

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 NOR ANY 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 IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONFIRMING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THEREBY.

REQUIREMENTS:

GENERAL:

UNITS SHALL BE CAPABLE OF MEETING THE APPLICABLE REQUIREMENTS OF MIL-R-93 CHARACTERISTIC C; EXCEPT AS AND IN ADDITION TO THE REQUIREMENTS SPECIFIED HEREIN.

PACKAGING: UNITS SHALL BE PACKAGED PER MIL-R-93, LEVEL A.

SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS OF ND 1015404 CLASS 1.

INTERPRETING DRAWING SYMBOLS, ABBREVIATIONS AND REFERENCE DESIGNATIONS IN ACCORDANCE WITH GOVERNMENT STANDARDS PRESCRIBED IN MIL-D-70327.

INSPECTION AND ACCEPTANCE:

RESISTANCE VALUES: SEE TABLE.

RESISTANCE TOLERANCE: SEE TABLE.

TEMPERATURE COEFFICIENT: ABOVE 10 Ω 15 PPM/ $^{\circ}$ C, 10 Ω TO 1 Ω 30 PPM/ $^{\circ}$ C, 1 Ω AND BELOW 40 PPM/ $^{\circ}$ C.

LEAD DATA: UNITS SHALL HAVE WELDABLE GRADE A NICKEL LEADS PER ND PS 1015400. A CERTIFICATE OF COMPLIANCE OF LEAD MATERIAL SHALL ACCOMPANY EACH LOT SHIPPED.

MARKING: MARK UNITS PER MIL-STD-130 WITH THE NASA PART NUMBER AND REVISION LETTER AND THE MANUFACTURER'S NAME AND/OR SYMBOL. THE MANUFACTURER'S PART NUMBER MAY APPEAR ON THE PART OR PACKAGE. MARKING OF UNIT PACKAGES AND EXTERIOR SHIPPING CONTAINERS SHALL INCLUDE NASA PART NUMBER AND REVISION LETTER.

DESIGN REQUIREMENTS:

POWER RATING: 1/10 WATT AT +125 $^{\circ}$ C DERATED TO ZERO AT 145 $^{\circ}$ C

MAXIMUM VOLTAGE RATING: 150 VOLTS.

STABILITY: 100 PPM/YEAR AT +25 $^{\circ}$ C AT 1/2 RATED POWER.

TEMPERATURE RANGE: MINUS 65 $^{\circ}$ C TO PLUS 125 $^{\circ}$ C.

EACH LEAD SHALL BE CAPABLE OF WITHSTANDING TWO (2) BENDS UNDER A TWO (2) POUND VERTICAL PULL (LEADS VERTICAL WITH RESPECT TO UNIT BODY). TWO (2) BENDS SHALL BE ACCOMPLISHED BY MOVING THE BODY OF THE UNIT, WHILE IN THE PLANE, THROUGH 90 $^{\circ}$ IN ONE DIRECTION, THEN BACK 180 $^{\circ}$ TO THE OPPOSITE DIRECTION AND BACK 90 $^{\circ}$ TO THE ORIGINAL POSITION. NO MECHANICAL DAMAGE OR LACK OF PERFORMANCE SHALL BE EVIDENCED AFTER THE TEST.

EACH LEAD SHALL BE CAPABLE OF WITHSTANDING AN AXIAL PULL OF FOUR (4) POUNDS MINIMUM.

SPECIAL CONDITIONING BY SUPPLIER:

BURN IN: 100 HOURS @ 125 $^{\circ}$ C @ 1/10 WATT (AC OR DC). REJECT ANY PART WHICH CHANGES MORE THAN 0.1% OR CANNOT MEET PURCHASE TOLERANCE.

NOTES:

1. RESISTANCE VALUES ABOVE 35K ARE NOT AVAILABLE, PER THE REQUIREMENTS OF THIS DRAWING AND MIL-R-93, USING .001 MIN. DIA. WIRE.

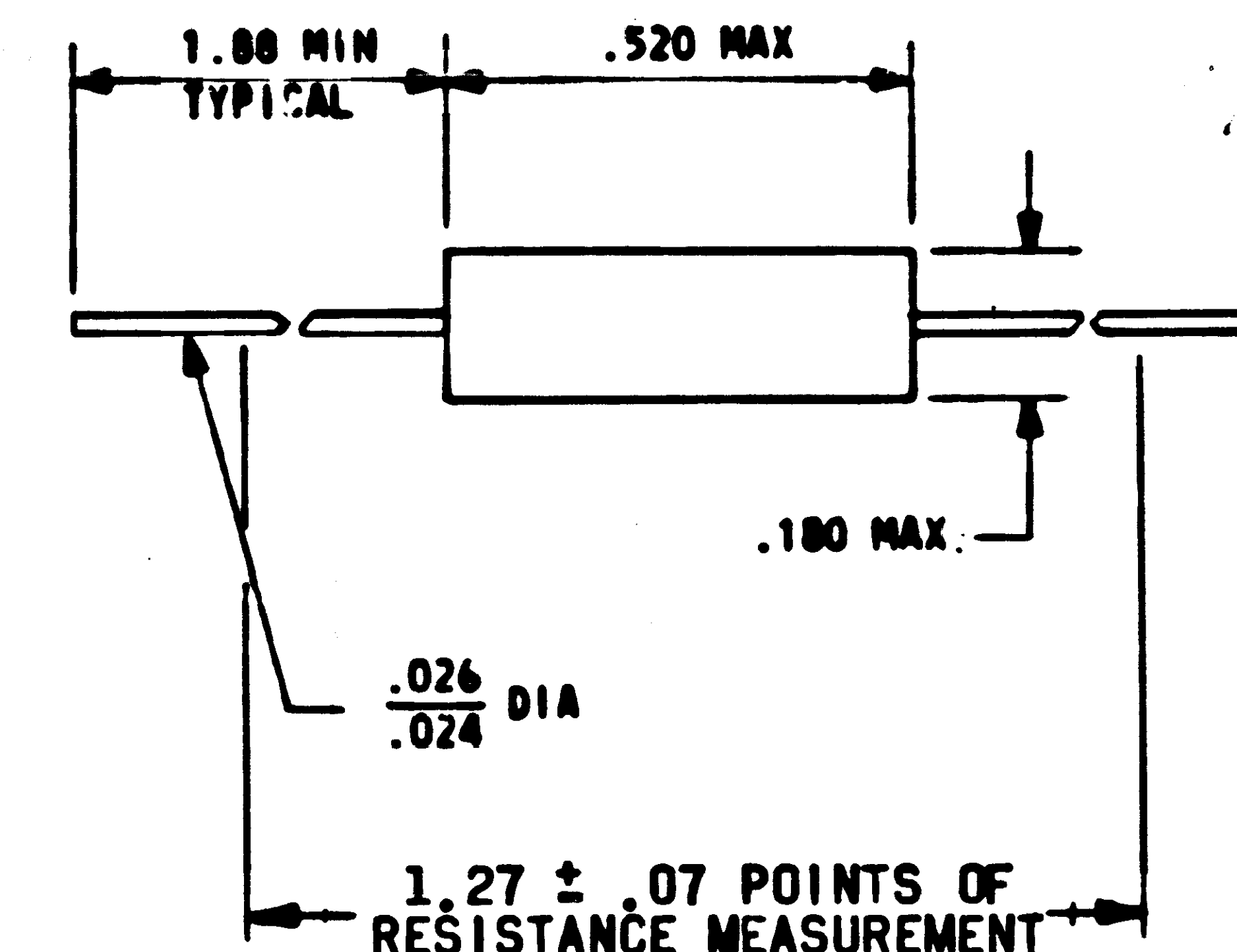
PROCURE ONLY FROM APPROVED SOURCES LISTED ON ND1002034 FOR THIS DRAWING

SEE NOTE 1.

DASH NO.	NOMINAL RES OHMS	RES TOL	DASH NO.	NOMINAL RES OHMS	RES TOL
1	4,000	$\pm 0.1\%$	53	25,000	$\pm 0.1\%$
2	87,500		54	12,500	
3	88,750		55	8,330	
4	90,000		56	6,250	
5	91,250		57	1	$\pm 0.5\%$
6	92,500		58	2	
7	93,750		59	3	
8	95,000		60	4	
9	96,250		61	5	
10	97,500		62	6	
11	98,750		63	7	
12	100,000		64	8	
13	101,250		65	9	
14	102,500		66	10	
15	103,750		67	11	
16	105,000		68	12	
17	106,250		69	13	
18	107,500		70	14	
19	108,750		71	15	
20	110,000		72	16	
21	111,250		73	17	
22	112,500	$\pm 0.1\%$	74	18	
23	50	$\pm 1\%$	75	19	
24	374		76	82,500	
25	400		77	83,750	
26	400		78	85,000	
27	650		79	86,250	
28	700		80	87,500	
29	750		81	88,750	
30	775		82	90,000	
31	850		83	91,250	
32	925		84	92,500	
33	1,000		85	93,750	
34	1,100		86	95,000	
35	1,200		87	96,250	
36	3,300		88	97,500	$\pm 1.0\%$
37	10,000		89	98,750	
38	22,500		90	100,000	
39	35,000		91	101,250	
40	45,000		92	102,500	
41	67,500		93	103,750	
42	90,000		94	105,000	
43	112,000		95	106,250	
44	134,500		96	107,500	
45	157,000		97	108,750	
46	179,500		98	110,000	
47	202,500		99	111,250	
48	225,000		100	112,500	
49	39,000		101	113,750	
50	20,000		102	115,000	
51	5,000		103	116,250	
52	25,000		104	117,500	

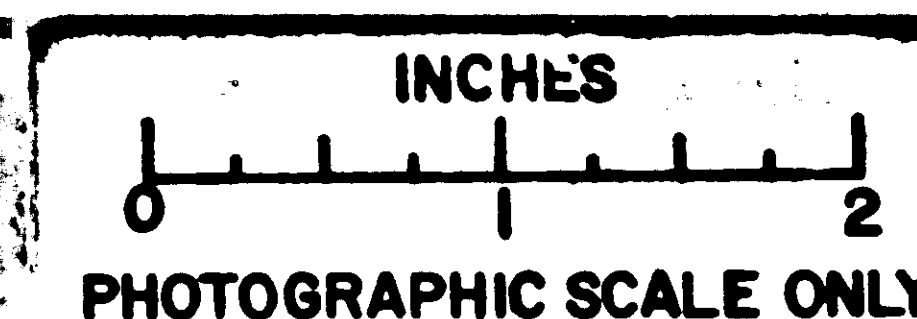
K 1010377

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
K	REPLACES REV J WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDOR 02103	7/17/62	du



K REPLACES REV J WITH CHANGE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		LIST OF MATERIALS	
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS CONTRACT 437		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>W. J. H. H. H. H. H.</i> DATE 7 JUN 63 CHECKED <i>W. J. H. H. H. H. H.</i> APPROVAL <i>W. J. H. H. H. H. H.</i> 15 JUL 63		RESISTORS, FIXED, WW, PRECISION SPECIFICATION CONTROL DRAWING	
NASA APPROVAL <i>W. J. H. H. H. H. H.</i> 7/17/62 MIT APPROVAL <i>W. J. H. H. H. H. H.</i> 7/17/62		CODE IDENT NO. SIZE C	NASA DRAWING NO. 1010377
SCALE		WT	SHEET 1 OF 2



4

3

2

1

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
K	REPLACES REV J WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TORR 02103	7/7/63	PL

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DASH NO.

NOMINAL RES OHMS

RES TOL

DASH NO.

NOMINAL RES OHMS

RES TOL

225

880

±0.1%

226

890

227

900

228

910

229

920

230

930

231

940

232

950

233

960

234

970

235

980

236

990

237

1000

238

1010

239

1020

240

1030

241

1040

242

1050

243

1060

244

1070

245

1080

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1090

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1100

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1160

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1170

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257

1200

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1210

259

1220

260

1230

261

1240

262

1250

263

1260

264

1270

265

1280

266

1290

267

1300

268

1310

269

1320

270

1330

271

1340

272

1350

273

1360

274

1370

275

1380

±0.1%

276

1390

277

1400

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES ON

FRACTIONS DECIMALS ANGLES

± ± ±

DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

APPLICATION

MIT INSTRUMENTATION LAB

CAMBRIDGE, MASS

CONTRACT 497

DWG NO. 10-63

CHECKED BY [Signature]

DATE 7/1/63

APPROVAL [Signature]

DATE 7/1/63

NASA APPROVAL [Signature]

DATE 7/1/63

MIT APPROVAL [Signature]

DATE 7/1/63

MANNED SPACECRAFT CENTER

HOUSTON, TEXAS

RESISTORS, FIXED,

WW, PRECISION

SPECIFICATION CONTROL DRAWING

CODE IDENT NO. C

SIZE 1010377

SCALE WT

SHEET 2 OF 2

4

3

2

1

INCHES

0 1 2

PHOTOGRAPHIC SCALE ONLY