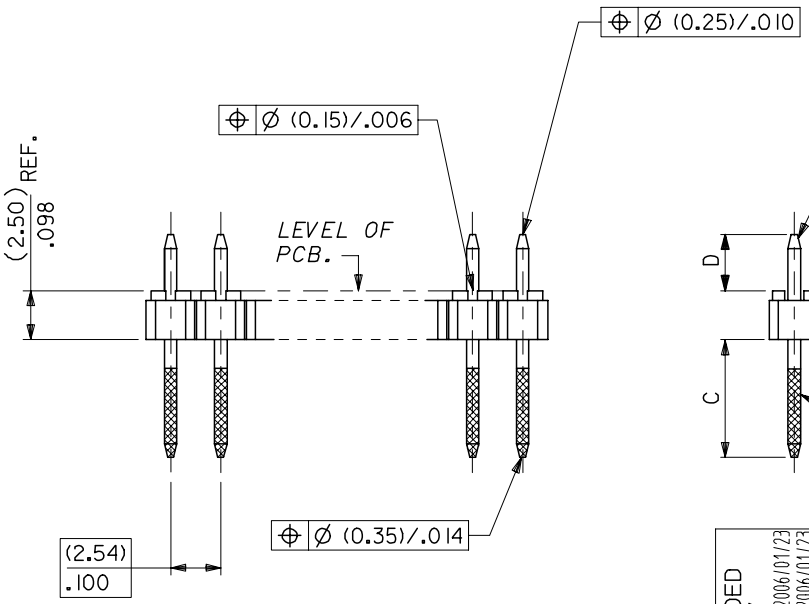
APPENDIX 3
C-GRID III PRODUCT RANGE

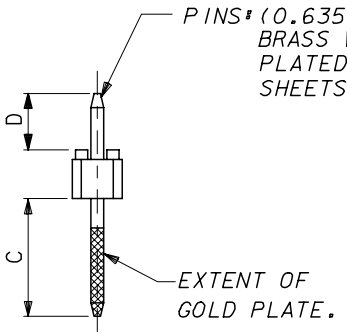
PRODUCT TYPE	SERIES	
QF50	5320	FEMALE
	5576	HEADER VERTICAL
	5578	HEADER RIGHT ANGLE
SHROUDED HEADERS	70246	DUAL ROW LOW PROFILE
	70247	DUAL ROW LOW PROFILE RIGHT ANGLE
	87256	WITH ALTERNATIVE POLARISATION PEGS
	90130-1	DUAL ROW VERTICAL FULLY LOADED
	90130-2	DUAL ROW VERTICAL VOIDED PINS
	90130-3	DUAL ROW RIGHT ANGLE FULLY LOADED
	90130-4	DUAL ROW RIGHT ANGLE VOIDED PINS
	90136-1	SINGLE ROW VERTICAL
	90136-2	SINGLE ROW RIGHT ANGLE
KINKED PIN HEADERS	90627	SINGLE ROW VERTICAL
	90629	SINGLE ROW RIGHT ANGLE
	90628	DUAL ROW VERTICAL
	90630	DUAL ROW RIGHT ANGLE
UNSHROUDED HEADERS	90120	SINGLE ROW VERTICAL
	90121	SINGLE ROW RIGHT ANGLE
	90122	DUAL ROW RIGHT ANGLE
	90131	DUAL ROW VERTICAL
	90294	DUAL ROW VERTICAL DOUBLE BODY
	90547	SINGLE ROW VERTICAL DOUBLE BODY
CRIMP TERMINALS	90119	FEMALE CRIMP
PCB CONNECTORS	90147	SINGLE ROW VERTICAL
	90148	SINGLE ROW HORIZONTAL
	90151	DUAL ROW VERTICAL
	90152	DUAL ROW HORIZONTAL
MODULAR HOUSINGS	90123	SINGLE ROW CRIMP
	90143	DUAL ROW
CRIMP HOUSINGS	90142	DUAL ROW
	90156	SINGLE ROW
	90160	DUAL ROW



WAFER: 15% GLASS FILLED POLYESTER
TO UL 94v-0.
COLOUR : BLACK.

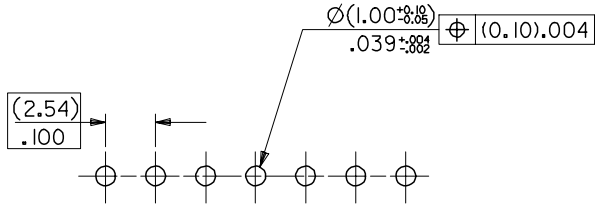
CKT SIZE	DIM." A"	DIM." B" (+0 -0.45) +0 -.018	CKT SIZE	DIM." A"	DIM." B" (+0 -0.45) +0 -.018
IX 1	———	(2.54) .100	IX21	(50.80) 2.000	(53.34) 2.100
IX 2	(2.54) .100	(5.08) .200	IX22	(53.34) 2.100	(55.88) 2.200
IX 3	(5.08) .200	(7.62) .300	IX23	(55.88) 2.200	(58.42) 2.300
IX 4	(7.62) .300	(10.16) .400	IX24	(58.42) 2.300	(60.96) 2.400
IX 5	(10.16) .400	(12.70) .500	IX25	(60.96) 2.400	(63.50) 2.500
IX 6	(12.70) .500	(15.24) .600	IX26	(63.50) 2.500	(66.04) 2.600
IX 7	(15.24) .600	(17.78) .700	IX27	(66.04) 2.600	(68.58) 2.700
IX 8	(17.78) .700	(20.32) .800	IX28	(68.58) 2.700	(71.12) 2.800
IX 9	(20.32) .800	(22.86) .900	IX29	(71.12) 2.800	(73.66) 2.900
IX10	(22.86) .900	(25.40) 1.000	IX30	(73.66) 2.900	(76.20) 3.000
IX11	(25.40) 1.000	(27.94) 1.100	IX31	(76.20) 3.000	(78.74) 3.100
IX12	(27.94) 1.100	(30.48) 1.200	IX32	(78.74) 3.100	(81.28) 3.200
IX13	(30.48) 1.200	(33.02) 1.300	IX33	(81.28) 3.200	(83.82) 3.300
IX14	(33.02) 1.300	(35.56) 1.400	IX34	(83.82) 3.300	(86.36) 3.400
IX15	(35.56) 1.400	(38.10) 1.500	IX35	(86.36) 3.400	(88.90) 3.500
IX16	(38.10) 1.500	(40.64) 1.600	IX36	(88.90) 3.500	(91.44) 3.600
IX17	(40.64) 1.600	(43.18) 1.700	IX37	(91.44) 3.600	(93.98) 3.700
IX18	(43.18) 1.700	(45.72) 1.800	IX38	(93.98) 3.700	(96.52) 3.800
IX19	(45.72) 1.800	(48.26) 1.900	IX39	(96.52) 3.800	(99.06) 3.900
IX20	(48.26) 1.900	(50.80) 2.000	IX40	(99.06) 3.900	(101.60) 4.000





NOTES

1. FOR ASSY NUMBERS WITH FINISH OPTIONS AND DIM'S C & D SEE SHEETS 2 TO 6.



RECOMMENDED P.C. BOARD HOLE PATTERN

PART NO'S ADDED 2006/01/23
EC NO: E2006-0667
DRWN: JDENNEHY 2006/01/23
CHKD: DWASZKIEWICZ 2006/01/23
APPR: JDENNEHY 2006/02/07
DESCRIPTION
REV M

QUALITY SYMBOLS
▼=0
Ⓒ=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

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

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

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

DRAWN BY: JDENNEHY DATE: 2006/01/18
CHECKED BY: DWASZKIEWICZ DATE: 2006/01/18
APPROVED BY: JDENNEHY DATE: 2006/01/18
MATERIAL NO.: SEE CHART

TITLE: C-GRID III SINGLE ROW STRAIGHT PIN HEADER
MOLEX INCORPORATED
DOCUMENT NO.: SDA-90120
SHEET NO.: 1 OF 6

SIZE A3

CIRCUIT SIZE	PLATING TYPE A		PLATING TYPE E		PLATING TYPE F	
	PART NO.	CUSTOMER SPECIFIC PART NO.	PART NO.	CUSTOMER SPECIFIC PART NO.	PART NO.	CUSTOMER SPECIFIC PART NO.
1 X 1	90120-0121	90120-9121	90120-0761	90120-9761	90120-0921	90120-9921
1 X 2	-0122	-9122	-0762	-9762	-0922	-9922
1 X 3	-0123	-9123	-0763	-9763	-0923	-9923
1 X 4	-0124	-9124	-0764	-9764	-0924	-9924
1 X 5	-0125	-9125	-0765	-9765	-0925	-9925
1 X 6	-0126	-9126	-0766	-9766	-0926	-9926
1 X 7	-0127	-9127	-0767	-9767	-0927	-9927
1 X 8	-0128	-9128	-0768	-9768	-0928	-9928
1 X 9	-0129	-9129	-0769	-9769	-0929	-9929
1 X 10	-0130	-9130	-0770	-9770	-0930	-9930
1 X 11	-0131	-9131	-0771	-9771	-0931	-9931
1 X 12	-0132	-9132	-0772	-9772	-0932	-9932
1 X 13	-0133	-9133	-0773	-9773	-0933	-9933
1 X 14	-0134	-9134	-0774	-9774	-0934	-9934
1 X 15	-0135	-9135	-0775	-9775	-0935	-9935
1 X 16	-0136	-9136	-0776	-9776	-0936	-9936
1 X 17	-0137	-9137	-0777	-9777	-0937	-9937
1 X 18	-0138	-9138	-0778	-9778	-0938	-9938
1 X 19	-0139	-9139	-0779	-9779	-0939	-9939
1 X 20	-0140	-9140	-0780	-9780	-0940	-9940
1 X 21	-0141	-9141	-0781	-9781	-0941	-9941
1 X 22	-0142	-9142	-0782	-9782	-0942	-9942
1 X 23	-0143	-9143	-0783	-9783	-0943	-9943
1 X 24	-0144	-9144	-0784	-9784	-0944	-9944
1 X 25	-0145	-9145	-0785	-9785	-0945	-9945
1 X 26	-0146	-9146	-0786	-9786	-0946	-9946
1 X 27	-0147	-9147	-0787	-9787	-0947	-9947
1 X 28	-0148	-9148	-0788	-9788	-0948	-9948
1 X 29	-0149	-9149	-0789	-9789	-0949	-9949
1 X 30	-0150	-9150	-0790	-9790	-0950	-9950
1 X 31	-0151	-9151	-0791	-9791	-0951	-9951
1 X 32	-0152	-9152	-0792	-9792	-0952	-9952
1 X 33	-0153	-9153	-0793	-9793	-0953	-9953
1 X 34	-0154	-9154	-0794	-9794	-0954	-9954
1 X 35	-0155	-9155	-0795	-9795	-0955	-9955
1 X 36	-0156	-9156	-0796	-9796	-0956	-9956
1 X 37	-0157	-9157	-0797	-9797	-0957	-9957
1 X 38	-0158	-9158	-0798	-9798	-0958	-9958
1 X 39	-0159	-9159	-0799	-9799	-0959	-9959
1 X 40	90120-0160	90120-9160	90120-0800	90120-9800	90120-0960	90120-9960

DIM C (± 0.20) $\pm .008$ (6.75) .266

DIM D $(\pm 0.20 / -0.30)$ $+.008 / -.012$ (2.90) .114

NOTES:
FOR PLATING VARIATIONS SEE ENG.STD. SDES-99000-0003.

STANDARD PRODUCTS

PART NO'S ADDED
EC NO: E2006-0667 2006/01/23
DRWN: JDENNEHY 2006/01/23
CHKD: DWASZKIEWICZ 2006/01/23
APPR: JDENNEHY 2006/02/07
REV K DESCRIPTION

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

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

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

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

DRAWN BY: JDENNEHY DATE: 2006/01/18
CHECKED BY: DWASZKIEWICZ DATE: 2006/01/18
APPROVED BY: JDENNEHY DATE: 2006/01/18
MATERIAL NO.: SEE CHART

TITLE: C-GRID III SINGLE ROW STRAIGHT PIN HEADER
MOLEX INCORPORATED
DOCUMENT NO.: SDA-90120
SHEET NO.: 2 OF 6
SIZE: A3