HERMETICALLY SEALED PROPORTIONALLY CONTROLLED METAL PACKAGE HEATER HYBRID 52280-109A

Features:	Applications:
• Self-contained • Programmable via a single external resistor	• Ideal for microwave oscillators • Telecommunications • Other areas where temperature control is needed

DESCRIPTION

The 52280-109A heater is a self-contained hybrid circuit heater programmable for temperature by a single external resistor. These systems are ideal for microwave oscillators, telecommunications and other areas where temperature control is needed.

Typical Electrical Characteristics for 52280-109A DC Metal Package Heater

Power Consumption ..... 9 Watts @ Vin = 18 Vdc
Recommended Operating Voltage (See Note 1) ..... 18 Vdc
Voltage Limits ..... 18 Vdc Min, 32 Vdc Max
Reverse Voltage Protection ..... 50 Vdc Max
Operating Current Range ..... 0.005 to 0.500 A
Turn-on Current ..... 0.570 A
Quiescent Current ..... Less than .005 A

Typical Temperature Characteristics

Control Range ..... +50°C to +100°C
Variation with Load (See Note 2) ..... 10° C Max
Input Voltage Variation (See Note 3) ..... ±2°C
Maximum Control Temperature (See Note 4) ..... +115°C
Operating Case Temperature (Tc) with 7.5Kohm pins 3&4 ..... 75°C+/- 3°C

Environmental Characteristics

Operating Temperature ..... -55°C to +100°C
Altitude ..... 70,000 Ft. Max
Shock ..... 1500G Max
Vibration ..... 50G at 2,000 Hz Max
Humidity ..... Greater than 95%

Hermetically Sealed Proportionally Controlled Metal Package Heater Hybrid 52280-109A

Reliability for 52280-109A

The 52280-109A hybrid circuit is screened to MIL-PRF-38534 Class H. See page 3 for Dimensions.

- Precap internal visual Method 2017, Condition B
- Temperature cycling, Method 1010, Condition B
- Constant acceleration, Method 2001, Condition B, Y axis only
- Burn-in per Mii specifications, T_C = 90°C
- Fine leak test, Method 1014, Conditions A, 5 X 10^{-8} atm-cc/sec.
- Gross leak test, Method 1014 Condition C
- Final Electrical -Subgroup 1,2 and 3
- External visual, Method 2009

Notes:

1. The heater is operational from 18 VDC to 32 VDC; however, for optimum performance 18 VDC is recommended.
2. Maximum temperature variation for current change from 5% over quiescent to 95% of turn on current.
3. Maximum temperature variation over operating voltage range when ambient temperature is constant and the supply current is between 5% over quiescent and 95% of turn on current.
4. Maximum temperature with any value of control resistor, including 0 ohms.
   - All metal package hermetically sealed heaters are leak tested to meet MIL-PRF-38534, Method 1014, test conditions A & C, with a maximum leak rate of 5 X 10^{-8} atm-cc/sec.
   - Optimum heat transfer is obtained by using a thermal joint compound such as Dow Corning 340 on the mounting surface.
   - Operation is possible above 100°C, but electrical performance is not guaranteed. Input current decays to ≤ 20 mA max at 115°C without damage to the heater.
   - All Micropac heaters are protected against reverse voltage up to 50 V.
   - Maximum power rating for control resistor is 1/8 watt. Precise resistor values should be determined by measuring the surface temperature.
   - Micropac Industries, Inc. will work with the potential customer for voltage and wattage ratings not currently available.
5. Pin 1 is positive input

   Pin 2 is negative input

   Pin 3 and Pin 4 are control resistor, reference Table 1
6. The maximum Metal Package Heater weight is 4 grams
7. The operating case temperature and tolerance of +75°C +/- 3°C shall be verified during 100% acceptance testing using a 7.5K Ohm control resistor. Acceptance testing shall be performed as part of 100% device screening.

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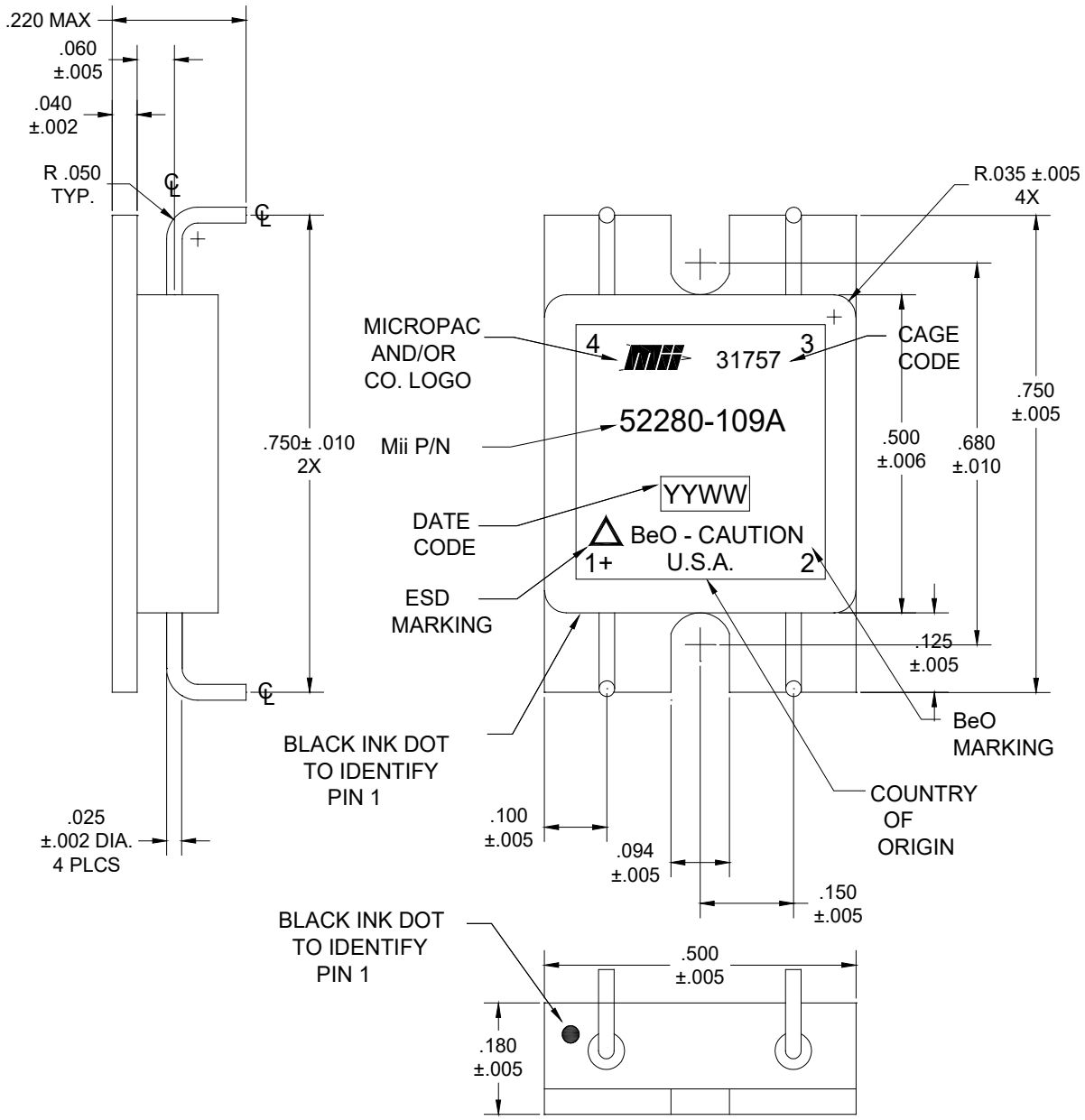
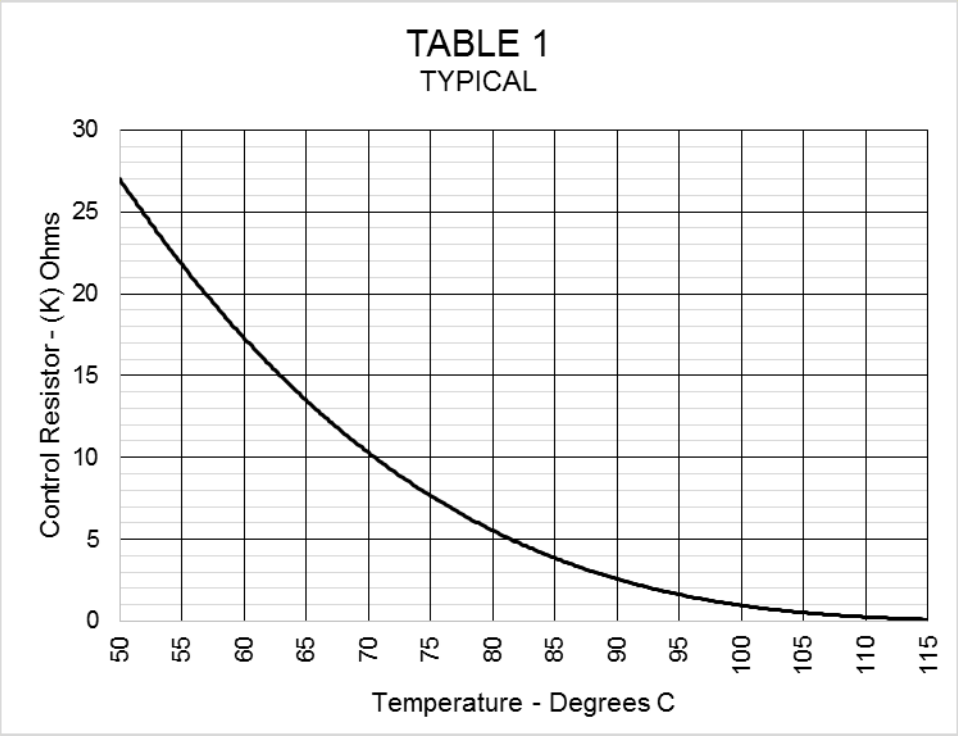
52280-109A



NOTES:

1. MATERIAL: FRAME: COLD ROLLED STEEL TYPE C1010 OR C1020 OR C12L14.
   BASE: CDA 101 TYPE COPPER.
   PINS: 52 ALLOY, COPPER CORED.
2. PLATING: BODY: ELECTROLESS NICKEL 150-350 MICROINCHES THICK PER MIL-C-26074.
   LEADS: GOLD PLATE 30-100 MICROINCHES THICK OVER ELECTROLESS NICKEL PLATE 150-350 MICROINCHES THICK.
3. SEAL: SEAM WELD

METAL PACKAGE HEATER
TYPICAL HEATER CURRENT



NOTES:

1. LOAD EQUAL TO 2.30oz.
2. MATERIAL: COPPER
3. SIZE 1.5” X 1.7” X ½”