

Distributed by:

**JAMECO**<sup>®</sup>  
ELECTRONICS

**www.Jameco.com ♦ 1-800-831-4242**

The content and copyrights of the attached  
material are the property of its owner.

Jameco Part Number 883683



# PRODUCT SPECIFICATION

## MICRO-FIT

### 1.0 SCOPE

This Product Specification covers the 3.00 mm (.118 inch) centerline (pitch) square pin headers when mated with either printed circuit board (PCB) connector or connectors terminated with 20 to 30 AWG wire using crimp technology.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBERS

Receptacle: 43025      Terminal: 43030

Plug: 43020            Terminal: 43031

Headers: 43045, 44914

Test Plug: 44242 (recommended for continuity testing only)

Other products conforming to this specification are noted on the individual drawings.

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housings: Polyester or LCP

Terminal: Phosphor Bronze

Pins: Brass, Modified Tin/Brass

#### 2.3 SAFETY AGENCY APPROVALS

UL File Number: E29179

CSA: LR19980

TUV: 72040445

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Test Summary: TS-43045-001

### 4.0 RATINGS

#### 4.1 VOLTAGE

UL: 250 Volts AC (MAX) {or 176 Volts DC}

TUV: 250 Volts

**4.2 CURRENT AND APPLICABLE WIRES** (Current is dependent on connector size, contact material, plating, ambient temperature, printed circuit board characteristics and related factors. Actual current rating is application dependent and should be evaluated for each application.)

| AWG | Amps | Max. Outside Insulation Diameter |
|-----|------|----------------------------------|
| 20  | 5    | 1.85 mm (.073 inch)              |
| 22  | 5    | 1.85 mm (.073 inch)              |
| 24  | 4    | 1.85 mm (.073 inch)              |
| 26  | 3    | 1.27 mm (.050 inch)              |
| 28  | 2    | 1.27 mm (.050 inch)              |
| 30  | 1    | 1.27 mm (.050 inch)              |

#### 4.2.1 CURRENT FOR TEST PLUG 44242

2.5 Amps Maximum (Pogo pin current capacity)

(Test plugs are for testing purposes only and not intended for continuous use.)

#### 4.3 TEMPERATURE

Operating: - 40°C to + 105°C (Including Terminal Temperature Rise)

Nonoperating: - 40°C to + 105°

|                  |                                         |                                                                    |                |
|------------------|-----------------------------------------|--------------------------------------------------------------------|----------------|
| REVISION:        | ECR/ECN INFORMATION:                    | TITLE:                                                             | SHEET No.      |
| <b>K</b>         | EC No: UCP2007-0365<br>DATE: 2006/08/08 | <b>PRODUCT SPECIFICATION<br/>MICRO-FIT<br/>DUAL ROW CONNECTORS</b> | <b>1 of 5</b>  |
| DOCUMENT NUMBER: | CREATED / REVISED BY:                   | CHECKED BY:                                                        | APPROVED BY:   |
| <b>PS-43045</b>  | <b>M.KIPPER</b>                         | <b>S.SOUSEK</b>                                                    | <b>F.SMITH</b> |



# PRODUCT SPECIFICATION

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

| DESCRIPTION                                               | TEST CONDITION                                                                                                                                                                                    | REQUIREMENT                             |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <b>Contact Resistance (Low Level)</b>                     | Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. (Does not include wire resistance)                                                                                     | 10 milliohms<br>MAXIMUM<br>[initial]    |
| <b>Contact Resistance @ Rated Current</b>                 | Mate connectors: apply a maximum voltage of 20 mV at rated current.                                                                                                                               | 30 milliohms<br>MAXIMUM<br>[initial]    |
| <b>Contact Resistance of Wire Termination (Low Level)</b> | Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA.                                                                                  | 5 milliohms<br>MAXIMUM<br>[initial]     |
| <b>Insulation Resistance</b>                              | Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.                                                                               | 1000 Megohms<br>MINIMUM                 |
| <b>Dielectric Withstanding Voltage</b>                    | Unmate connectors: apply a voltage of {two times the rated voltage plus 1000 volts} VAC for 1 minute between adjacent terminals and between terminals to ground.                                  | No breakdown;<br>current leakage < 5 mA |
| <b>Capacitance</b>                                        | Measure between adjacent terminals at 1 MHz.                                                                                                                                                      | 2 picofarads<br>MAXIMUM                 |
| <b>Temperature Rise (via Current Cycling)</b>             | Mate connectors: measure the temperature rise at the rated current after:<br>1) 96 hours (steady state)<br>2) 240 hours (45 minutes ON and 15 minutes OFF per hour)<br>3) 96 hours (steady state) | Temperature rise:<br>+30°C MAXIMUM      |

### 5.2 MECHANICAL REQUIREMENTS

| DESCRIPTION                                    | TEST CONDITION                                                                                                              | REQUIREMENT                                                                                    |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Connector Mate and Unmate Forces</b>        | Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute. (Per circuit) | 8.0 N (1.8 lbf)<br>MAXIMUM insertion force<br>&<br>3.7 N (0.8 lbf)<br>MINIMUM withdrawal force |
| <b>Terminal Retention Force (in Housing)</b>   | Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.       | 24.5 N (5.5 lbf)<br>MINIMUM retention force                                                    |
| <b>Terminal Insertion Force (into Housing)</b> | Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).                      | 14.7 N (3.3 lbf)<br>MAXIMUM insertion force                                                    |

|                  |                                         |                                                                    |                |
|------------------|-----------------------------------------|--------------------------------------------------------------------|----------------|
| REVISION:        | ECR/ECN INFORMATION:                    | TITLE:                                                             | SHEET No.      |
| <b>K</b>         | EC No: UCP2007-0365<br>DATE: 2006/08/08 | <b>PRODUCT SPECIFICATION<br/>MICRO-FIT<br/>DUAL ROW CONNECTORS</b> | <b>2 of 5</b>  |
| DOCUMENT NUMBER: | CREATED / REVISED BY:                   | CHECKED BY:                                                        | APPROVED BY:   |
| <b>PS-43045</b>  | <b>M.KIPPER</b>                         | <b>S.SOUSEK</b>                                                    | <b>F.SMITH</b> |



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

|                                                                   |                                                                                                                       |                                                                                                                                                                                              |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Durability</b>                                                 | Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.               | 20 milliohms MAXIMUM (change from initial)                                                                                                                                                   |
| <b>Vibration (Random)</b>                                         | Mate connectors and vibrate per EIA 364-28, test condition VII.                                                       | 20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond                                                                                                                   |
| <b>Shock (Mechanical)</b>                                         | Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (18 shocks total). | 20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond                                                                                                                   |
| <b>Wire Pullout Force (Axial)</b><br>(Wire from Terminal)         | Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).                                         | MINIMUM pullout force<br>20 awg: 57.8 N (13.0 lbf)<br>22 awg: 35.6 N (8.0 lbf)<br>24 awg: 22.2 N (5.0 lbf)<br>26 awg: 13.3 N (3.0 lbf)<br>28 awg: 8.9 N (2.0 lbf)<br>30 awg: 6.6 N (1.5 lbf) |
| <b>Normal Force</b>                                               | Apply a perpendicular force.                                                                                          | 2.7 N (275 grams) MINIMUM                                                                                                                                                                    |
| <b>Pin to Header Retention</b>                                    | Apply axial push force to pin at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.                                         | 13.7 N (3.1 lbf) MINIMUM pushout force                                                                                                                                                       |
| <b>Thumb Latch to Ramp Yield Strength</b>                         | Full mate and then Unmate the connectors at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.                              | 68.4 N (15.4 lbf) MINIMUM Yield Strength                                                                                                                                                     |
| <b>Panel Mount Retention</b>                                      | Full mate and then Unmate the connectors at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.                              | 155.7 N (35 lbf) MINIMUM pushout force                                                                                                                                                       |
| <b>Compliant Pin Insertion Force into PCB Hole (44914 Series)</b> | Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).                                   | 106.7 N (24 lbf) MAXIMUM Insertion force (Per Terminal)                                                                                                                                      |
| <b>Compliant Pin Retention Force in PCB Hole (44914 Series)</b>   | Apply an axial extraction force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).                                  | 35.6 N (8 lbf) MINIMUM Retention force (Per Terminal)                                                                                                                                        |

|                                            |                                                                                      |                                                                                     |                                       |
|--------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|
| <u>REVISION:</u><br><b>K</b>               | <u>ECR/ECN INFORMATION:</u><br><u>EC No:</u> UCP2007-0365<br><u>DATE:</u> 2006/08/08 | <u>TITLE:</u><br><b>PRODUCT SPECIFICATION<br/>MICRO-FIT<br/>DUAL ROW CONNECTORS</b> | <u>SHEET No.</u><br><b>3 of 5</b>     |
| <u>DOCUMENT NUMBER:</u><br><b>PS-43045</b> | <u>CREATED / REVISED BY:</u><br><b>M.KIPPER</b>                                      | <u>CHECKED BY:</u><br><b>S.SOUSEK</b>                                               | <u>APPROVED BY:</u><br><b>F.SMITH</b> |



# PRODUCT SPECIFICATION

## 5.3 ENVIRONMENTAL REQUIREMENTS

| DESCRIPTION                                                                  | TEST CONDITION                                                                                                                                                                                                                                   | REQUIREMENT                                                                                                                                                                 |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Thermal Aging</b>                                                         | Mate connectors; expose to:<br>240 hours at $105 \pm 2^{\circ}\text{C}$<br>OR<br>500 hours at $85 \pm 2^{\circ}\text{C}$                                                                                                                         | 20 milliohms MAXIMUM<br>(change from initial)]                                                                                                                              |
| <b>Humidity<br/>(Steady State)</b>                                           | Mate connectors: expose to a temperature of<br>$40 \pm 2^{\circ}\text{C}$ with a relative humidity of 90-95%<br>for 96 hours.<br><br>Note: Remove surface moisture and air dry<br>for 1 hour prior to measurements.                              | 20 milliohms MAXIMUM<br>(change from initial)<br>&<br>Dielectric Withstanding<br>Voltage:<br>No Breakdown at 500 VAC<br>&<br>Insulation Resistance:<br>1000 Megohms MINIMUM |
| <b>Solderability</b>                                                         | Per SMES-152                                                                                                                                                                                                                                     | Solder coverage:<br>95% MINIMUM<br>(per SMES-152)                                                                                                                           |
| <b>Solder<br/>Resistance</b>                                                 | A) Wave Solder Process<br>Dip connector terminal tails in solder;<br>Solder Duration: $5 \pm 0.5$ seconds;<br>Solder Temperature: $260^{\circ}\text{C}$ MAX<br><br>B) Convection Reflow Solder Process<br>$235^{\circ}\text{C}$ MAX Per SMES-152 | Visual:<br>No Damage to insulator<br>material                                                                                                                               |
| <b>Cold Resistance</b>                                                       | Mate connectors:<br>Duration: 96 hours;<br>Temperature: $-40 \pm 3^{\circ}\text{C}$                                                                                                                                                              | 20 milliohms MAXIMUM<br>(change from initial)                                                                                                                               |
| <b>Corrosive<br/>Atmosphere:<br/>Sulfur Dioxide Gas<br/>(SO<sub>2</sub>)</b> | Mate connectors:<br>Duration: 24 hours exposure;<br>Atmosphere: 50 parts per million (ppm) SO <sub>2</sub><br>gas; Temperature: $40 \pm 3^{\circ}\text{C}$                                                                                       | 20 milliohms MAXIMUM<br>(change from initial)                                                                                                                               |
| <b>Corrosive<br/>Atmosphere:<br/>Ammonia Gas<br/>(NH<sub>3</sub>)</b>        | Mate connectors:<br>Duration: 40 minutes exposure;<br>Atmosphere: NH <sub>3</sub> gas evaporating from a<br>28% Ammonia solution                                                                                                                 | 20 milliohms MAXIMUM<br>(change from initial)                                                                                                                               |

|                  |                                         |                                                                    |                |
|------------------|-----------------------------------------|--------------------------------------------------------------------|----------------|
| REVISION:        | ECR/ECN INFORMATION:                    | TITLE:                                                             | SHEET No.      |
| <b>K</b>         | EC No: UCP2007-0365<br>DATE: 2006/08/08 | <b>PRODUCT SPECIFICATION<br/>MICRO-FIT<br/>DUAL ROW CONNECTORS</b> | <b>4 of 5</b>  |
| DOCUMENT NUMBER: | CREATED / REVISED BY:                   | CHECKED BY:                                                        | APPROVED BY:   |
| <b>PS-43045</b>  | <b>M.KIPPER</b>                         | <b>S.SOUSEK</b>                                                    | <b>F.SMITH</b> |



# PRODUCT SPECIFICATION

## 6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage per the packaging specifications listed below:

Receptacle: PK-43025-001

Plug: PK-43020-001

Headers: PK-70873-0313, PK-70873-0314, PK-70873-05\*\*.

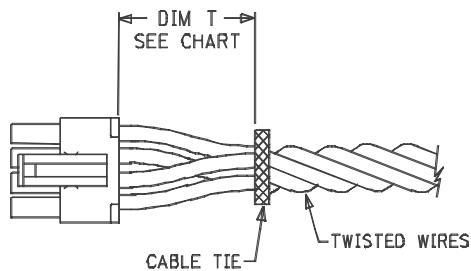
## 7.0 GAGES AND FIXTURES

It is recommended that test plugs (Series 44242) be used for continuity testing of receptacles. Standard mating parts should not be used for harness testing.

## 8.0 OTHER INFORMATION

### 8.1 CABLE TIE AND OR WIRE TWIST LOCATION

| CKT Sizes | Dim T | Min.    |
|-----------|-------|---------|
| 2-8       | .500  | (12.70) |
| 10-16     | .750  | (19.10) |
| 18-24     | 1.000 | (25.40) |



|                                     |                                                                               |                                                                              |                                |
|-------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|
| REVISION:<br><b>K</b>               | ECR/ECN INFORMATION:<br>EC No: <b>UCP2007-0365</b><br>DATE: <b>2006/08/08</b> | TITLE:<br><b>PRODUCT SPECIFICATION<br/>MICRO-FIT<br/>DUAL ROW CONNECTORS</b> | SHEET No.<br><b>5 of 5</b>     |
| DOCUMENT NUMBER:<br><b>PS-43045</b> | CREATED / REVISED BY:<br><b>M.KIPPER</b>                                      | CHECKED BY:<br><b>S.SOUSEK</b>                                               | APPROVED BY:<br><b>F.SMITH</b> |

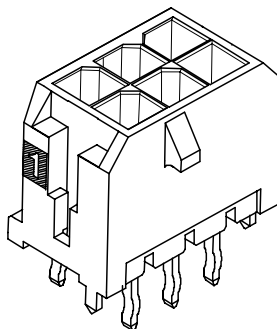
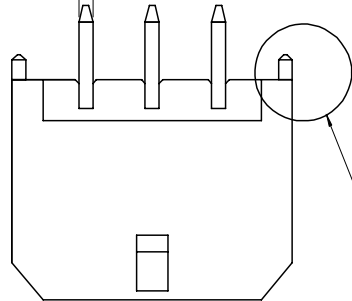
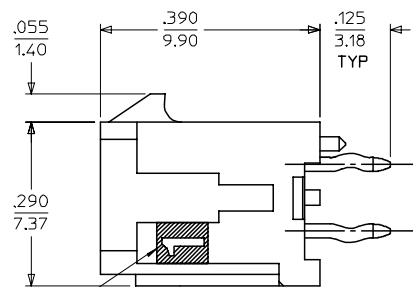
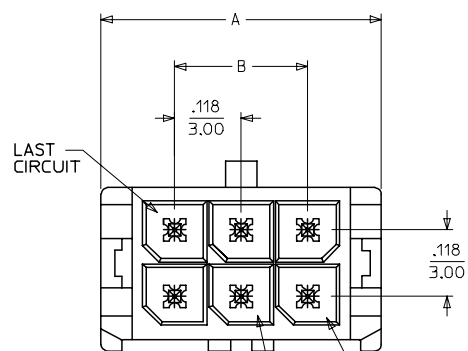


Figure 1: Detail of the top of the concrete slab. The diagram shows a 3x3 grid of reinforcement bars. Dimensions are provided for the spacing between bars and the overall slab thickness. Key dimensions include: vertical spacing of  $\frac{.118 \pm .003}{3.00 \pm .08}$ , horizontal spacing of  $\frac{.118 \pm .004}{3.00 \pm .10}$ , and a total thickness of  $\frac{.037 \pm .002}{0.94 \pm .05}$ . Labels include 'LAST CIRCUIT', 'CIRCUIT 1', and 'CIRCUIT 2' pointing to specific bars. A note at the bottom right states 'NON-ACCUM.'



## CIRCUIT 2

CIRCUIT "1" IDENTIFIED ON THIS SURFACE  
(APPROX. LOCATION SHOWN FOR REF.)

1. HOUSING MATERIAL: GLASS FILLED LIQUID CRYSTAL POLYMER,  
UL94V-0, COLOR: BLACK  
TERMINAL MATERIAL: BRASS ALLOY

A = .000100/(0.00254) MIN. TIN OVER  
.000050/(0.00127) MIN. NICKEL PLATE.

B = .000015/(0.00038) MIN. SELECT GOLD IN CONTACT AREA;  
.000100/(0.00254) MIN. SELECT TIN ON SOLDER TAILS;  
BOTH OVER .000050/(0.00127) MIN. NICKEL PLATE.

C = .000030/(0.00076) MIN. SELECT GOLD IN CONTACT AREA;  
.000100/(0.00254) MIN. SELECT TIN ON SOLDER TAILS;  
BOTH OVER .000050/(0.00127) MIN. NICKEL PLATE.

\* THE PRIMARY SHIPPING CARTON WILL BE LABELED "COMPLIANT TO RoHS DIRECTIVE 2002/95/EC AND ELV ANNEX II OF DIRECTIVE 2000/53/EC." CARTONS WITHOUT THIS LABEL MAY CONTAIN PRODUCT WITH TIN/LEAD IN THE PC TAIL AREA.

3. PRODUCT SPECIFICATION: PS-43045

#### 4. MATES WITH MICRO FIT (3.0) RECEPTACLE SERIES 43025

5. TRAY PACKAGED: SEE MOLEX DRAWING PK-70873-0314

|      | FINISH A     | FINISH B     | FINISH C     |
|------|--------------|--------------|--------------|
| CKTS | MATERIAL NO: | MATERIAL NO: | MATERIAL NO: |
| 02   | 43045-0212   | 43045-0213   | 43045-0214   |
| 04   | 43045-0412   | 43045-0413   | 43045-0414   |
| 06   | 43045-0612   | 43045-0613   | 43045-0614   |
| 08   | 43045-0812   | 43045-0813   | 43045-0814   |
| 10   | 43045-1012   | 43045-1013   | 43045-1014   |
| 12   | 43045-1212   | 43045-1213   | 43045-1214   |
| 14   | 43045-1412   | 43045-1413   | 43045-1414   |
| 16   | 43045-1612   | 43045-1613   | 43045-1614   |
| 18   | 43045-1812   | 43045-1813   | 43045-1814   |
| 20   | 43045-2012   | 43045-2013   | 43045-2014   |
| 22   | 43045-2212   | 43045-2213   | 43045-2214   |
| 24   | 43045-2412   | 43045-2413   | 43045-2414   |

|                                                                                                                           |             |                 |                                       |        |              |                                                                                                                               |                    |                                                                                                  |  |                    |  |
|---------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------------------------------|--------|--------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------|--|--------------------|--|
| CHANGED "1" LOCATION<br>EC NO: UCP2006-1962<br>DRWN:PRDDER 2006/03/30<br>CHKD:SSVUSEK 2006/03/31<br>APPR:FSMTH 2006/04/03 | DESCRIPTION | QUALITY SYMBOLS | GENERAL TOLERANCES (UNLESS SPECIFIED) |        | SCALE<br>--- | DESIGN UNITS<br>METRIC                                                                                                        |                    | THIRD ANGLE<br>PROJECTION                                                                        |  | REVISE ON CAD ONLY |  |
|                                                                                                                           |             |                 |                                       | mm     | INCH         | DIMENSION STYLE<br>IN/MM                                                                                                      |                    | TITLE<br>MICRO FIT (3.0)<br>DUAL ROW VERTICAL THRU<br>HOLE HEADER ASSY<br><br>MOLEX INCORPORATED |  | SHEET NO.<br>1 OF  |  |
|                                                                                                                           |             |                 | 4 PLACES                              | ± ---  | ± ---        | DRAWN BY<br>SAMIEC                                                                                                            | DATE<br>2000/03/15 |                                                                                                  |  |                    |  |
|                                                                                                                           |             |                 | 3 PLACES                              | ± ---  | ± .010       | CHECKED BY<br>MUELLER                                                                                                         | DATE<br>2000/03/15 |                                                                                                  |  |                    |  |
|                                                                                                                           |             |                 | 2 PLACES                              | ± 0.25 | ± .014       | APPROVED BY<br>EDGLEY                                                                                                         | DATE<br>2000/03/15 |                                                                                                  |  |                    |  |
|                                                                                                                           |             |                 | 1 PLACE                               | ± 0.36 | ± ---        | ANGULAR ± 1/2°                                                                                                                |                    | MATERIAL NO.                                                                                     |  | DOCUMENT NO.       |  |
|                                                                                                                           |             |                 | DRAFT WHERE APPLICABLE                |        |              |                                                                                                                               |                    | SD-43045-005                                                                                     |  |                    |  |
|                                                                                                                           |             |                 | MUST REMAIN<br>WITHIN DIMENSIONS      |        |              | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |                    |                                                                                                  |  |                    |  |

| 2    |       | 43045 |       |
|------|-------|-------|-------|
| CKTS | A     | B     | C     |
| 02   | .262  |       | .236  |
|      | 6.65  | NA    | 6.00  |
| 04   | .380  | .118  | .354  |
|      | 9.65  | 3.00  | 9.00  |
| 06   | .498  | .236  | .472  |
|      | 12.65 | 6.00  | 12.00 |
| 08   | .616  | .354  | .591  |
|      | 15.65 | 9.00  | 15.00 |
| 10   | .734  | .472  | .709  |
|      | 18.65 | 12.00 | 18.00 |
| 12   | .852  | .591  | .827  |
|      | 21.65 | 15.00 | 21.00 |
| 14   | .970  | .709  | .945  |
|      | 24.65 | 18.00 | 24.00 |
| 16   | 1.088 | .827  | 1.063 |
|      | 27.65 | 21.00 | 27.00 |
| 18   | 1.206 | .945  | 1.181 |
|      | 30.65 | 24.00 | 30.00 |
| 20   | 1.325 | 1.063 | 1.299 |
|      | 33.65 | 27.00 | 33.00 |
| 22   | 1.443 | 1.181 | 1.417 |
|      | 36.65 | 30.00 | 36.00 |
| 24   | 1.561 | 1.299 | 1.535 |
|      | 39.65 | 33.00 | 39.00 |