

Preliminary

52482

SOLID STATE HEATER CONTROLLER
Space Application Series

Mii

MICROCIRCUITS DIVISION

Features:

- Operates With Thermistor or RTD Temperature Sensor
- Output Is Either "ON" Or "OFF"
- Adjustable Setting Of Temperature From +10 °C To + 30 °C With External Resistor (6)
- Temperature Accuracy $\pm 1^\circ \text{C}$
- Temperature Hysteresis $\pm 1^\circ \text{C}$

Applications:

Meets The Demanding Requirements Of Space Platform Environments Where Precise Temperature Control Is Required.

DESCRIPTION

Micropac's space level Heater Controller 52482 operates with an external thermistor or RTD temperature sensor and provides a power switched (On/Off) output within a temperature window. The thermistor or RTD sensor signal is conditioned and then controls a low-side MOSFET power switch for an external heater.

ABSOLUTE MAXIMUM RATINGS

Operating Temperature (T_A)	-55°C to +125°C
Storage Temperature (T_{STG})	-65°C to +150°C
Maximum Steady State V_{IN}	+75 Volts DC
Steady State Load Current (I_{LOAD})	6.5 Amps
Peak Output Current ($T < 10\text{ms}$)	15 Amps
Thermal Resistance (T_{JC})	3.4°C/W
Thermal Resistance (T_{JA}) (Note 5)	106°C/W

APPLICABLE QUALITY STANDARDS OF MICROPAC INDUSTRIES, INC.

- MIL-PRF-38534 Class H and Class K Qualified.
- MIL-PRF-19500 JAN S Qualified.
- MIL-STD-883 Test Methods and Procedures
- ISO 9001 (2000) Registered

<p>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.</p>
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GENERAL ELECTRICAL SPECIFICATIONS

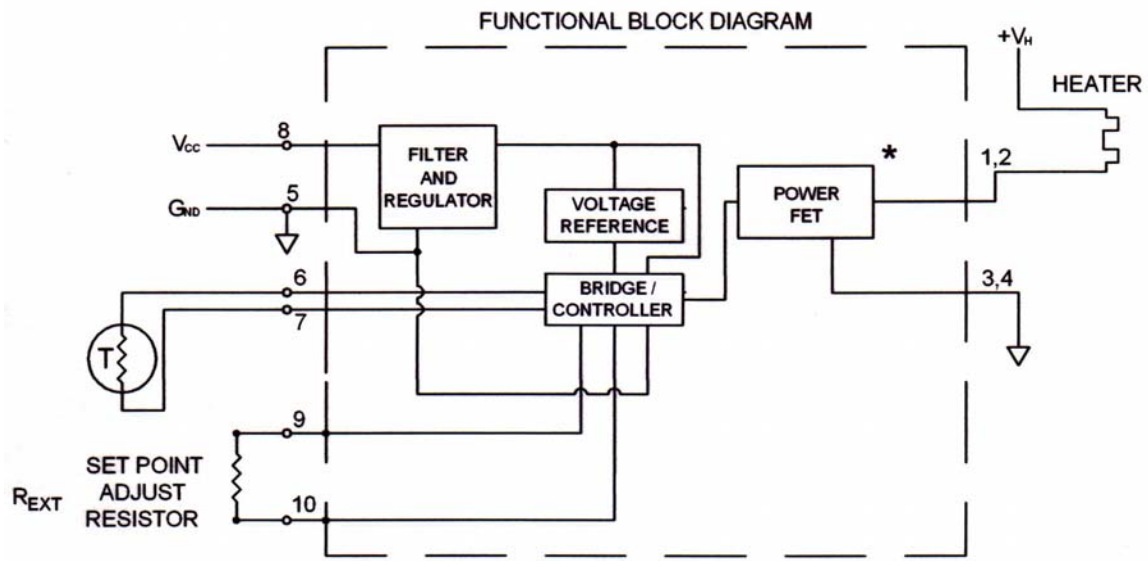
(25°C unless otherwise stated)

TEST	CONDITIONS	MIN	TYPICAL	MAX	UNITS	NOTES
Quiescent Power Supply Current	Terminals 8 to 5 = +40 VDC		12.0	22.5	mA	1
Heater Current	Terminals 1, 2 to 3, 4 = Heater Load	6.5			A	2
Output Off Current	Terminals 1 and 2 = +40 VDC Between Terminals 3, 4 and GND $T_{CASE} = 25^{\circ}C$ $T_{CASE} = 125^{\circ}C$ or $T_{CASE} = -55^{\circ}C$			± 10 ± 25	μA μA	3
Full Load Saturation Voltage	Terminals 1, 2 to 3, 4 = 6.5A Test Load, 4.6 ohms $\pm 5\%$, 250 Watts V_{SAT} , Measured between Terminals 1, 2 and 3, 4 $T_{CASE} = 125^{\circ}C$ or $T_{CASE} = -55^{\circ}C$			0.545	V	4
Temperature Accuracy	$-30^{\circ}C$ to $+30^{\circ}C$			± 1	$^{\circ}C$	
Temperature Hysteresis	$-30^{\circ}C$ to $+30^{\circ}C$			± 1	$^{\circ}C$	

NOTES:

1. Current required to power the control section of the controller
2. Steady state Full Load Current
3. Off current is Leakage Current through the MOSFET
4. Full load saturation voltage across the MOSFET
5. Junction to ambient in free air without Heatsink

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* DEVICE OPERATES AS A LOW SIDE SWITCH.

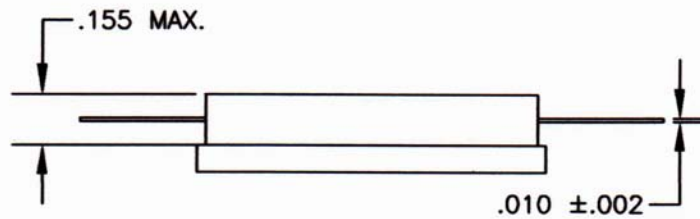
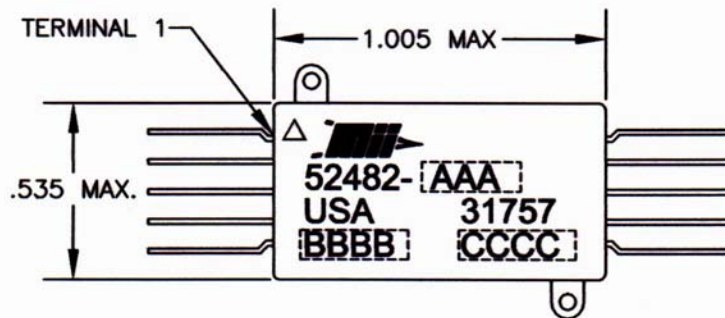
PART NUMBER	DESCRIPTION
52482-001	Heater Controller For Use With GSFC-S-311-P-18-01S Thermistor (2250 ohms @ +25 °C)

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TERMINAL NUMBER DESCRIPTION

TERMINAL	REF	DESCRIPTION
1	+Vin	Voltage Input from Heater
2	+V _{IN}	Voltage Input from Heater
3	-V _{IN}	Heater GND
4	-V _{IN}	Heater GND
5	GND	Ground for Control Circuitry
6	RTh-H	Current source for thermistor/R _{TD}
7	RTh-L	Current return for thermistor/ R _{TD}
8	V _{IN}	V _{IN} for Control Circuitry
9	R _{EXT}	Temperature set resistor
10	R _{SET} Return	Temperature set resistor return

Package Dimensions



AAA = DASH NUMBER -001 OR -002
 BBBB = DATE CODE
 CCCC = SERIAL NUMBER

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