

## Product Specification

### Battery Holder 2Pin Dip Type Connector

#### 1. SCOPE

##### 1.1. Contents

This specification covers the performance, tests and quality requirements for the Deren Electronics Battery holder 2pin Dip Type Connector.

##### 1.2. Qualification

When tests are performed on the subject product line, the procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

#### 2. APPLICABLE DOCUMENT

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

##### 2.1. Deren Electronics Documents

- DR-TR-0013 : Test Report

##### 2.2. Industry Standard

EIA-364 : Electrical Connector/Socket Test Procedures Including Environmental Classifications.

#### 3. REQUIREMENTS

##### 3.1. Design and Construction

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

##### 3.2. Materials

Materials used in the construction of product shall be compliant with requirements as specified on the applicable product drawing.

##### 3.3. Ratings

- A. Nominal Voltage : **3 V** .
- B. Standard Discharge Current : **0.2 mA**
- C. Temperature : **- 20°C to 85°C**

##### 3.4. Performance and Test description

The product is so designed that meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per EIA-364.

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## 3.5. Test Requirements and Procedures Summary

TEST ITEM		REQUIREMENT	PROCEDURE
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
<b>ELECTRICAL REQUIREMENT</b>			
2	Low Level Contact Resistance	Initial : <b>30m<math>\Omega</math></b> max After test: <b>30 m<math>\Omega</math></b> max.	<b>Terminal</b> : measure by dry circuit, 20mV Max, 10mA. EIA-364-06
3	Dielectric withstanding Voltage	No breakdown	1. mated connector, apply <b>1000V</b> AC (rms) for 1 minute between adjacent terminals or ground. (EIA-364-20)
4	Insulation Resistance	<b>1000</b> M Ohm Min.	1. mated connector, apply <b>500V</b> DC for 2 min between adjacent terminals. (EIA-364-21)
<b>MECHANICAL REQUIREMENT</b>			
5	Durability	No evidence of physical damage.	Mate and unmate connector with 2032 style Battery repeatedly. Operation Speed : <b>200</b> cycle per hour. Durability Cycles : <b>50</b> Cycles (EIA-364-09)
6	Vibration	Appearance: no damage. Discontinuity: 1 microsecond Max.	Amplitude: <b>1.50mm P-P or 98.1 m/s<sup>2</sup>{10 G}</b> Sweep time: <b>20-500-20</b> Hz in 20minutes. Duration: 3 times in each (total of 9times) X , Y and Z axes. Electrical load: DC <b>100mA</b> current shall be flowed during the test. (EIA-364-28 Condition III)
7	Mechanical Shock	Appearance: no damage. Discontinuity: <b>1</b> microsecond Max. Contact Resistance:	Pulse width : <b>11</b> msec Wave form : half sine <b>490m/s<sup>2</sup> {50G}</b> 3 strokes in each direction of X, Y and Z axes, total 18 strokes. (EIA-364-27 Condition A)

<b>ENVIRONMENTAL REQUIREMENTS</b>			
TEST ITEM		REQUIREMENT	PROCEDURE
8	Solder ability	The inspected area of each lead must have 95% solder coverage minimum.	Immerse solder Tail of Connector into Solder Pot at temperature 245 $\pm$ 5 $^{\circ}$ C for 5 $\pm$ 1 Sec
9	Resistance to <b>Reflow</b> Soldering Heat	No physical damage shall occur. ( <b>Lead-Free</b> ) (See Note 2)	Pre Heat : 150~180 $^{\circ}$ C, 90 $\pm$ 30sec. Heat : 230 $^{\circ}$ C Min., 30 $\pm$ 10sec. Peak Temp. : <b>260<math>\pm</math>5<math>^{\circ}</math>C</b> , 20~40sec. <b>Duration : 3 cycles</b>
10	Thermal Shock	See note 1	Mated Connectors at temperature <b>-55<math>\pm</math>-3<math>^{\circ}</math>C (30 min.), +85<math>\pm</math>-2<math>^{\circ}</math>C (30 min.)</b> <b>Perform this cycle, repeat 5 cycles</b>

			(EIA-364-32)
11	Humidity	See note 1	Subject mated Connectors to 96 hours at 40 ± 2 °C with 90~95% relative humidity. (EIA-364-31 Method II Test Condition A.)

Figure 1

Note 1 : Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figures 2

Note 2 : Resistance to soldering process is indicated on notes of customer drawing. Select the appropriate test type which drawing notes are matched with.

3.6. Product Qualification and Requalification test

Test or Examination	Test Group											
	A	B	C									
	Test Sequence <sup>(a)</sup>											
Examination of Product	1,9	1,9	1,6									
Low level Contact resistance	2,4,6,8	2,4,6,8										
Dielectric withstanding Voltage			3									
Insulation Resistance			2									
Durability	3	3										
Vibration	7											
Mechanical Shock	5											
Solder ability			4									
Resistance to Reflow Soldering Heat			5									
Thermal Shock		5										
Humidity		7										

NOTE : ( a ) Numbers indicate sequence in which tests are performed.

- ( b ) Discontinuities shall not take place in this test group, during tests.
- ( c ) If connector contact counts are more than 20, at least 5 samples should be evaluated in each group test. Otherwise, at least 10 samples should be evaluated in each group test.
- ( d ) Required for connectors with a tin-based plating or <15u” Au plating on the contacts.
- ( e ) Required for connectors with a surface treatment on the contacts or for connectors with a wipe length of 0.127mm or less.
- ( f ) Required for connectors rated for >50 mating/unmating cycles.

Figure 2

Figure 3. Contact Resistance

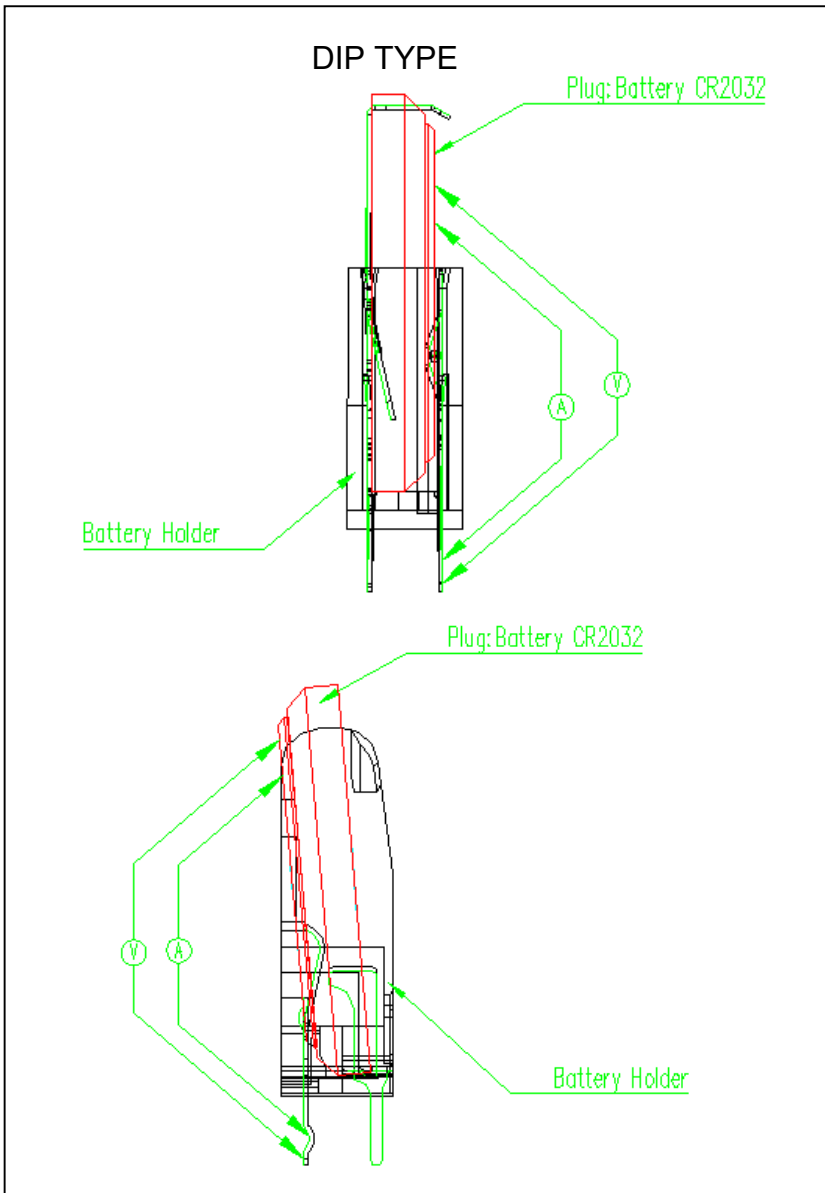
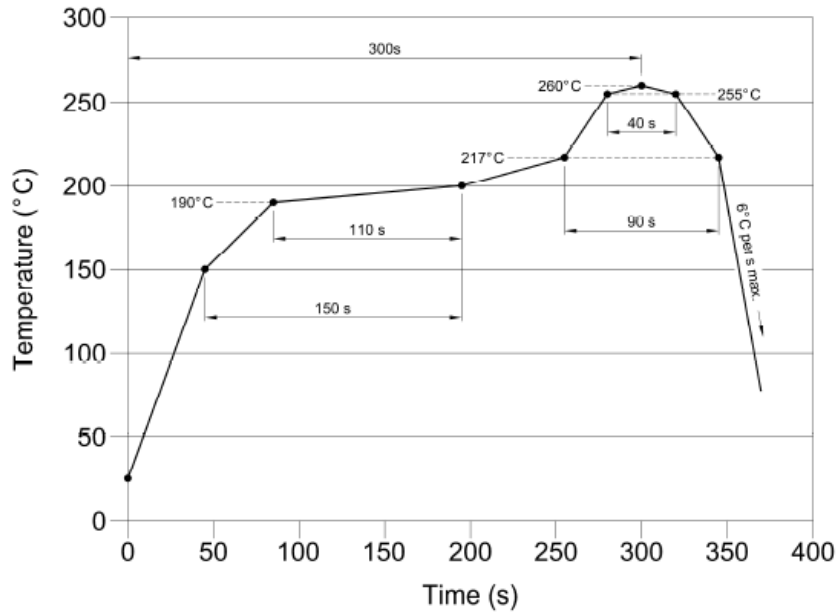


Figure 4. RESISTANCE TO REFLOW SOLDERING HEAT



Temperature Profile of Reflow Soldering

Figure 4