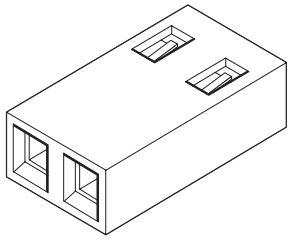
Jameco Part Number 1929946

2.54mm (.100") Pitch C-Grid® Shunt/Jumper

7859
2-Circuit



Features and Benefits
- Easily applied without soldering and reliable without accidental disconnects
- Low cost alternative to DIP switches
- Increases current flow and decreases resistance vs DIP switches
- Dual beam terminals: 2 points of contact per pin
- Open and closed top versions
- Stackable end-to-end and side-to-side

Reference Information
Product Specification: PS-7859
Packaging: Bag
UL File No.: E29179
CSA File No.: LR19980
Mates With: C-Grid breakaway headers
Designed In: Inches

Electrical
Voltage: 250V
Current: 5.0A
Contact Resistance: 30 milliohms max.
Dielectric Withstanding Voltage: 1500V
Insulation Resistance: 100K Megohms min.

Mechanical
Contact Retention to Housing: 26.69N (4 lb)
Mating Force: 4.448N (6 lb)
Unmating Force: 0.98N (1 lb)
Durability: Tin—25 cycles; Gold—200 cycles

Physical
Housing: Black polyester, UL 94V-0
Contact: Copper Alloy
Plating: See Table
Operating Temperature: -40 to +105˚C

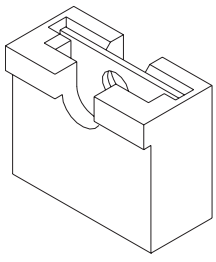
Not For Use With Molex C-Grid III™ Components

Open Top		
Order No.	Plating	Lead-free
15-38-1024	150µ" Tin	Yes
15-29-1024	15µ" Gold	
15-29-1026	30µ" Gold	

Closed Top		
Order No.	Plating	Lead-free
15-38-1026	150µ" Tin	Yes
15-29-1025	15µ" Gold	
15-29-1027	30µ" Gold	

2.54mm (.100") Pitch C-Grid® Micro Shunt

90059
Low Profile



Features and Benefits
- Fully stackable
- Center probe hole—for continuity testing and easy pull-off
- Color-coded housings for plating and identification
- Delivered on break-off carrier strips for easy handling (10 per strip) or loose
- Recommended to be applied after mating header is soldered

Reference Information
Product Specification: PS-90059
Packaging: Strips or Bag
UL File No.: E29179
CSA File No.: LR19980
Designed In: Inches

Electrical
Voltage: 350V
Current: 3.0A Gold; 1.5A Tin
Contact Resistance: Gold—12 milliohms max.;
Tin—15 milliohms max.
Dielectric Withstanding Voltage: 2000V
Insulation Resistance: 2000 Megohms max.

Mechanical
Mating Force: 7N max.
Unmating Force: 0.3N Gold; 0.5N Tin min.
Durability: 50 cycles Gold and 20 cycles Tin

Physical
Housing: Glass-filled polyester, UL 94V-0
Contact: Phosphor Bronze
Plating: See Table
Operating Temperature: -55 to +125˚C
Height: 4.95mm (.195") max.

Order No.	Plating No.	Color	Packaging	Lead-free
90059-0009*	1	White	Strip	Yes
90059-0007*	2	Black		
90059-0013	3			
90059-0014	4	White		
90059-0012	5			
90059-1009	1	White	Bag	
90059-1007	2	Black		

* Preferred Version In Europe/Americas
Plating No. 1: 0.38µm (15µ") Gold in contact area over 0.76µm (30µ") Nickel with Gold flash overall
Plating No. 2: 5.0µm (200µ") min. Tin over 0.2µm (8µ") min. Copper
Plating No. 3: 0.9µm (35µ") min. Pretinned
Plating No. 4: 0.1µm (4µ") min. Gold over 1.0µm (40µ") min. Nickel overall
Plating No. 5: 0.76µm (30µ") Gold over 1.27*µm (50µ") Nickel in contact area with 0.2mm (8µ") min. Nickel overall

molex®	**PRODUCT SPECIFICATION**	molex®

LANGUAGE

ENGLISH

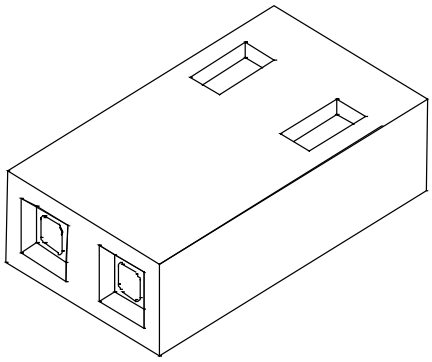


TABLE OF CONTENTS

REV	D					
SHT	1-7					
REVISE ON PC ONLY		TITLE				
D	REVISED, CHANGED TO MS WORD FORMAT PER ECN UDT2002-0519	**TWO-CIRCUIT SHUNT**				
		THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION				
REV	DESCRIPTION					
DESIGN CONTROL	STATUS	WRITTEN BY:	CHECKED BY:	APPROVED BY:	DATE: YR / MO / DAY	
UDT		J.SCHAFER	J.SCHAFER	D.BRINKMAN	01/9/27	

DOCUMENT NO.		FILE NAME	SHT NO.
PS –7859		PS7859.DOC	1 OF 7

C-Grid 7859 Series Two-Circuit Shunt

1.0 SCOPE

This specification covers the test criteria and performance requirements of the 2.54 mm (.100 inch) centerline (pitch) two-circuit shunt.

2.0 PRODUCT DESCRIPTION

2.1 Product Name and Series Number
C-Grid shunt 7859 series available in both open top version which accommodates mated pin lengths from 5.08mm (.200 inch) minimum and longer and closed top version which accommodates mated pin lengths from 5.08mm (.200 inch) to 6.86mm (.270 inch)

2.2 Part Numbers, dimensions, materials, platings and markings
See appropriate sales drawing for information

2.3 Safety Agency Approvals
2.3.1 Underwriters Laboratories Inc.: File No. E29179
2.3.2 Canadian Standards Association: File No. LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 Molex documents
SDA-7859-2***N sales drawing for open top version
SDA-7859-2A***N sales drawing for closed top version
PK-70873-0815

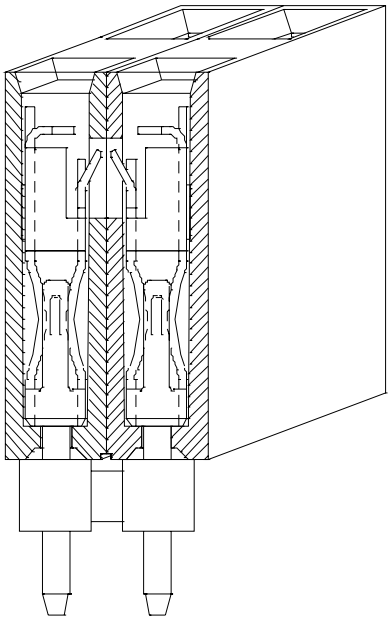
4.0 RATINGS

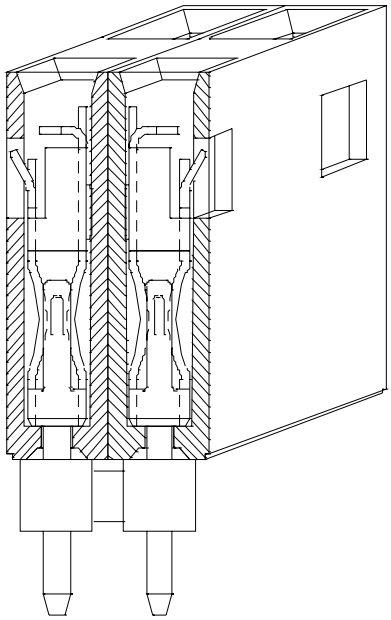
4.1 Current: 5.0 Amperes with 30ºC rise over ambient
4.2 Operating temperature: -40ºC to +105ºC

5.0 PERFORMANCE

5.1 Electrical

Item	Test Condition	Requirement
Contact Resistance (Low Level)	Mate connectors with a maximum voltage of 20 mV and a current of 100 mA	30 milliohms maximum
Contact Resistance (Rated)	Measure contact resistance at rated current	30 milliohms maximum
Insulation Resistance	Mate connectors with a voltage of 500 VDC for 1 minute	1×10^5 Megohms minimum
Dielectric Withstanding Voltage	Mate connectors with a voltage of 1000 VAC for 1 minute Connectors to be oriented as shown below, In either configuration.	No breakdown Regardless of configuration





5.2 Mechanical

Item	Test Condition	Requirement
Connector Insertion/ Withdrawal Forces	Insert and withdraw a connector at a rate of (25 ± 6 mm)/1 ± ¼ inch per minute	Plating: .000150 min.tin/lead over .000050 min. nickel overall Maximum mate force: After 1 cycle = 6.12 lbs. After 5 cycles = 5.71 lbs. After 10 cycles = 2.74 lbs. After 25 cycles = 2.66 lbs. Minimum unmate force: After 1 cycle = 3.84 lbs. After 5 cycles = 3.25 lbs. After 10 cycles = 0.79 lbs. After 25 cycles = 0.31 lbs. Plating: .00015 min. gold over .000050 min. nickel overall Maximum mate force: After 1 cycle = 2.37 lbs After 50 cycles = 1.72 lbs After 100 cycles = 1.71 lbs. After 200 cycles = 1.70 lbs. Minimum unmate force: After 1 cycle = 1.26 lbs. After 50 cycles = 1.07 lbs. After 100 cycles = 1.05 lbs. After 200 cycles = 1.04 lbs. Plating: .000030 min. gold over .000050 min. nickel overall Maximum mate force: After 1 cycles = 2.61 lbs. After 50 cycles = 1.24 lbs. After 100 cycles = 1.24 lbs. After 200 cycles = 1.22 lbs. Minimum unmate force: After 1 cycle = 1.20 lbs. After 50 cycles = 0.78 lbs. After 100 cycles = 0.78 lbs. After 200 cycles = 0.68 lbs.
Terminal Retention Force In Housing	Axial pullout force on the terminal in the housing at a rate of (25 ± 6 mm)/1 ± ¼ inch per minute	4.0 pounds minimum
Durability	Mate connector up to 25 cycles for tin/lead plating and 200 cycles for gold plating at a maximum rate of 10 cycles per minute prior to Environmental Tests	Maximum contact resistance change: 10 milliohms

Cont'd…

Item	Test Condition	Requirement
Vibration	Amplitude: (1.9 mm)/.076"peak-to-peak Sweep: 10-55-10 Hz in one minute Duration: 2 hours in each axis x , y, & z	Maximum contact resistance change: 10 milliohms
Mechanical Shock	50 G's with three sine waveform shocks, both directions in each axis (x, y, & z)	Maximum contact resistance change: 10 milliohms
Normal Force	Apply a perpendicular force at a rate of (25 ± 6mm)/1 ± ¼ inch per minute	100 grams minimum

5.3 Environmental

Item	Test Condition		Requirement
Thermal Shock	Mate connectors exposed to 10 cycles of: Temperature (Cº) -40 +0, -3 +105 +3, -0	Duration (minutes) 30 30	Appearance: No damage Maximum contact resistance change: 10 milliohms
Thermal Aging	Mate connectors exposes to 240 hours at 105 ± 2ºC		Appearance: No damage Maximum contact resistance change: 10 milliohms
Humidity (Steady State)	Mate connectors exposed to 40 ± 2ºC, 90-95% RH, for 240 hours per MIL-STD-202F, Method 103B, Test Condition A		Appearance: No damage Maximum contact resistance change: 10 milliohms
Humidity (Cyclic)	Test mate connectors per MIL-STD-202F, Method 106E, excluding steps 7a and 7b		Appearance: No damage Maximum contact resistance change: 10 milliohms

cont'd

Item	Test Condition	Requirement
Fretting	Mate connectors exposed for 500 cycles Temperature (°C) / Duration (minutes) +25 ± 10 / 30 +70 +3, -0 / 30	Appearance: No damage Maximum contact resistance change:
Temperature Rise and Current Cycling	Mate the connectors and measure the temperature rise at the rated current after 96 hours, then after 45 minutes ON, 15 minutes OFF for 240 hours, and finally at the rated current after 96 hours.	Maximum temperature rise: 30°C over ambient Maximum contact resistance change: 10 milliohms

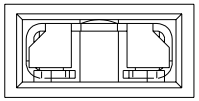
Reference Test Report Nos.: 2281, 2445, 4146, 4147

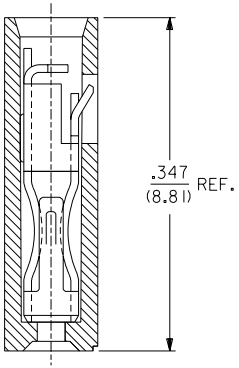
EDP NO.	ENG NO.	FINISH
15-38-1026	A-7859-2A164	TIN OVERALL
15-29-1025	A-7859-2A554	15 GOLD
15-29-1027	A-7859-2A561	30 GOLD

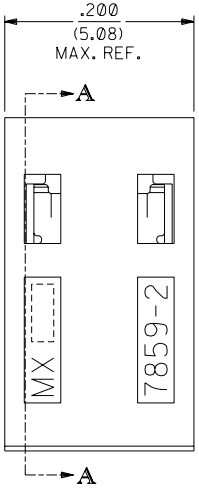
PART IDENTIFICATION:

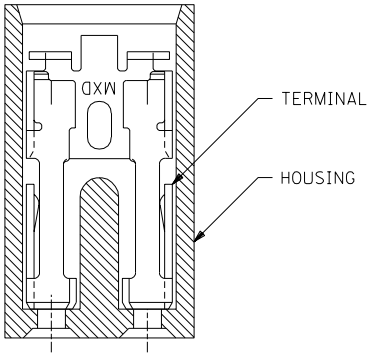
A-7859-2A***

- *** PLATING SPECIFICATION
- 2A PIN STOP VERSION

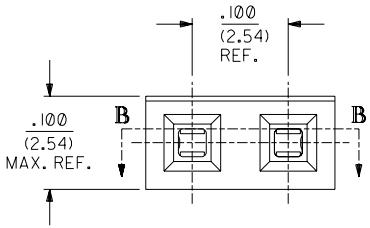








SECTION A-A



SECTION B-B

NOTES:

1. MATERIAL;
   HOUSING: GLASS FILLED POLYESTER; 94V-0; COLOR: BLACK
   TERMINAL: PHOSPHOR BRONZE ALLOY.
2. THIS PRODUCT CONFORMS TO MOLEX PRODUCT SPEC. PS-7859.
3. TO BE USED WITH .025/(0.64) SQUARE PINS.
4. MINIMUM MATING PIN LENGTH: .200/(5.08)
   MAXIMUM MATING PIN LENGTH: .270/(6.86)
5. PRODUCT IS PACKAGED IN BOXES PER PK-70873-0815.

FINISH SPECIFICATION

TIN OVERALL - .000150 MINIMUM TIN PLATE OVER
.000050 MINIMUM NICKEL UNDERPLATE.

15 GOLD - .000015 MINIMUM GOLD PLATE IN SELECT AREA OVER
.000050 MINIMUM NICKEL UNDERPLATE OVERALL.

30 GOLD - .000030 MINIMUM GOLD PLATE IN SELECT AREA OVER
.000050 MINIMUM NICKEL UNDERPLATE OVERALL.

NOTE FOR LEAD FREE CONVERSION:

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 LEAD.

LTR.	REVISIONS
D	LEAD FREE CONV ECN UCP2004-2133 RKADAMS 04/04/27
C1	ADDED PKG SPEC. PER ECN U70786 WHETSTON 97/2/7
C	CHANGED MATERIAL PER ECR #U51214 95/06/02 CAC
B	REVISED ENG. NOS. PER ECR # U31581 10/26/93 REED
A	RELEASED PER ECR # U30372 03/11/93 REED
3	REVISE GOLD PLTG. PER ECR # U12055 10/18/91 AAB
2	REVISE TERM. PLTG. PER ECR # U11096 06/18/91 AAB
1	'X' RELEASE PER ECR # U10445 02/07/91 AAB

MFG. SH. REV.

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

DIMENSIONS SHOWN (METRIC) INCH
UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2°

	INCH	METRIC
3 PLACE	± .005	---
2 PLACE	± .01	± 0.13
1 PLACE	---	± 0.25

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DRWG. BY AAB CHK'D. BY
APP'D. BY MJM SCALE 10: 1

TITLE: SALES ASSY - SHUNT 2-CIRCUIT TERMINAL W/PIN STOP

molex MOLEX INCORPORATED LISLE,ILL. 60532 U.S.A.

SHEET NO. 1 OF 1 DATE 02/07/91

PART NO. SEE CHART DRWG. NO. SDA-7859-2A***N

FILE NAME S7859X1A

DIV. DA SIZE C