PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* 6000 series rotary switch. These switches are manually operated rotary devices designed to be soldered to printed circuit boards and are available with five coded readouts: binary coded decimal (BCD), binary coded octal (BCO), decimal, hexadecinmal and 16 position single pole. They are completely enclosed and present a very low profile with three actuating configurations: slotted, knob (handle) or thumbwheel.

1.2. Qualification

When tests are performed on subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents constitute a part of this specification to the extent specified herein. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.1. AMP Documents

A. 109-1: General Requirements For Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross reference between AMP Test Specifications and Military or Commercial Documents
E. 501-212: Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

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Product Code: 4533

CONTROLLED DOCUMENT This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision.				DR Brent L Buckley 2/24/93 CHK Don Huffman 2-24-93 APP Michael R Stadden 2-26-93	AMP Incorporated Harrisburg, PA 17105-3608		
					NO 108-7514	REV J	LOC B
J	Revise per EC 0160-3258-93	BJB	3/5/93	PAGE 1 OF 5	TITLE SWITCH, ROTARY, 6000 SERIES PRINTED CIRCUIT BOARD MOUNTED		
LTR	REVISION RECORD	APP	DATE				

3.2. Materials

A. Contact: Phosphor bronze, gold over nickel plating
B. Printed circuit board: Plastic sheet, copper clad, gold over nickel plating on circuits
C. Terminal:
   (1) Tab: Beryllium copper, tin plated
   (2) Pin: Brass, tin plated
D. Thumbwheel cap: Polycarbonate
E. All structural plastic parts except thumbwheel cap: Polyacetal

3.3. Ratings

A. Current: Signal application only
B. Temperature
   (1) Operating: -18 to 88°C
   (2) Storage: -45 to 88°C

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Contact resistance, dry circuit.	25 milliohms maximum initial. ΔR 25 milliohms maximum.	50 mv maximum open circuit. 100 ma maximum closed circuit. See Figure 3.
Electrical stability.	30°C maximum temperature rise from ambient.	Subject switches to 28 vdc at .25 amperes maximum current until temperature stabilizes.
Dielectric withstanding voltage.	500 vdc minimum. 1 milliampere maximum leakage current. No breakdown or flashover.	Test between 30 adjacent circuits. AMP Spec 109-29-1.
Insulation resistance.	100 megohms minimum.	Test between 30 adjacent circuits with 100 vdc current applied. AMP Spec 109-28-3.

Figure 1 (cont)

Test Description	Requirement	Procedure
Capacitance.	5 picofarads maximum.	Test between 30 adjacent circuits with 100 kHz frequency applied. AMP Spec 109-47.
MECHANICAL		
Vibration.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mounted switches to 10-2000-10 Hz traversed in 20 minutes at .6 inch total excursion. AMP Spec 109-21-3.
Physical shock.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mounted switches to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. AMP Spec 109-26-1.
Durability.	See Note (a).	Subject mounted switches to 100 total cycles of bidirectional rotation.
Solderability.	Contact posts shall have minimum of 95% solder coverage.	Subject contacts to solderability. AMP Spec 109-11-1.
Operating torque.	2 to 12 inch ounces.	Apply torque to switch in normal mounted position.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	Subject switches to 5 cycles between -45 and 88°C. AMP Spec 109-22.
Humidity-temperature cycling.	See Note (a).	Subject switches to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-3.
Mixed flowing gas.	See Note (a).	Subject switches to environmental class II for 20 days. AMP Spec 109-85-2.
Temperature life.	See Note (a).	Subject switches to temperature life at 85°C for 1000 hours duration. AMP Spec 109-43.

(a) Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests specified in Test Sequence in Figure 2.

Figure 1 (end)

3.6. Product Qualification And Requalification Test Sequence

Test or Examination	Test Group (a)					
	1	2	3	4	5	6
	Test Sequence (b)					
Examination of product	1,9	1,5	1,5	1,8	1	1
Contact resistance, dry circuit	3,7	2,4	2,4			
Electrical stability					3(c)	
Dielectric withstanding voltage				3,7		
Insulation resistance				2,6		
Capacitance					2	
Vibration	5					
Physical shock	6					
Durability	4					
Solderability						2
Operating torque	2,8					
Thermal shock				4		
Humidity-temperature cycling				5		
Mixed flowing gas			3(d)			
Temperature life		3(d)				

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Test only 1 switch.
(d) Precondition with 5 cycles durability.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample selection.

Switches shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall consist of 5 switches each.

B. Test sequence.

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based upon verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required prior to resubmittal.

4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify acceptable quality sampling level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

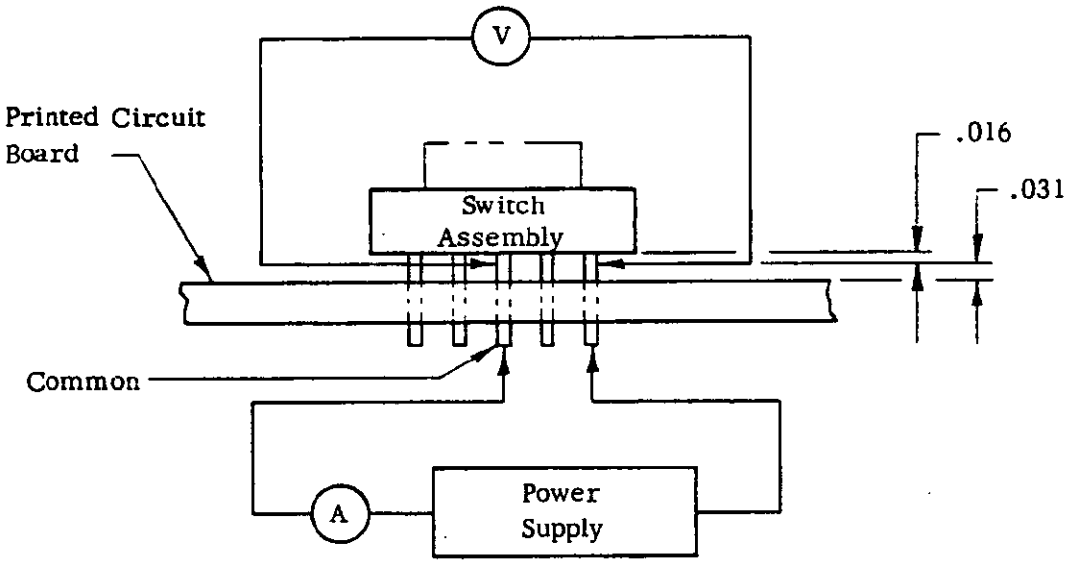

Figure 3
Contact Resistance Measurement Points