

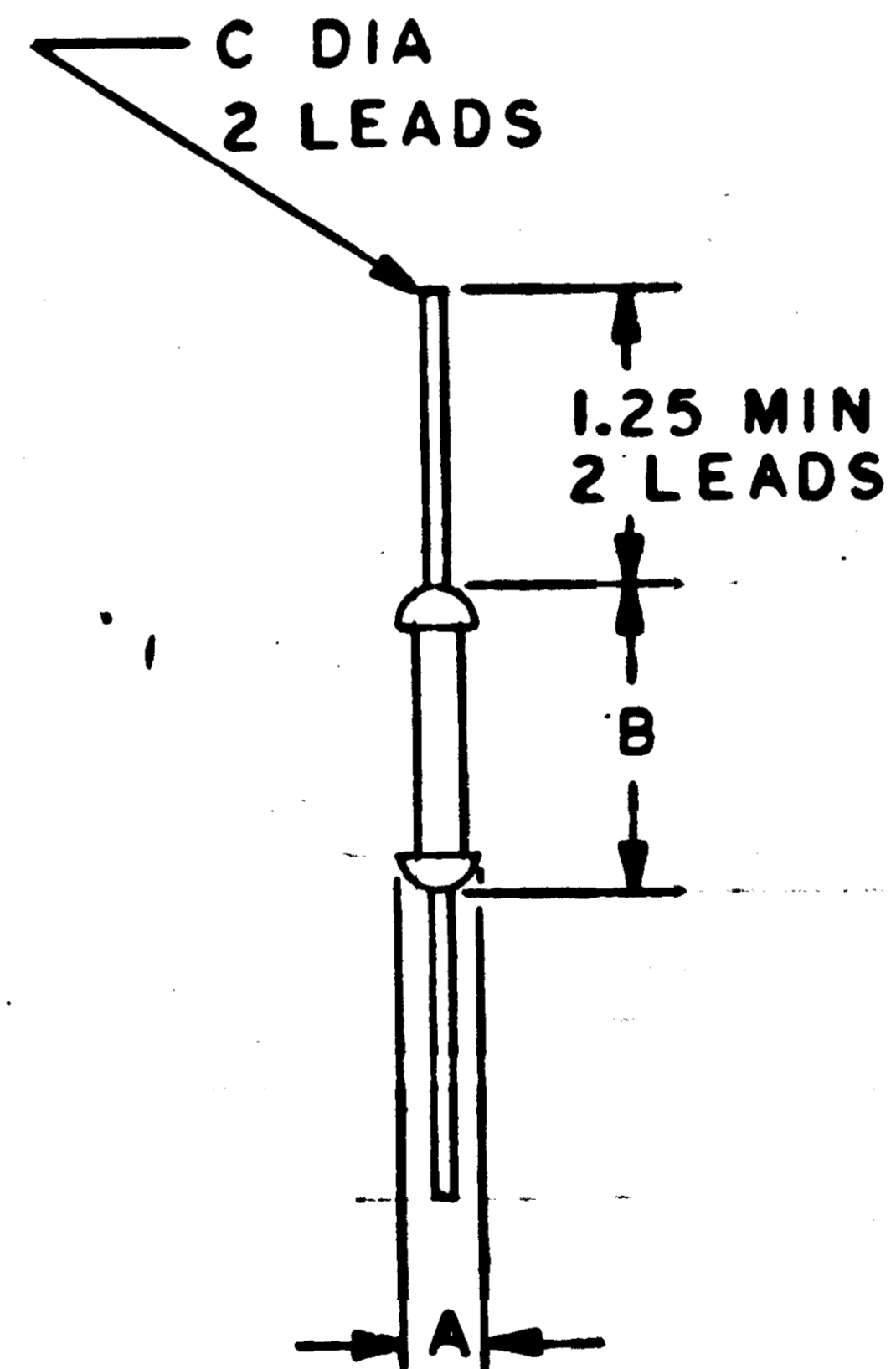
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY AND NO OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS AN AUTHORITY TO LICENSE THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEY THE ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 03038			
SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE CLASS A PER TDRR 03038	10/16/63	WLT

1006715

NOTES:

1. GENERAL REQUIREMENTS:
  - A. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
  - B. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 2.
  - C. UNITS SHALL BE CAPABLE OF MEETING THE QUALIFICATION REQUIREMENTS OF ND 1002057.
  - D. MARKING: UNIT PACKAGES SHALL BE LEGIBLY MARKED PER MIL-STD-129, WITH THE NASA PART NUMBER (DRAWING NUMBER, REVISION LETTER, AND DASH NUMBER), MANUFACTURER'S NAME AND/OR SYMBOL, LOT CODE, AND DATE OF MANUFACTURE.
2. ACCEPTANCE AND INSPECTION REQUIREMENTS (100%)
  - A. MECHANICAL REQUIREMENTS:
    - (1) LEAD MATERIAL: NICKEL (GRADE A) PER ND PS 1015400.
    - (2) PROTECTIVE VARNISH: MOISTURE AND FUNGUS PROOF VARNISH PER MIL-V-173.
    - (3) CERTIFICATE OF COMPLIANCE: COMPLIANCE WITH THE LEAD AND VARNISH MATERIAL REQUIREMENT SHALL BE CERTIFIED WITH EACH SHIPMENT.
  - B. ELECTRICAL CHARACTERISTICS (AT 25° ± 0.1°C):
    - (1) RESISTANCE VALUE: TABLE I VALUE.
    - (2) RESISTANCE-TEMPERATURE CHARACTERISTIC:  $R_{T=K} = R_{298} \cdot K e^{\beta(\frac{1}{T} - \frac{1}{298})}$   
SEE TABLE II FOR  $\beta$  AND TABULATED VALUES OF  $R_T$ .
3. DESIGN REQUIREMENTS:
  - A. DISSIPATION CONSTANT: SEE TABLE I FOR THE AMOUNT OF POWER WHICH WILL RAISE THE THERMISTOR ONE DEGREE CENTIGRADE ABOVE AMBIENT.
  - B. TIME CONSTANT: SEE TABLE I FOR THE TIME REQUIRED FOR THE THERMISTOR TEMPERATURE TO CHANGE 63% INTERNALLY FOR A CERTAIN CHANGE IN AMBIENT TEMPERATURE. THE THERMISTOR WILL REACH 98% OF TEMPERATURE CHANGE IN APPROX 5 TIMES THE CONSTANT LISTED.
  - C. STORAGE LIFE: 1 YEAR MINIMUM AT ROOM TEMPERATURE AND HUMIDITY WHEN STORED IN UNOPENED CONTAINERS.
  - D. CONSTRUCTION: RESISTIVE WAFER MATERIAL WITH LEADS SOLDERED IN PLACE.
  - E. ENVIRONMENTAL: CAPABLE OF OPERATION OVER THE AMBIENT TEMPERATURE RANGE OF -55°C TO +105°C.
  - G. LEAD MATERIAL: UNCOATED, WELDABLE NICKEL GRADE.
  - H. FINISH:

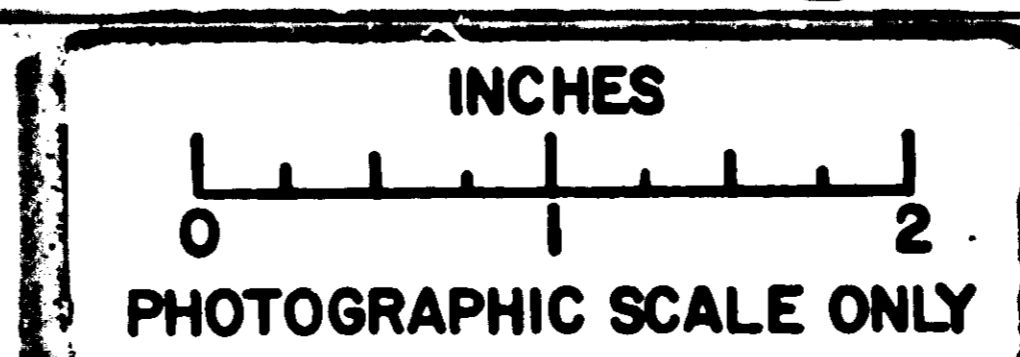


4. SPECIAL CONDITIONING:
  - A. TEMPERATURE CYCLING: RESISTORS SHALL BE TESTED PER MIL-STD-202, METHOD 802, CONDITION C EXCEPT TEMPERATURE EXTREMES OF -55°C AND +105°C. RESISTANCE, ONE HOUR AFTER TESTING, SHALL NOT VARY MORE THAN ± 1% FROM THE INITIAL MEASUREMENT. THERE SHALL BE NO MECHANICAL DAMAGE.
  - B. BURN-IN: RESISTORS SHALL BE BURNED IN NON-OPERATING AT 50°C FOR 100 HOURS. RESISTANCE, ONE HOUR AFTER TESTING SHALL NOT VARY MORE THAN ± 1% FROM THE INITIAL MEASUREMENT. THERE SHALL BE NO MECHANICAL DAMAGE.

PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>M. C. Cooper</i> DATE <i>10/16/63</i>		RESISTOR, TEMPERATURE VARIABLE, NEGATIVE COEF	
CHECKED <i>J. R. ...</i>			
APPROVAL <i>E. ...</i>		SPECIFICATION CONTROL DRAWING	
NASA APPROVAL <i>...</i>		CODE IDENT NO. SIZE	NASA DRAWING NO.
MIT APPROVAL <i>...</i>		C	100 6715
APPLICATION		SCALE NONE	WT
		SHEET 1 OF 2	



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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE CLASS A PER TDRR 03038	10/14/63	WJK

TABLE I

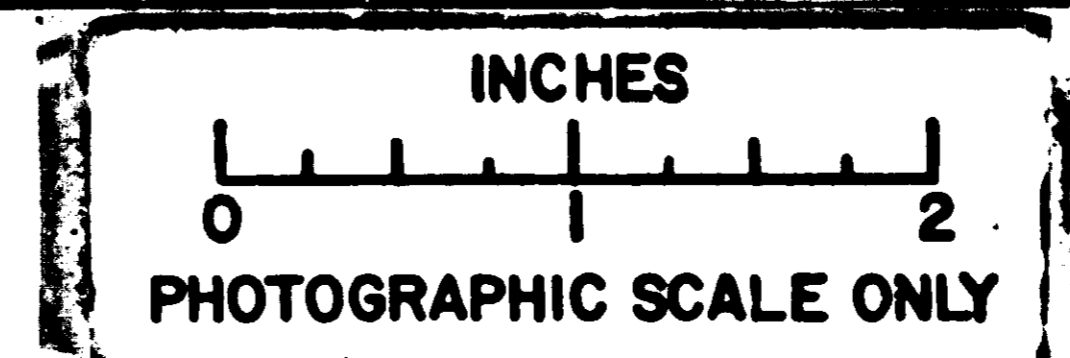
DASH NO.	NOMINAL RESISTANCE OHMS	RESISTANCE-TEMPERATURE CHARACTERISTIC AT 25°C NOTE 2.B(2)	DISSIPATION CONSTANT MW/°C	TIME CONSTANT SECONDS	DIMENSIONS		
					A MAX	B MAX	C
-1	100K ± 1%	CURVE D	2.5 ± 10%	20 ± 20%	.120	.625	.017 .015
-2	10K ± 10%	CURVE B	2.5 ± 10%	20 ± 20%	.120	.625	.017 .015

TABLE II

TEMP °C	NOMINAL RATIO $R_T/R_{25°C}$	
	CURVE "D" $\beta = 3900 \pm 55$	CURVE "B" $\beta = 3400 \pm 80$
-60	145.2	77.0
-50	68.9	40.2
-40	34.3	22.0
-30	17.9	12.5
-20	9.79	7.42
-10	5.56	4.54
0	3.27	2.85
+10	1.99	1.84
+20	1.25	1.22
+25	1.000	1.000
+30	.805	.825
+40	.532	.570
+50	.360	.402
+60	.248	.289
+70	.175	.212
+80	.125	.157
+90	.091	.119
+100	.0675	.0910
+110	.0508	.0705
+120	.0387	.0552
+130	.0299	.0437
+140	.0233	.0350
+150	.0184	.0285

NOTED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWS. NO. CONTRACT		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>Ray Wheeler</i> DATE <i>20 Aug 63</i>		RESISTOR, TEMPERATURE VARIABLE, NEGATIVE COEF SPECIFICATION CONTROL DRAWING	
CHECKED <i>J. Pappas</i> DATE <i>28 Aug 63</i>			
APPROVAL <i>C. Mayo</i> DATE <i>9/4/63</i>		CODE IDENT NO.	SIZE
APPROVAL <i>Edna Hall</i> DATE <i>9/24/63</i>			C
HEAT TREATMENT		NASA APPROVAL <i>W. L. Hall</i> DATE <i>9/1/63</i>	NASA DRAWING NO.
NEXT ASSY		MIT APPROVAL <i>W. L. Hall</i> DATE <i>10/14/63</i>	1006715
USED ON		SCALE NONE	WT
APPLICATION		SHEET 2 OF 2	



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