exsense 肇慶愛晟傳感器技術有限公司	Sheet No.: R-P-SD-01-04 Serial No. : SAS20112701W		
EXSENSE SENSOR TECHNOLOGY CO., LTD.	Version: A/1 Page: 1/5		

Specifications Approval Sheet

CUSTOMER:	MEGASAN ELEKTRONİK TİCARET VE SANAYİ A.Ş
CUSTOMER P/N:	
PART NAME:	TS Series NTC Temperature Sensor
PART NUMBER:	TS203F25C3977FB-ML2000ATST3522
DATE:	2020-11-27

Manufacturer:

Drawn by	Checked by	Approved by
Albee		

For Customer Approval:

exsense 肇慶愛晟傳感器技術有限公司	Sheet No.: R-P-SD-01-04 Serial No. : SAS20112701W		
EXSENSE SENSOR TECHNOLOGY CO., LTD.	Version: A/1 Page: 2/5		

1. Structure, Dimensions & Materials



NO	Material	Specification					
1	Thermistor	R25=20K $\Omega \pm$ 1% B(25/85)=3977K \pm 1%					
2	Ероху	Black					
3	Silicon	White					
4	Housing	SUS304					
5	Wire	#24AWG Grey Silicon sleeving with Red/ With insulated					

2. Part Number Identification

	TS	20)3	F	;	25C	;	3977		F		в	— м	L	2000		Α
	1	2		3	3)	4		5		6		7	8		9		10
				2	2		2		3		4		5			6	
Ρ	Product Series Res Code @		esist @2	tance 5℃	R ₂₅ Tolerance				Test Temp. of Resistance		В	B-value		B-value Tolerance			
T S	TS Se Temper	eries rature sor	20)3	20ΚΩ		F ±1%		-	25 C	25	S℃	3977	B=39	77K	F	±1%
	7		8			-		9			10						
Test Temp. of B-value			Head Material				Length				Distinguishing Code			ode			
	В	25/8	85℃		M Metal Housing			_	L2000 2000mm			ım	A Internal Code			ode	

肇慶愛晟傳感器技術有限公司

Sheet No.: R-P-SD-01-04 Serial No. : SAS20112701W Version: A/1 Page: 3/5

EXSENSE SENSOR TECHNOLOGY CO., LTD.

3. Electronic Parameter Specification

No.	Item	Symbol	Test condition	Min.	Nor.	Max.	Unit
3-1	Resistance @25℃	R ₂₅	Ta=25±0.05℃ P _T ≦0.1mw	19.8	20	20.2	KΩ
3-2	B-value	B _{25/85}	$B=\!LN\frac{R_{T1}}{R_{T2}} \int (\frac{1}{T1} - \frac{1}{T2})$	3937.23	3977	4016.77	к
3-3	Thermal time constant	T	Ta=25±0.5℃	/	/	20	Sec
3-4	Dissipation factor	δ	Ta=25±0.5℃	2.6	/	/	mw/° C
3-5	Insulation test	/	DC 500V	100	/	/	MΩ
3-6	Withstand voltage test	/	AC 1500V 2mA	/	/	1	Sec
3-7	Rated power	mW	Ta=25±0.5℃	/	/	10	mW
3-8	Operating temp. range	/	/	-30	/	+125	°C

Test condition:

<u>eXsense</u>

1) Resistance @25°C:

Place the product in the $25^{\circ}C \pm 0.05^{\circ}C$ high precision oil tank, test it after 10 mins



2) Beta Value:

Test equipment: High precision thermostatic oil tank

According to the part number, test the resistance at T1 and T2.

In the oil tank, test the resistance value of 25 ± 0.05 °C and 50 ± 0.05 °C. B-value is an index of the thermal sensitivity expressed by the formula:

Bt1/t2=In (Rt1/Rt2)/(1/(t1+273.15)-1/(t2+273.15))

exsense 肇慶愛晟傳感器技術有限公司	Sheet No.: R-P-SD-01-04		
	Version: A/1		
EXSENSE SENSOR LECHNOLOGY CO., LID.	Page: 4/5		

3) Thermal Time Constant (т):

Test equipment: $25\pm0.5^{\circ}$ C thermostatic water tank & $85\pm0.5^{\circ}$ C thermostatic water tank Connect the product to the resistance meter, place it in the 25° C water until the resistance become stable, and then move it to 85° C water from 25° C water, in the meanwhile, set off the timer when the product be take out of the 25° C water tank, once the product has raise to the temperature which is 63.2° of the temperature difference, timer should be stopped, this time period represents the thermal time constant.

4) Dissipation Factor (δ): The product will be join with the following circuit at 25±0.5 °C in still air



5) Insulation test:

Test equipment: Insultation tester

Set the tester to DC 500V, connect the 2 lead wires as an electrode and put the head into the steel balls as another electrode, then start the testing. Insulation resistance: $R \ge 100M\Omega$.

6) Withstand voltage test

Test equipment: Withstand voltage tester

Set the tester to AC 1500V 2mA 1sec, connect the 2 lead wires as an electrode and put the head into the steel balls as another electrode, then start the testing; There should not be breakdown and flashover.

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Sense肇慶愛晟傳感器技術有限公司Sheet No.: R-P-SD-01-04
Serial No.: SAS20112701WEXSENSE SENSOR TECHNOLOGY CO., LTD.Version: A/1
Page: 5/5

4. Reliability Characteristics

No.	Item	Requirement	Testing method and condition
4-1	High temp test		120±5 $^\circ C$ in air for 1000 hrs
4-2	Low temp test		-30±5 $^\circ \!\!\! ^\circ \!\!\! ^\circ$ in air for 1000 hrs
4-3	Temperature cycle	∆B/B≤±3% Insulation resistance	0℃×30mins→Room temp.×10mins→100℃×30mins 10 cycles
4-4	Charge test	and withstand voltage have no change;	Charge DC0.2mA for 1000 hrs at normal temp. and normal humidity.
4-5	Lead wire strength tensile	No visible damage.	Apply 30N force to the lead wire for 1 min
4-6	Drop test		Drop it onto concrete floor from 1 meter height

5. Storage & Packing method

1) The height of each pile should be no more than 4 levels during storage and transportation.

2) Put desiccant in each packing bag; Protect it from the rain, snow and mechanical damage.

3) 25pcs per bundle, 100pcs per bag.ROHS lable should be placed in the each packing bag and self-adhesive label should be pasted outside.

4) Should not close to the acidoid, alkali and corrosion gas or radioactive source.

Storage temperature: 15℃~40℃, working humidity ≤75%.