

**HERMETICALLY SEALED PROPORTIONALLY CONTROLLED
METAL PACKAGE HEATER HYBRID - 52280-106A**



Features:

- Self-contained
- Programmable via a single external resistor

Applications:

- Ideal for microwave oscillators
- Telecommunications
- Other areas where temperature control is needed

DESCRIPTION

The 52280-106A 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 52280-106A DC Metal Package Heater

Maximum Power Consumption	4 Watts @ Vin = 20 Vdc
Recommended Operating Voltage (See Note 1)	20 Vdc
Voltage Limits	20 Vdc Min, 32 Vdc Max
Reverse Voltage Protection	50 Vdc Max
Operating Current Range	0.005 to 0.250 A
Turn-on Current	0.280 A
Quiescent Current	Less than .008 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%

Micropac Industries cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.
Micropac reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Hermetically Sealed Proportionally Controlled Metal Package Heater Hybrid 52280-106A

Reliability for 52280-106A

The 52280-106A hybrid circuit is screened to MIL-PRF-38534 Class H. See Figure 2 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, $T_c = 90^\circ\text{C}$
- Fine leak test, Method 1014, Conditions A, 5×10^{-8} atm-cc/sec.
- Gross leak test, Method 1014 Condition C
- Final Electrical - Subgroup 1, 2 and 3
- External Visual, Method 2009

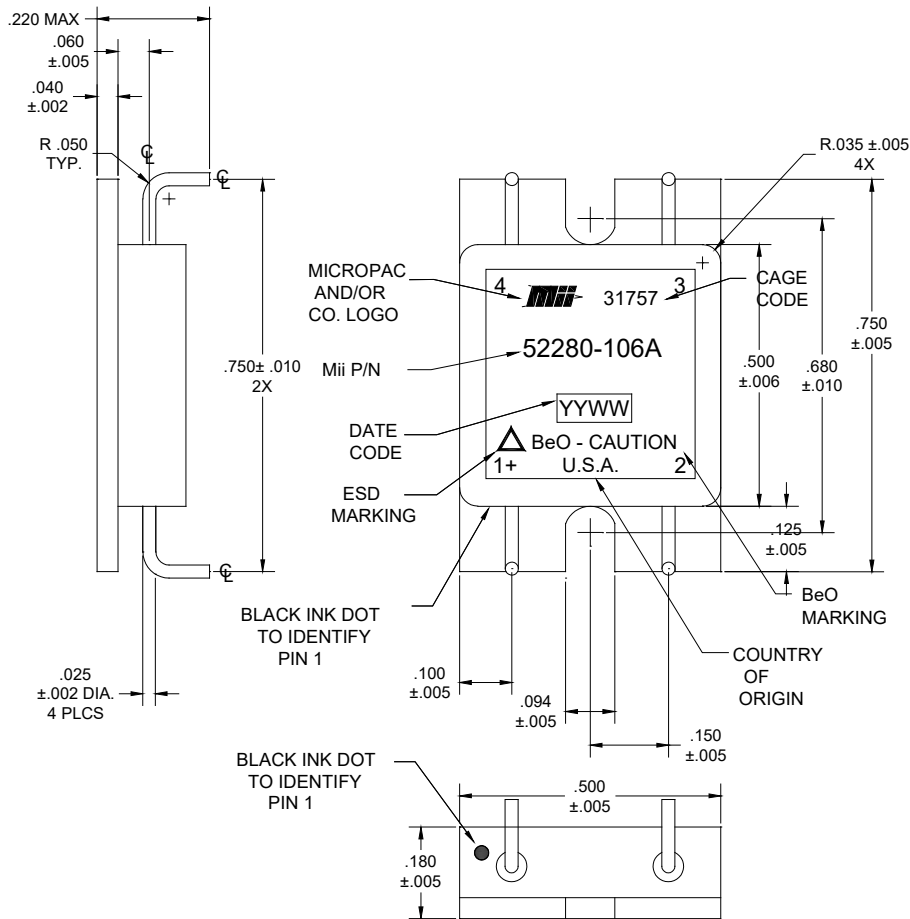
Notes:

1. The heater is operational from 20 to 32 VDC; however, for optimum performance 20 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 5×10^{-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 $+75^\circ\text{C} \pm 3^\circ\text{C}$ 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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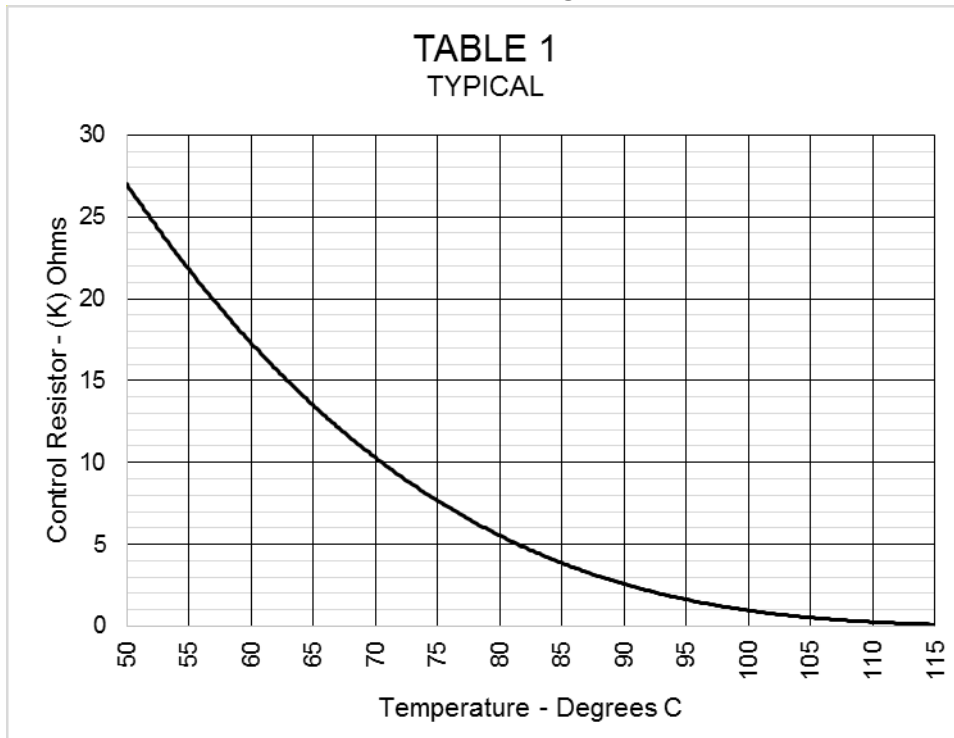
NOTES:

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

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Hermetically Sealed Proportionally Controlled Metal Package Heater Hybrid 52280-106A

METAL PACKAGE HEATER TYPICAL HEATER CURRENT



NOTES:

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

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