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MAJ43VV

MINIATURE CRYSTAL OVEN SPECIFICATION

This specification defines the operating characteristics of a component heater. Long term reliability and stability are assured through use of premium components.

REV.	DESCRIPTION OF REVISION	REV./DWN. BY	APPROV. BY	DATE
-		TST	TST	03-01-2006

This MAJ43VV specification covers input voltages from +5 VDC to +28 VDC. The VV** in the part number specifies the nominal operating voltage. If the voltage is less than +10 VDC, use a leading zero (i.e. for +5 VDC use VV = 05). The TT in this specification describes set point temperature in °C (i.e. for +75°C use TT = 75).

** See the TABLE at the end of this specification for available voltages.

1. TEMPERATURE

- 1.1. Set point +TT °C (Customer adjustable)
(+35°C to +95°C)
(Set by an external resistor between the "TEMPERATURE ADJUST" Pin and the "0 VDC" Pin. See the TABLE at the end of this specification for resistor value to set the temperature.)
(Use metal film resistors to prevent aging of the set point temperature.)

- 1.2. Initial tolerance < ±5°C @ +25°C

2. STABILITY

- 2.1. Ambient ±3°C from -30°C to (TT-10)°C
2.2. Voltage ±0.5°C/±10% change
2.3. Warm-up ±1°C in 2 minutes @ +25°C
(Referenced to temperature at 15 minutes)

3. INPUT POWER

- 3.1. Voltage VV VDC (Customer specified)
(+5 VDC to +28 VDC)
3.2. Voltage tolerance ±10%
3.3. Power
a. At turn on < 6 Watts @ +25°C
b. Slope * -0.024 Watts/°C typical
To calculate the typical steady state power (Pss), use the following formula.
Pss = (TT - ambient temperature of unit)°C x 0.024 (Watts)

4. MECHANICAL

- 4.1. Heated cavity holds the following crystals HC-18/U, HC-25/U,
HC-42/U, HC-43/U,
HC-49/U, AND HC-50/U
4.2. Applicable series MAJ43 series
4.3. Model number MAJ43VV (Customer specified)
4.4. Outline drawing 125-365

* In still air. See ISOTEMP application note 146-003 for design considerations.

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Voltage ->	5	8	10	12	15	18	20	24	28
35	298.12	349.86	349.86	399.67	399.67	441.80	503.99	503.99	622.30
40	232.49	254.77	280.53	298.12	317.56	349.86	399.67	399.67	503.99
45	186.93	204.07	210.75	232.49	254.77	280.53	298.12	317.56	349.86
50	149.90	163.76	175.27	186.93	204.07	232.49	232.49	254.77	298.12
55	115.64	127.71	139.97	149.90	149.90	175.27	186.93	204.07	232.49
60	92.01	104.92	104.92	115.64	127.71	139.97	149.90	158.69	186.93
65	70.06	80.44	82.74	92.01	97.85	115.64	115.64	127.71	149.90
70	56.36	62.84	70.06	72.56	80.44	92.01	92.01	104.92	115.64
75	44.64	52.25	52.25	60.60	60.60	70.06	72.56	80.44	92.01
80	31.69	37.86	42.88	44.64	48.38	56.36	60.60	62.84	80.44
85	26.20	28.89	31.69	37.86	37.86	44.64	44.64	52.25	60.60
90	17.78	22.35	22.35	26.20	28.89	31.69	37.86	37.86	48.38
95	9.87	13.55	15.66	17.78	21.18	26.20	26.20	31.69	37.86
^Temp(C)	Required external resistor (k ohms)								

To determine resistor between two temperatures use the following formula:

$$R = \text{EXP} ((\ln(R2/R1)) \times (Td - T1) / (T2 - T1) + \ln(R1))$$

Where:

R = resistor value required for temperature Td.

Td = Temperature desired

T2 = Temperature just above Td

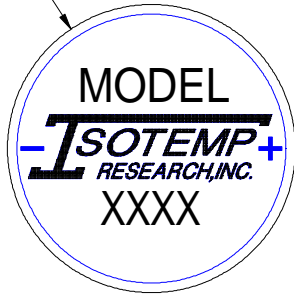
R2 = Resistor value corresponding to T2

T1 = Temperature just below Td

R1 = Resistor value corresponding to T1

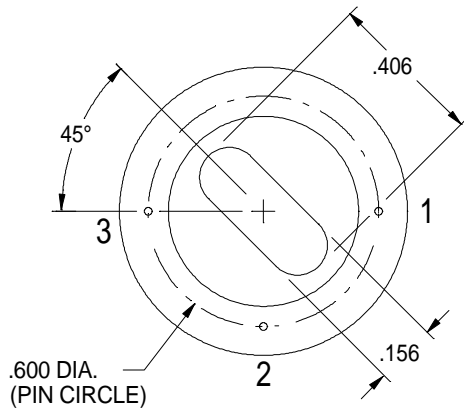
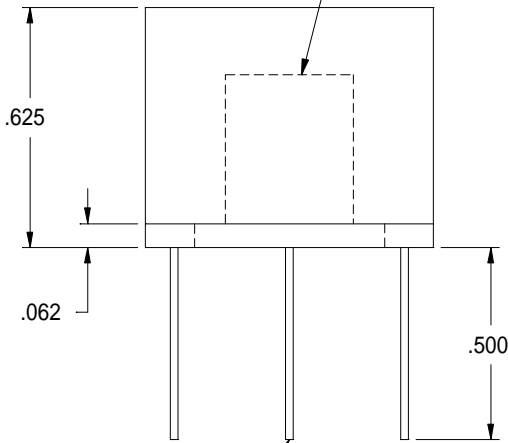
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.750 DIA.



PIN CONNECTIONS	
PIN	FUNCTION
1	+VDC
2 (See Note 3)	TEMPERATURE ADJUST OR NOT CONNECTED
3	0 VDC

CRYSTAL CAVITY



NOTE:

- CRYSTAL CAVITY IS CONNECTED TO 0 VDC
- MARKING: LABEL
MODEL = M43VVTT
or
MAJ43VV
VV = VOLTAGE
TT = SET POINT TEMPERATURE
XXXX = DATE CODE
- "TEMPERATURE ADJUST"
FOR M43AJVV MODELS
"NOT CONNECTED"
FOR M43VVTT MODELS

FORM NO. 120-081D



OSCILLATORS

CHARLOTTESVILLE, VIRGINIA

NAME: OUTLINE DRAWING
(M43 & MAJ43 SERIES)

CODE I.D. NO.
31785

SCALE: 2:1
DWN. BY: WEW

DATE: 05-07-91
APPR'D. BY: TST

LET	REVISION	BY	APP	DATE
B	REDRAWN, NEW FORM, REVISED NOTES.	LRB	DAG	08-15-00

TOLERANCES	
UNLESS OTHERWISE SPECIFIED:	
ANGLES: ±1 DEGREE	
FRACTIONS: ±1/32 INCH	
DECIMALS: .XX ±.015, .XXX ±.010	
COVER MATERIAL: GLASS-FIBRE FILLED DIALYL PHTHALATE	
BASE MATERIAL: VALOX 420 SEO BLACK	
PIN MATERIAL: KOVAR WITH 60/40 SOLDER ELECTROPLATE OVER NICKEL	
FINISH: N/A	
MARK: LABEL	

DWG: 125-365
REV: B
SHT: 1 OF 1