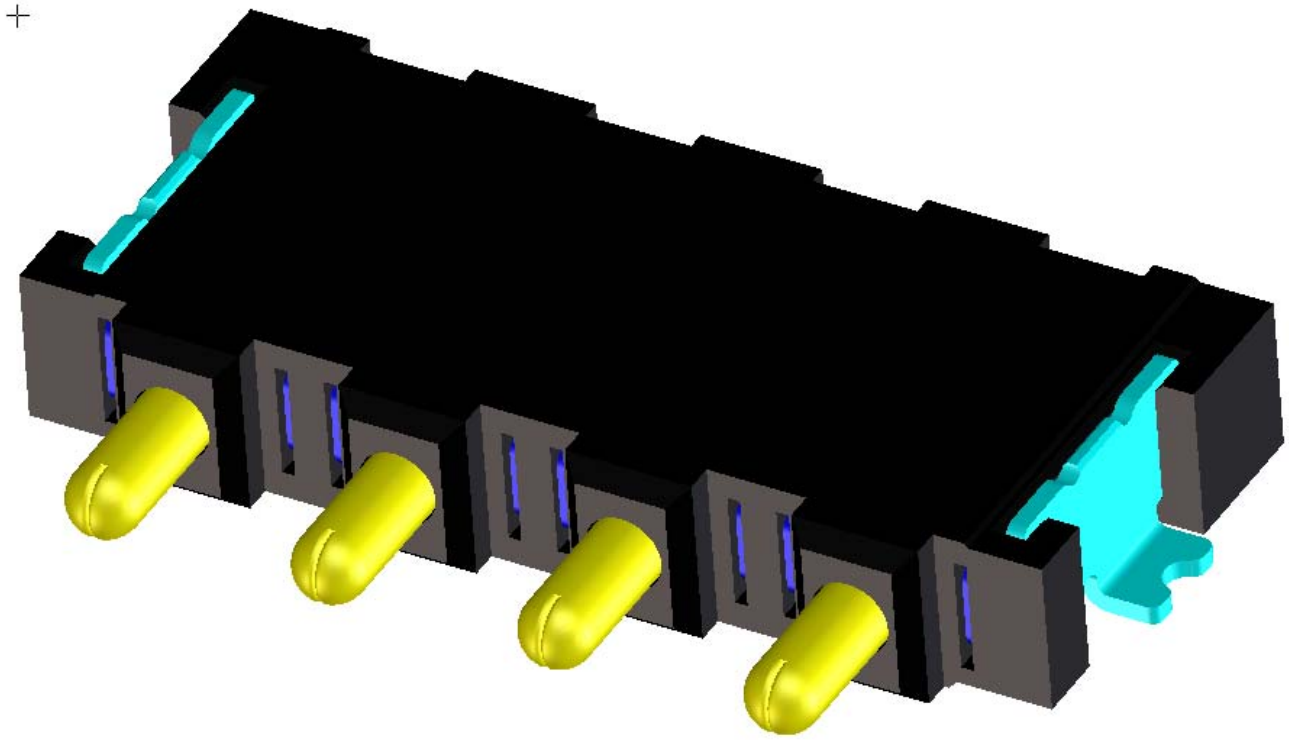
PRODUCT SPECIFICATION



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REVISION:	ECR/ECN INFORMATION:		PRODUCT NO	BTM41 SERIES	SHEET No
B	EC No: / DATE:	RD-120411 / 2012/11/13	PRODUCT NAME	4 PIN 2.50mm PITCH BATTERY CONNECTOR	1 of 8

DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
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1.0 SCOPE

This Product Specification covers the performance requirements for 4pin 2.50mm pitch battery connector series. .

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

4 pin 2.50mm pitch battery connector **BTM41** series

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See appropriate sales drawings for details on dimensions ,materials , plating and markings.

2.3 SAFETY AGENCY APPROVALS

See appropriate sales drawings

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Please refer to the Sales Drawings , and other sections of this Specification for specific references to applicable documents and specifications. In cases where the Product Specification differs from the Sales Drawings, the Sales Drawing will take precedence

EIA-364 TEST METHODS FOR ELECTRICAL CONNECTORS

4.0 RATINGS

4.1 VOLTAGE

15 Volts DC

4.2 CURRENT

4.0 A Max.

4.3 TEMPERATURE

Operating Temperature Range: - 40°C to + 85°C
Storage Temperature Range: - 40°C to + 85°C

5.0 PERFORMANCE

Item	Test Items	Requirement	Procedures
1	**Examination of Product**	Meets requirements of product drawing. No physical damage.	Specimens shall be investigated by 10x (or higher) microscope.
	Electrical Requirements		
2	**Contact Resistance (LLCR)**	20 milliohms Max(Initial)	Subject mated contacts assembled in housing to 20mV maximum open circuit at 100mA maximum. EIA 364-23;
3	**Insulation Resistance**	1000 Mega Ohm Min.	After 500 VDC for 1 minute, measure the insulation resistance between the adjacent contacts of mated and unmated connector assemblies. EIA 364-21
4	**Dielectric Withstanding Voltage**	No breakdown; current leakage < 5mA	Apply a voltage 500 V DC for 1 minute between adjacent terminals and between terminals to ground. EIA 364-20
5	**Current Rating**	Temperature rise: 30°C Max.	Apply the rated current to connector, EIA 364-70
	Mechanical Requirements		
6	**Durability**	△R: 10 milliohms Max (change from initial)	Operation Speed：500 cycles/hr. Durability Cycles：5000 Cycles Check Point：500 cycles (Compress pin until Maximum displacement) EIA 364-09.
7-1	**Vibration (Random, Simulate Operating State)**	△R: 10 milliohms Max (change from initial) & No electrical discontinuity greater than 1μsec.	Subject mated connectors to 10-200-500 Hz traversed in 1minutes at 1.52mm amplitude for 0.5 Hour each of 3 mutually perpendicular planes.1.67Grms EIA 364-28; Test condition Ⅰ
7-2	**Vibration (Random, Simulate Non-Operating State)**	△R: 10 milliohms Max (change from initial) & No electrical discontinuity greater than 1μsec.	Test subject mated connectors by below requirement. Frequency traversed in 1minutes at 1.52mm amplitude 10 minutes each of 3 mutually perpendicular planes. 6.06Grms Frequency (Hz) / A.S.D (G^2/Hz) 20 / 0.0098 80 / 0.04 350 / 0.04 2000 / 0.0069 EIA 364-28; Test condition Ⅰ

7-3	**Vibration (Operating Sine State)**	△R: 10 milliohms Max (change from initial) & No electrical discontinuity greater than 1μsec.	Test subject mated connectors by below requirement. Sweep rate:0.5 octave/min, 3axes,3 sweeps/per axis. Frequency (Hz) / Amplitude 5-9 / 6-6 mm(P-P) 9-200 / 1.0 G 200-500 / 1.5 G EIA 364-28;
8-1	**Mechanical Shock (Simulate Operating State)**	△R: 10 milliohms Max (change from initial) & No electrical discontinuity greater than 1μsec.	Accelerate Velocity：490m/ s^2 (50G） Waveform：11ms Half-sine shock Velocity Change: 3.4m/s No. of Drops：3 drops each to normal and reversed directions of X,Y and Z axes, totally 18 drops, passing 1mA current during the test. EIA 364-27;Test Condition C
8-2	**Mechanical Shock (Simulate Non-Operating State)**	△R: 10 milliohms Max (change from initial) & No electrical discontinuity greater than 1μsec.	Accelerate Velocity：4900m/ s^2 (500G) Waveform：2ms Half-sine shock Velocity Change: 3.4m/s No. of Drops：3 drops each to normal and reversed directions of X,Y and Z axes, totally 18 drops, passing 1mA current during the test. EIA 364-27;Test Condition C
9	**Normal Force**	1.5N Min. /pin	Apply a perpendicular force at 1.20mm from housing.
10	**Terminal Retention Force (in Housing)**	500 gf/Pin Min.	Axial pullout force on the terminal and nail in the housing at a rate of 25 mm per minute. EIA 364-29
10-1	**Latch Retention Force (in Housing)**	500 gf/Pin Min.	Axial pullout force on the terminal and nail in the housing at a rate of 25 mm per minute. EIA 364-29
11	**Pin compression strength for oblique insertion Test**	500g / 20sec	Compress the contact pin of battery connector for tilt angle 45
12	**Fully compression**	Appearance: no damage	compress connector to 0mm from housing by hand for 10sec

Environment Requirements			
13	**Thermal Shock (Simulate Non-Operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Place free situation samples in chamber with 10 cycles, and one duration is -40℃/(1.5h)~ 85℃/(1.5h). EIA-364-32
13-1	**Static Humidity (Simulate Operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Test mated connector in chamber and expose to a temperature of 60 ± 2°C with a relative humidity of 95% for 240 hours. Note: Remove surface moisture and air dry for 1 hour prior to measurements. EIA 364-31
13-2	**Static Humidity (Simulate Non-Operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Place free situation samples in chamber and expose to a temperature of 70 ± 2°C with a relative humidity of 90% for 240 hours. Note: Remove surface moisture and air dry for 1 hour prior to measurements. EIA 364-31
14	**Solder ability**	Solder coverage: **95**% MINIMUM	Dip solder tails into the molten solder(held at 245±5°C for 3 ±0.5 sec. EIA 364-52
15	**Solder Heat Resistance**	Visual: No Damage to insulator material	Place connector o applicable P.C.B footprint and float on solder bath at 260±5 °C for 10±2 seconds. EIA 364-56; Refer to Fig.1
16	**Salt Spray**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Duration: 48 hours exposure; Atmosphere:salt spray from a 5% solution. Temperature: 35 +1/-2°C EIA 364-26
17	**Heat Temperature Life (Simulate Operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Simulate mated situation samples at 70°C for 240 hours. EIA 364-17
17-1	**Heat Temperature Life (Simulate non-operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Treat samples with 85°C for 240 hours EIA 364-17
18	**Cold Temperature Life (Simulate Operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Simulate mated situation samples at -20°C for 240 hours EIA 364-17

18-1	**Cold Temperature Life (Simulate non-operating State)**	△R: 10 milliohms Max. (change from initial) & Appearance: no damage	Treat samples with -40°C for 240 hours EIA 364-17
19	**Resistance to Sulfuration**	△R: 10 milliohms Max. (change from initial)	The connector shall be stored at a sulfuration gas ambience (H_2S 3±1ppm) temperature of 40±2℃ and relative humidity of 75~ 80%RH for 24h continuously. After test, place room situation for 60 minutes. Refer to SS-00126-4 test standard.

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. See packaging appropriate drawings

7.0 RECOMMENDED REFLOW PROFILE

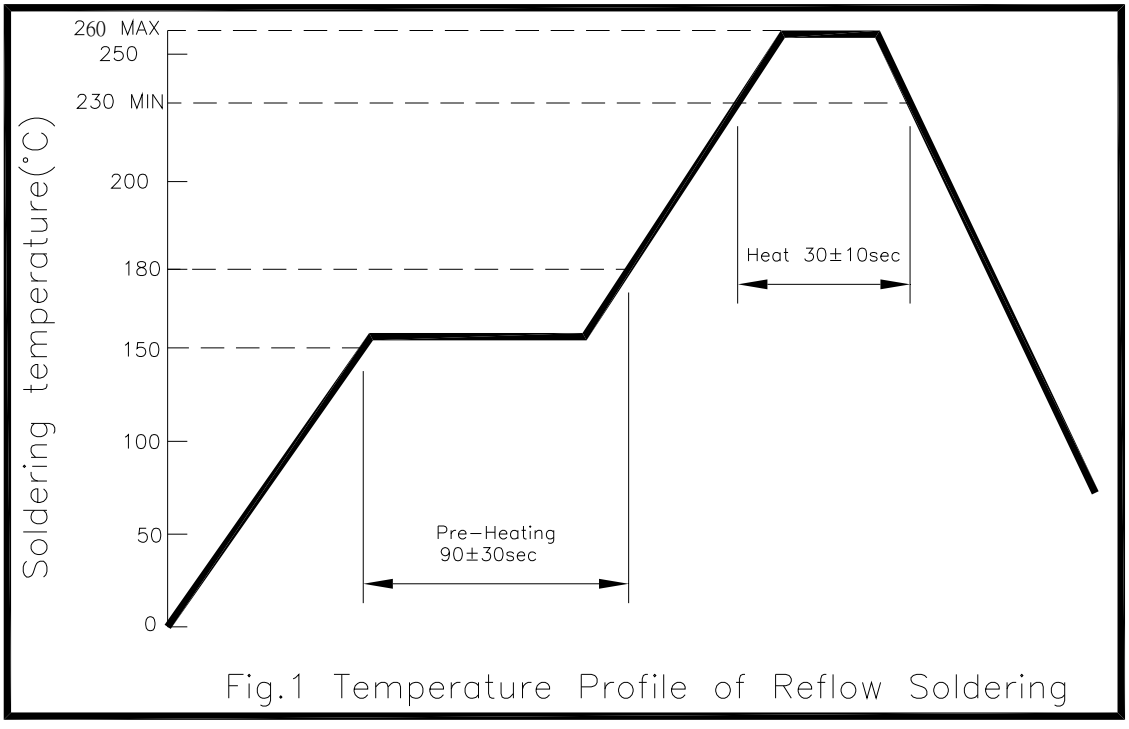

Fig.1 Temperature Profile of Reflow Soldering

8.0 TEST GROUPINGS

Test Items	Test Group												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Test Sequence												
1 Examination of product	1,8	1,12	1,9	1,8	1,10	1,10	1,10	1,6	1,6	1,6	1,6	1,3	1,3
2 Contact Resistance (LLCR)	2,7	3,11	3,8	3,7	3,9	3,9	3,9	2,5	2,5	2,5	2,5		
3 Insulation Resistance		4,10	4	4	4,8	4,8	4,8						
4 Dielectric Withstanding Voltage		5,9	7	6	5,7	5,7	5,7						
5 Current Rating													
6 Durability		7											
7-1 Vibration(Random,Simulate Non-Operating State)								4					
7-2 Vibration(Random,Simulate Non-Operating State)													
7-3 Vibration (Operating Sine State)										**4**			
8-1 Mechanical Shock (Simulate Operating State)	4										4		
8-2 Mechanical Shock (Simulate Non-Operating State)													
9 Normal Force	5	6,8											
10 Terminal Retention Force (in Housing)													
11 Pin compression strength for oblique insertion Test												2	
12 Fully compression													2
13 Thermal Shock			5										
13-1 Static Humidity (Simulate Operating State)			6										
13-2 Static Humidity (Simulate Non-Operating State)				5									
14 Solder ability													
15 Solder Heat Resistance	3	2	2	2	2	2	2	3	3	3	3		

16 Salt Spray					6								
17 Heat Temperature Life (Simulate Operating State)						6							
17-1 Heat Temperature Life (Simulate non-operating State)													
18 Cold Temperature Life (Simulate Operating State)							6						
18-1 Cold Temperature Life (Simulate non-operating State)													
19 Resistance to Sulfuration													
Sample Size	8	8	8	8	8	8	8	8	8	8	8	10	10