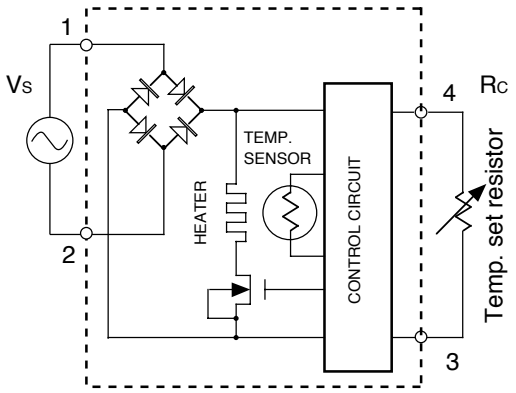
DATA SHEET

DN525

PROPORTIONALLY CONTROLLED A.C. HEATER

The DN525 is a proportionally controlled heater that can operate from a100VAC to a 250VAC power source. The temperature of this device is set with a single external resistor.The DN525 is ideally suited for regulating the temperature of sensitive electronic components such as microwave filters and crystal oscillators. The DN525 is in a ceramic package and can supply up to 80 Watts of power from a 240VAC source of power.

HEATER BLOCK DIAGRAM



FEATURES

- BERYLLIA BASE FOR GOOD THERMAL CONDUCTION
- REGULATION TEMPERATURE FROM 40 °C TO 100 °C
- 100VAC TO VOLT 250VAC OPERATION
- ELECTRICALLY ISOLATED FROM THE CASE

MAXIMUM RATINGS

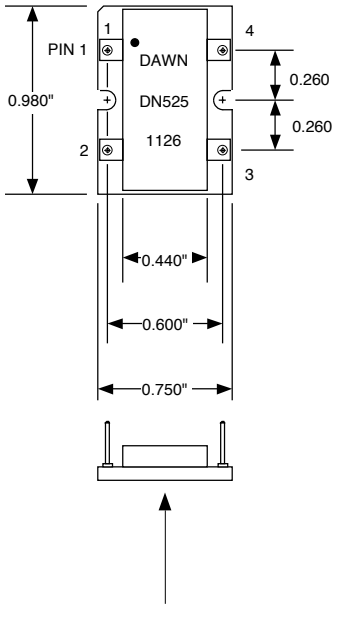
Rating	Symbol	Value	Unit
Supply Voltage	V_S	255	VAC
Power Dissipation	P_D	80	Watts
Operating Temperature	T_{MAX}	120	°C
Storage Temperature	T_{MIN}	- 65 to +150	°C

OPERATING CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Supply Voltage (Pin 1 to Pin 2)	V_S	100	250	Vac
Steady State Supply Current (RMS) @ V_S = 240 Vac	I_S	0.002	0.330	Aac
Temperature Variation over Operating Voltage	ΔT_V		2	°C
Temperature Variation with Load	ΔT_L		10	°C
Control Temperature Range	T_C	T_A + 5	100	°C
Control Resistor Value Pin 3 to Pin 4 (SeeTable 1)	R_C	0		Ω
Maximum Control Temperature when R_C = 0 Ω	T_{MAX}		120	°C
Turn on power at start-up @ V_S = 240 VAC	P_D	80		Watts
Turn on power at start-up @ V_S = 120 VAC	P_D	35		Watts
Operating frequency range	fo	45	420	Hz

OUTLINE DIMENSIONS

ACTUAL SIZE



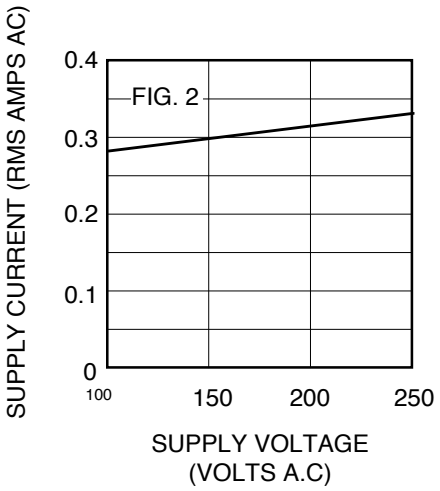
BERYLLIA BASE

BASE TEMPERATURE (TC) °C vs. CONTROL RESISTOR (RC) KΩ

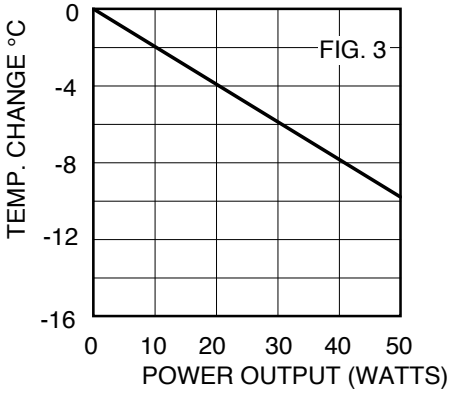
T °C	RS KΩ	T °C	RS KΩ	T °C	RS KΩ	T °C	RS KΩ
25	486.9	47	154.0	69	49.6	91	12.9
26	461.3	48	146.4	70	47.0	92	11.9
27	437.1	47	139.1	71	44.6	93	11.0
28	414.3	50	132.2	72	42.2	94	10.1
29	392.8	51	125.6	73	40.0	95	9.3
30	372.4	52	119.4	74	37.8	96	8.5
31	353.1	53	113.5	75	36.8	97	7.7
32	335.0	54	107.8	76	33.8	98	6.9
33	317.7	55	102.5	77	31.9	99	6.2
34	301.5	56	97.4	78	30.1	100	5.5
35	286.1	57	92.5	79	28.4	101	4.8
36	271.5	58	87.9	80	26.8	102	4.2
37	257.7	59	83.5	81	25.2	103	3.6
38	244.7	60	79.3	82	23.7	104	3.0
39	232.3	61	75.4	83	22.3	105	2.4
40	220.6	62	71.6	84	21.0	106	1.9
41	209.5	63	68.0	85	19.6	107	1.4
42	199.0	64	64.5	86	18.4	108	0.9
43	189.0	65	61.3	87	17.2	109	0.4
44	179.6	66	58.1	88	16.1	110	0.0
45	170.6	67	55.2	89	15.0		
46	162.1	68	52.3	90	13.9		

TABLE 1

MAX. START UP CURRENT vs. SUPPLY VOLTAGE

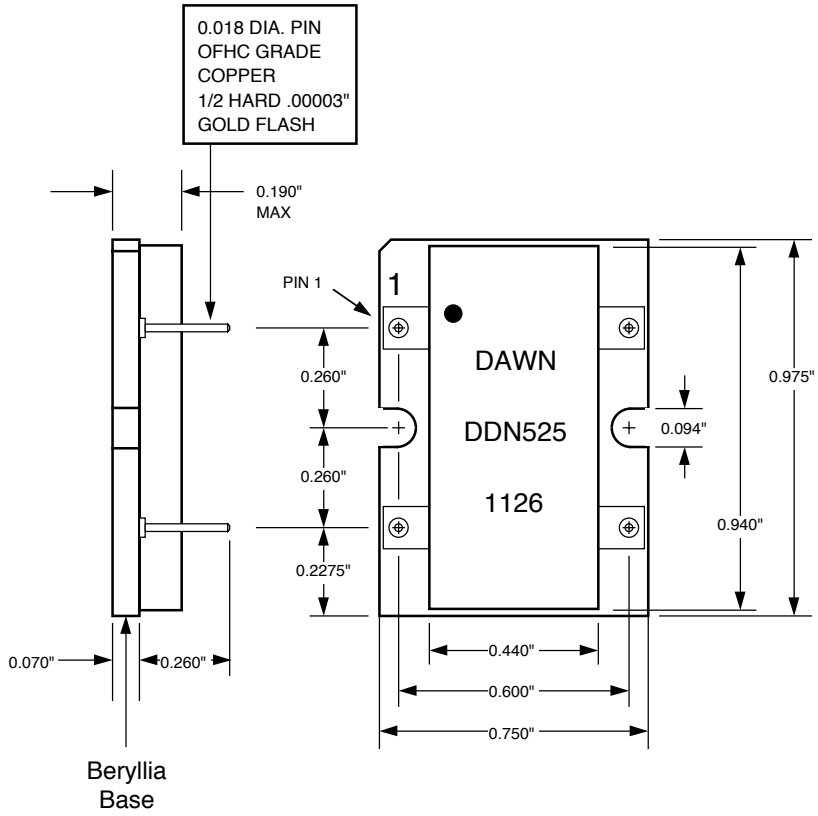


TYPICAL BASE TEMPERATURE CHANGE WITH POWER DISSIPATION



The base material of the DN525 is Beryllia which provides efficient energy transfer from the heating element located inside the heater and the heating surface of the DN525. The temperature drop across the Beryllia substrate, as a function of power transfer, is shown in figure 3. The thermal interface between the DN525 heater and the device being heated causes a temperature drop. Care should be taken to make sure that a good thermal interface exists between the two surfaces.

DN525 MECHANICAL DIMENSIONS



NOTES:

1. All DN525 heaters are tested for gross leaks with 3M™ FC-40 Fluorinert™ at 125° C.
2. Optimum heat transfer between the DN525 and the device being heated occurs when a thermal compound, such as Dow Corning 340, is applied to the mounting surface of the heater.

12/2011