

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 FOR 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 CONVEYING ANY RIGHTS OR PERMISSION TO REPRODUCE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THEREBY.

#### REQUIREMENTS:

##### GENERAL:

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MPL-D-70327.  
SUPPLIERS SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS OF ND 1015404 CLASS 2.  
UNITS SHALL MEET THE GENERAL REQUIREMENTS OF MIL-S-19500 WITH THE EXCEPTIONS AND ADDITIONS SPECIFIED IN THIS DRAWING.  
UNIT PACKAGING AND PACKING SHALL BE IN ACCORDANCE WITH MIL-P-19491 LEVEL A IN BOTH INSTANCES.

##### INSPECTION & ACCEPTANCE:

LEAD DATA: LEADS SHALL BE IRON-NICKEL ALLOY (DUMET) PER ND 1015401 CERTIFICATION OF COMPLIANCE WITH THIS REQUIREMENT SHALL ACCOMPANY EACH SHIPMENT.

MARKING: UNIT PACKAGES SHALL BE MARKED PER MIL-STD-130 WITH THE MANUFACTURER'S NAME/OR SYMBOL AND TYPE DESIGNATION. THE NASA DRAWING NUMBER, DASH NUMBER, AND REVISION LETTER SHALL ALSO BE INCLUDED. THE DIODES SHALL BE MARKED ONLY WITH COLOR CODED IDENTIFYING BANDS IN ACCORDANCE WITH MIL-S-19500 AND MIL-STD-174.

##### ELECTRICAL SPECIFICATIONS PER TABLE I.

ZENER VOLTAGE ( $V_Z$ )

ZENER IMPEDANCE ( $Z_{ZT}$ )

##### DESIGN REQUIREMENTS:

###### MAXIMUM RATINGS:

ZENER CURRENT: 60 ma DC

POWER DISSIPATION: 400 MILLIWATTS (SEE DERATING CURVE)

STORAGE TEMPERATURE:  $-65^{\circ}\text{C}$  TO  $+150^{\circ}\text{C}$

TEMPERATURE COEFFICIENT: .002%/°C WITH A ZENER CURRENT OF 7.5 ma.

###### SPECIAL CONDITIONING BY SUPPLIER:

UNITS SHALL BE BURNED IN FOR 240 HOURS AT THE FOLLOWING CONDITIONS:

1. AMBIENT TEMPERATURE  $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .
2. POWER DISSIPATION: 50% OF THE  $100^{\circ}\text{C}$  CASE TEMPERATURE RATING.

UNITS WHICH FAIL TO MEET ALL INITIAL REQUIREMENTS OR WHICH EXCEED THE SPECIFIED LIMITS FOR PARAMETRIC CHANGES FOLLOWING BURN IN SHALL NOT BE SHIPPED.

THE MANUFACTURER SHALL DETERMINE AND RECORD THE FOLLOWING ELECTRICAL CHARACTERISTICS PRIOR TO AND FOLLOWING BURN IN.

1. ZENER VOLTAGE ( $V_Z$ )
2. DYNAMIC IMPEDANCE ( $Z_{ZT}$ )
3. LEAKAGE CURRENT ( $I_R$ )

###### PARAMETRIC CHANGE LIMITS:

1. ZENER VOLTAGE:  $\pm 0.05\%$  OF INITIAL MEASURED VALUE
2. DYNAMIC IMPEDANCE:  $\pm 5\%$  OF INITIAL MEASURED VALUE
3. LEAKAGE CURRENT: SHALL NOT EXCEED 100% OF INITIAL MEASURED VALUE.

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

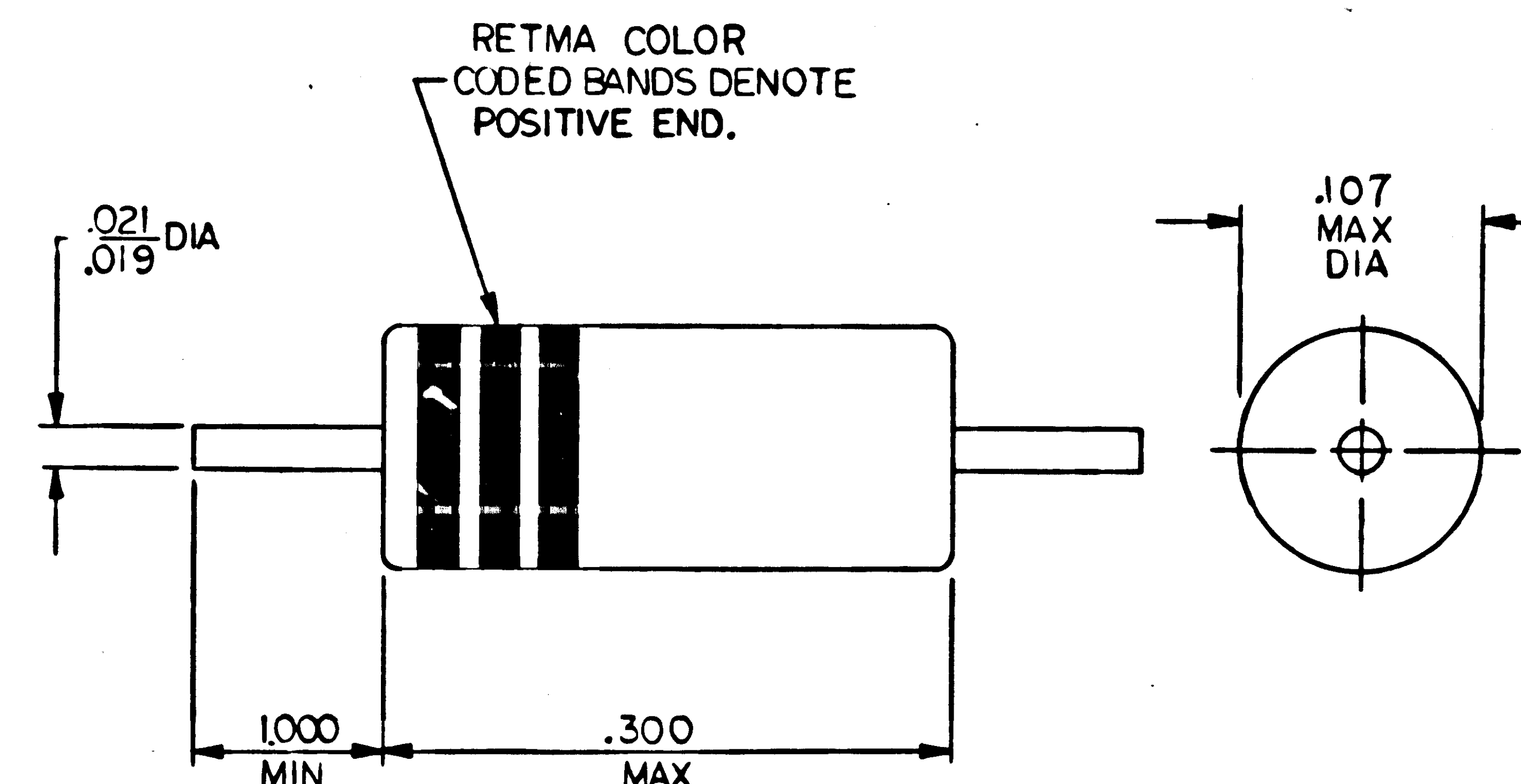
MAILED

V 8E89001

| REVISIONS |                                               |        |          |
|-----------|-----------------------------------------------|--------|----------|
| SYM       | DESCRIPTION                                   | DATE   | APPROVAL |
| A         | REPLACED BY REV B WITH CHANGES PER TDRR 01637 | 4/9/63 | X.E.X.   |

FOR INFORMATION ONLY

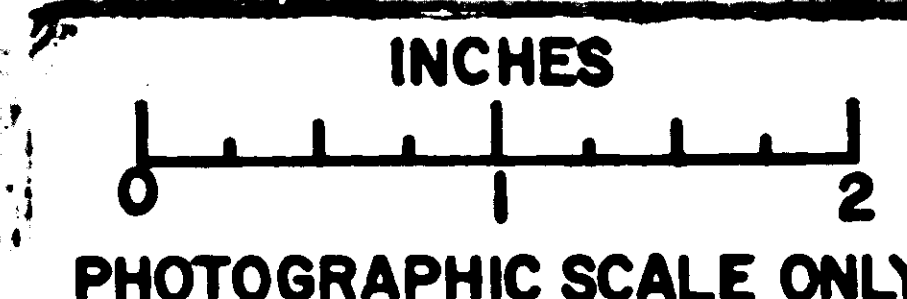
CLASS B RELEASE TDR No. 01450 DATE 6/5/63



|                           |         |
|---------------------------|---------|
| A                         | A       |
| SHEET 1                   | SHEET 2 |
| REVISION STATUS OF SHEETS |         |

Ⓐ REPLACED BY REV B WITH CHANGES

|                                                                                                                              |                         |                                                              |                  |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------|------------------|
| QTY REQD                                                                                                                     | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION                                  | FIND NO.         |
| LIST OF MATERIALS                                                                                                            |                         |                                                              |                  |
| MIT INSTRUMENTATION LAB<br>CAMBRIDGE, MASS.                                                                                  |                         | MANNED SPACECRAFT CENTER<br>HOUSTON, TEXAS                   |                  |
| DRAWN <i>R. Kane</i> DATE <i>10/1/63</i><br>CHECKED <i>Joe H. H.</i> 3/1/63<br>APPROVAL<br>APPROVAL <i>E. C. Hall</i> 3/1/63 |                         | SEMICONDUCTOR DEVICE, DIODE<br>SPECIFICATION CONTROL DRAWING |                  |
| NASA APPROVAL <i>W. J. R. H.</i> 8-5-63<br>MIT APPROVAL <i>W. J. R. H.</i> 6/5/63                                            |                         | CODE IDENT NO.                                               | NASA DRAWING NO. |
| HEAT TREATMENT<br>NONE                                                                                                       |                         | SIZE<br>C                                                    | 1006838          |
| FINAL FINISH<br>NONE                                                                                                         |                         | SCALE NONE                                                   | WT               |
| APPLICATION                                                                                                                  |                         | SHEET 1 OF 2                                                 |                  |





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8E89001

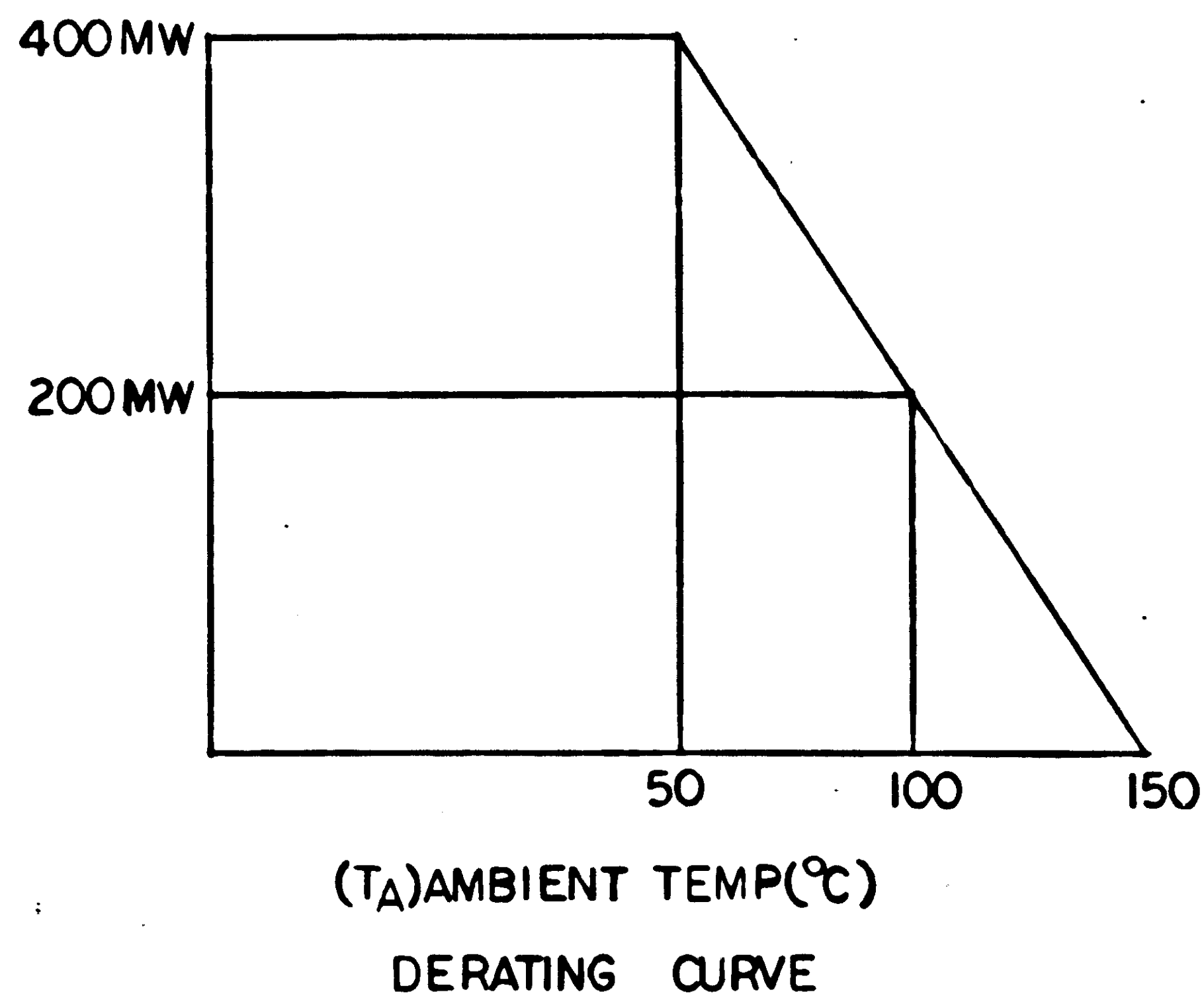
| REVISIONS |                                               |         |          |
|-----------|-----------------------------------------------|---------|----------|
| SYM       | DESCRIPTION                                   | DATE    | APPROVAL |
| A         | REPLACED BY REV B WITH CHANGES PER TDRR 01437 | 4/14/63 | T.F.R.   |

TABLE I

| ELECTRICAL CHARACTERISTICS AT AMBIENT TEMPERATURE = 25°C (UNLESS OTHERWISE SPECIFIED) |                           |          |                      |     |       |
|---------------------------------------------------------------------------------------|---------------------------|----------|----------------------|-----|-------|
| PARAMETER                                                                             | CONDITIONS                | SYMBOL   | SPECIFICATION LIMITS |     |       |
|                                                                                       |                           |          | MIN                  | MAX | UNITS |
| ZENER VOLTAGE                                                                         | $I_{ZT} = 7.5 \text{ MA}$ | $V_Z$    | 5.9                  | 6.5 | VOLTS |
| ZENER IMPEDANCE                                                                       | $I_{ZT} = 7.5 \text{ MA}$ | $Z_{ZT}$ | -                    | 10  | OHMS  |
| ZENER IMPEDANCE                                                                       | $I_{ZK} = 1 \text{ MA}$   | $Z_{ZK}$ |                      | 200 | OHMS  |
| LEAKAGE CURRENT                                                                       | $V_Z = 5.0 \text{ VOLTS}$ | $I_R$    |                      | 100 | ua    |

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 01450 DATE 4/5/63



Ⓐ REPLACED BY REV B WITH CHANGES

|                                                                                                                         |                         |                                                              |                  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------|------------------|
| QTY REQD                                                                                                                | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION                                  | FIND NO.         |
| LIST OF MATERIALS                                                                                                       |                         |                                                              |                  |
| MIT INSTRUMENTATION LAB<br>CAMBRIDGE, MASS.                                                                             |                         | MANNED SPACECRAFT CENTER<br>HOUSTON, TEXAS                   |                  |
| DRAWN <i>R. Kane</i> DATE <i>11/14/63</i><br>CHECKED <i>John B. 3 June 63</i><br>APPROVAL <i>Edna C. Hall 3 June 63</i> |                         | SEMICONDUCTOR DEVICE, DIODE<br>SPECIFICATION CONTROL DRAWING |                  |
| HEAT TREATMENT<br>NONE                                                                                                  |                         | CODE IDENT NO.                                               | NASA DRAWING NO. |
| FINAL FINISH<br>NONE                                                                                                    |                         | SIZE<br>C                                                    | 1006838          |
| APPLICATION                                                                                                             |                         | SCALE NONE                                                   | WT SHEET 2 OF 2  |

