SPEC. NO.: PS-50180-XXXXX-XXX **REVISION:** B

PRODUCT NAME: 0.4 mm BTB D/R CONN SMT S/T TYPE

PRODUCT NO: 50177 SERIES、50180 SERIES、50199 SERIES

APPROVED:	CHECKED:	PREPARED:
DATE: **2014/01/18**	DATE: **2014/01/18**	DATE: **2014/01/18**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	0908049	PROPOSAL FOR PDR APD980300	JASON	09/08/18
2	0911031	ADD THERMAL SHOCK	JASON	09/11/02
3	0912188	ADD INSERTION/EXTRATION OPERTAE	JASON	10/01/05
O	1001116	RELEASE TO MASS PRODUCTION	JASON	10/01/19
A	1010183	ADD 50199 SERIES	LIUWEI	10/11/01
B	ECN-1401262	UPDATE WORKING VOLTAGE	FENGXIAO	2014/01/18

2 SCOPE

This specification covers performance, tests and quality requirements for 0.4 mm BTB D/R CONN SMT S/T TYPE , 50177、 50180 、50199series.

3 APPLICABLE DOCUMENTS

EIA-364 : ELECTRONICS INDUSTRIES ASSOCIATION

4 REQUIREMENTS

4.1 Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy (Phosphor Bronze)
Finish: (a) Contact Area: Gold plated based on order information
(b) Under plate: Nickel-plated all over
(c) Solder area: Tin plated or Gold Flash
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
4.2.3 Fitting Nail: Copper Alloy, Tin pleated.

4.3 Ratings

4.3.1 Working Voltage Less than 36 Volts AC (per pin)
4.3.2 Voltage: 50 Volts AC (per pin)
4.3.3 Current: 0.5 Amperes (per pin)
4.3.4 Operating Temperature : -40℃ to +80℃

5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	70 m Ω Max.(initial)per contact 20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	1000 M Ω Min.	Unmated connectors, apply 250 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	250 VAC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25℃ (EIA-364-70,METHOD1,CONDITION1)
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	30 cycles	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
Mating / Unmating Forces	See figure 1.	Operation Speed：25.4 ± 3 mm/minute Measure the force required to mate/unmate connector. (EIA-364-13)
Terminal / Housing Retention Force	0.15kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	0.15kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.

Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)

ENVIRONMENTAL

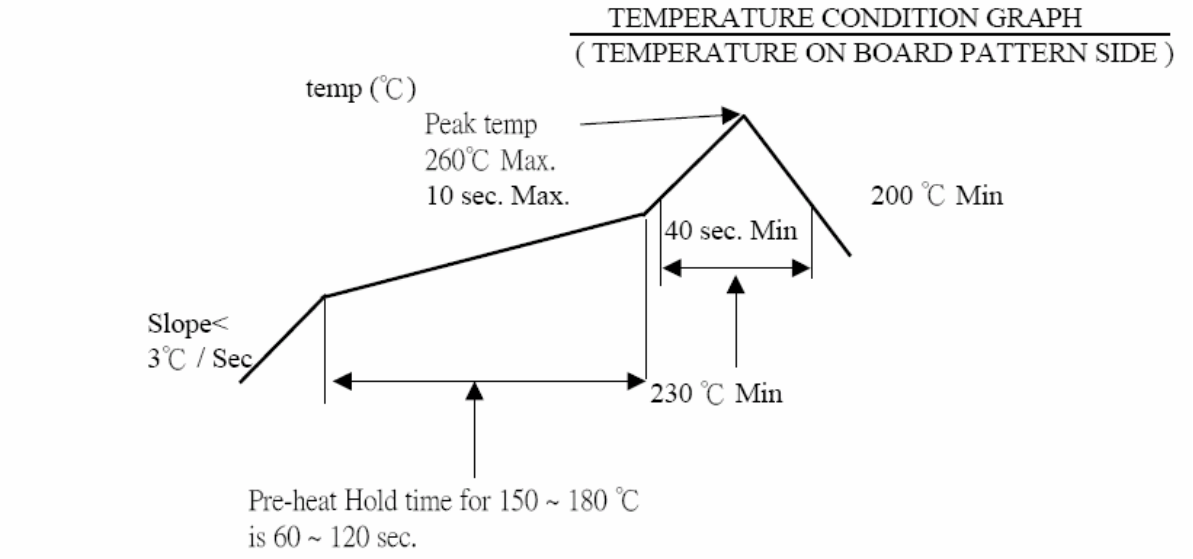
Item	Requirement	Standard
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 4 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Temperature life	See Product Qualification and Test Sequence Group 8	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)

Salt Spray	See Product Qualification and Test Sequence Group 5	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 8 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T≧350℃, 3sec at least.

Note. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION

Lead-free Process



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

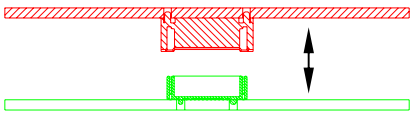
Test or Examination	Test Group									
	1	2	3	4	5	6	7	8		
	Test Sequence									
Examination of Product				1、7	1、6	1、4				
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	1									
Mating / Unmating Forces		2、4								
Durability		3								
Vibration			2							
Shock (Mechanical)			3							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray						3				
Solder ability							1			
Terminal / Housing Retention Force								1		
Fitting Nail /Housing Retention Force								2		
Resistance to Soldering Heat									1	
Sample Size	2	4	4	4	4	4	2	4	2	

8. MATING / UNMATING FORCE

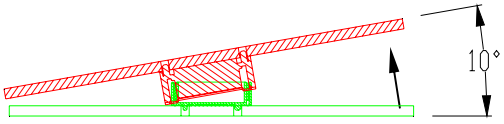
Unit：N / kg

Number of circuits	Mating froce N / kg MAX				Unmating froce N / kg MIN			
	initial		30 th		initial		30 th	
10	0.58	0.60	0.49	0.50	0.29	0.03	0.19	0.02
14	9.80	1.00	7.84	0.80	0.68	0.07	0.49	0.05
20	13.72	1.40	10.78	1.10	0.98	0.10	0.78	0.08
26	17.84	1.82	14.01	1.43	1.27	0.13	0.98	0.10
30	20.58	2.10	16.17	1.65	1.47	0.15	1.18	0.12
34	24.00	2.50	18.80	1.92	1.70	0.17	1.30	0.14
40	27.44	2.80	21.56	2.20	1.96	0.20	1.57	0.16
50	34.30	3.50	26.95	2.75	2.45	0.25	1.96	0.20
60	41.16	4.20	32.34	3.30	2.94	0.30	2.35	0.24
70	48.02	4.90	37.73	3.85	3.43	0.35	2.74	0.28
80	54.88	5.60	43.12	4.40	3.92	0.40	3.14	0.32
90	61.74	6.30	48.51	4.95	4.41	0.45	3.53	0.36
100	68.60	7.00	53.90	5.50	4.90	0.50	3.92	0.40
110	75.46	7.70	59.29	6.05	5.39	0.55	4.31	0.44
120	82.32	8.40	64.68	6.60	5.88	0.60	4.70	0.48

Insertiion/Extration



Correct



Tilt angle 10° Max.

figure 1.