



TEMPERATURE SENSOR

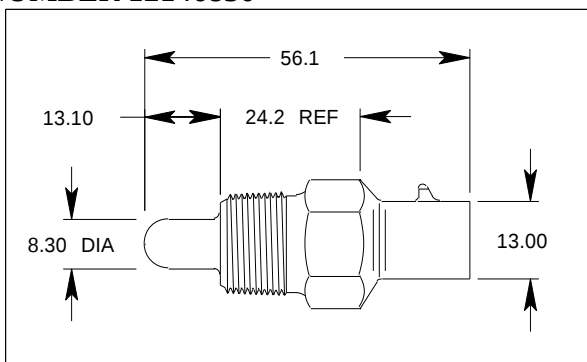
PRODUCT DATA

MANIFOLD AIR TEMPERATURE SENSOR

PART NUMBER 12146830

FEATURES:

- Design for Manufacturability
- Cost Effective
- Robust Design
- Few Components
- Few Assembly Processes
- Thermistor Technology



THERMAL & ELECTRICAL PROPERTIES

Typical Voltage Supply: **5V DC**

Operating Temperature: **-40 C to 135 C**

Resistive Range (Ohms): **See Table**

Dissipation Constant: * **18 mW/°C**

Thermal Time Constant: ** **60 sec**

Accuracy: **See Table**

MECHANICAL PROPERTIES

Sensor Body Material: **PEI 30% GF**

Mating Connector & Seal: **15335987 or equivalent**

Hex Size: **18.90 mm (3/4")**

Thread Size: **3/8"-18 NPTF**

Validated Sealing Pressure: **145 kPA**

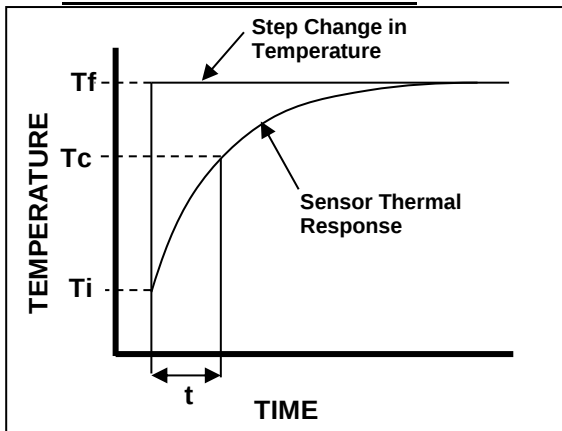
Installation Torque: **10.8 - 16.3 Nm**

Thread Sealant: **GM09985490**

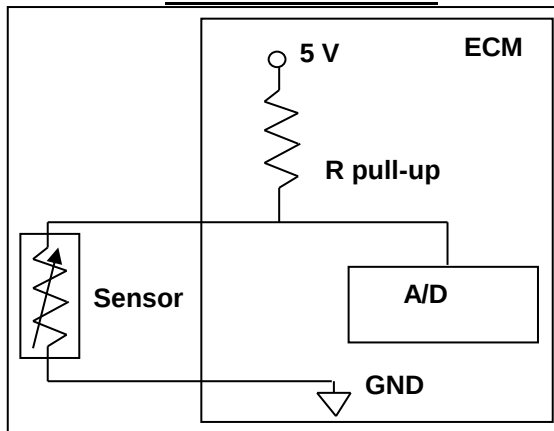
Overall Weight: **13.07 g**

Color: **Gray**

THERMAL TIME CONSTANT



CIRCUIT SCHEMATIC



* The ratio, at a specified ambient temperature, of the change in the power dissipation of the sensor to the resultant temperature change of the thermistor. Test medium: dry air stream flowing at 5000 mm/sec.

** The time required for the sensor to achieve 63.2% of its steady state value when subjected to a step change in ambient temperature [$T_c = (T_f - T_i) * 63.2\% + T_i$]. Test medium: dry air stream flowing at 5000 mm/sec.

Part Revision Level: **001**

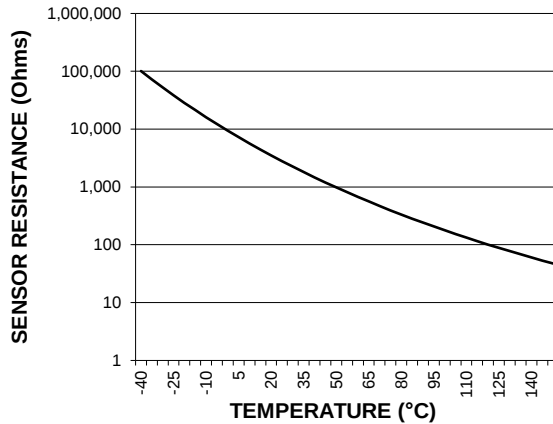
Data Sheet Revision Date: **8/27/2020**



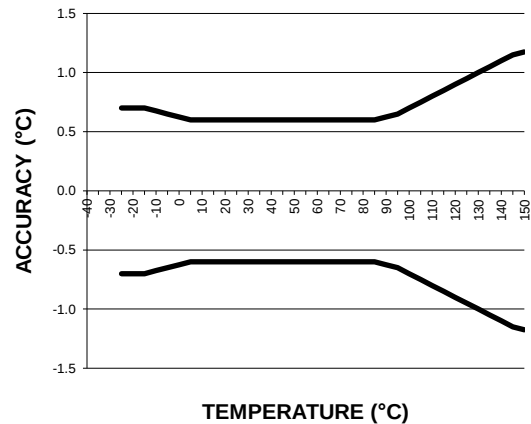
TEMPERATURE SENSOR

PRODUCT DATA

UNLOADED RESISTANCE vs TEMPERATURE
CHARACTERISTIC CHART



TEMPERATURE ACCURACY CHART



Temp (°C)	Res (Ohms)	Res (±%)	Ref Acc (±°C)	Temp (°C)	Res (Ohms)	Res (±%)	Ref Acc (±°C)	Temp (°C)	Res (Ohms)	Res (±%)	Ref Acc (±°C)
-40	100865	4.87	0.70	25	2795	2.50	0.60	90	241.8	2.10	0.70
-35	72437	4.64	0.70	30	2240	2.45	0.60	95	207.1	2.21	0.70
-30	52594	4.43	0.70	35	1806	2.40	0.60	100	178.0	2.31	0.80
-25	38583	4.21	0.70	40	1465	2.36	0.60	105	153.6	2.42	0.80
-20	28582	4.00	0.70	45	1195	2.31	0.60	110	133.1	2.52	0.90
-15	21371	3.80	0.70	50	980	2.27	0.60	115	115.7	2.61	0.90
-10	16120	3.60	0.60	55	809	2.23	0.60	120	100.9	2.68	1.00
-5	12261	3.40	0.60	60	671	2.19	0.60	125	88.3	2.75	1.00
0	9399	3.21	0.60	65	559	2.15	0.60	130	77.5	2.80	1.10
5	7263	3.06	0.60	70	469	2.11	0.60	135	68.3	2.84	1.10
10	5658	2.92	0.60	75	395	2.07	0.60	140	60.3	2.87	1.20
15	4441	2.78	0.60	80	334	2.04	0.60	145	53.4	2.89	1.20
20	3511	2.64	0.60	85	283	2.00	0.60	150	47.5	2.90	1.20

Important: The values above are for the unloaded thermistor, as shipped from Merit Automotive Electronics Systems, and does not reflect the effects of application system errors and aging.

Notes: Please contact Merit Automotive Engineering for the resistance vs temperature curve for your temperature sensor application. Due to self-heating effects of the thermistor, the resistance is dependent upon the application.

Since thermistors are "continuous function devices", resistance vs temperature data is available for numbers beyond those specified above.