

SS0515

WIDE RANGE THERMOMETER

FEATURES

- 3V battery operation with very low power consumption
- Wide measurement range ($-50^{\circ}\text{C} \sim 150^{\circ}\text{C}$, $-58^{\circ}\text{F} \sim 302^{\circ}\text{F}$)
- Accuracy $\pm 1^{\circ}\text{C}$ ($0^{\circ}\text{C} - 50^{\circ}\text{C}$), $\pm 2^{\circ}\text{C}$ (otherwise)
- 0.1°C resolution over the measuring range
- Auto power.off function
- Low cost RC oscillation circuit
- Bonding Option :
 - Auto power off option
 - C/F display format selectable
 - 5/10 Minutes auto power off option
 - 5/10 Seconds sample frequency

DESCRIPTIONS

The SS0515 M is specially designed IC for the wide range thermometer testing application. Its measuring range $-50^{\circ}\text{C} \sim 150^{\circ}\text{C}$, $-58^{\circ}\text{F} \sim 302^{\circ}\text{F}$ covering most domestic and commerce usage. Several bonding options are available for the user to choose for wider product versatile

APPLICATIONS

- Frozen food measurement
- Cooking thermometer

ABSOLUTE RATINGS

at Ta = 25°C, VDD = 3.0V

Parameters	Symbol	Min	Max	Unit
Maximum Supply Voltage	V _{DD}	-0.3	+5.5	V
Maximum Input Voltage	V _{in}	-0.3	VDD+0.3	V
Maximum Output Voltage	V _{out}	-0.3	VDD+0.3	V
Maximum Operating Temperature	T _{opp}	0	70	°C
Maximum Storage Temperature	T _{stg}	-25	125	°C

ELECTRICAL CHARACTERISTICS

at Ta = 25°C, VDD = 3.0V

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	VDD	2.85	3.0	3.15	V
Operating Current (On Testing)	I _{dt}			1	mA
Operating Current	I _d			6	μA
Standby Current	I _{st}			4	μA
LCD Supply Voltage	V _{lcd}		3		V
LCD Frame Frequency	F _{lcd}	150	200	250	Hz
Operating Frequency	F _{opg}	350	400	450	kHz

THERMISTOR CHARACTERISTICS REQUIREMENT

Parameters	Symbol	Min	Typ.	Max	Unit
Resistance at Ta= 25°C	R ₂₅		50		kΩ
B Constant	B		3,435		
R ₂₅ Tolerance	%err R			5	%
B Constant Tolerance	%err B			2	%
Operating Temperature Range	T _{ther}	-50		150	°C

PIN/PAD ASSIGNMENTUnit : μm

Pad No.	Pad Name	Coordinate		Pad No.	Pad Name	Coordinate	
		X	Y			X	Y
1	VDC	85.50	1132.50	21	NC	1909.50	219.60
2	CX1	85.50	1132.50	22	BO	1909.50	375.60
3	CX2	85.50	994.50	23	RT	1909.50	527.10
4	C1	85.50	865.50	24	RS	1909.50	678.60
5	S1	85.50	736.50	25	C3	1909.50	830.10
6	S2	85.50	607.50	26	C2	1909.50	981.60
7	S3	85.50	478.50	27	VSS	1909.50	1128.60
8	S4	85.50	349.50	28	VLC1	1909.50	1275.60
9	S5	234.00	199.50	29	VLC2	1757.40	1500.60
10	S6	381.00	88.50	30	NC	1610.40	1500.60
11	S7	519.00	88.50	31	RES	1465.80	1500.60
12	S8	657.00	88.50	32	TRI	1327.80	1500.60
13	S9	795.00	88.50	33	POWER	1152.00	1500.60
14	S10	933.00	88.50	34	C/F	1023.00	1500.60
15	S11	1071.00	88.50	35	OFFTIME	894.00	1500.60
16	S12	1209.00	88.50	36	FSAMPLE	765.00	1500.60
17	NC	1347.00	88.50	37	NC	636.00	1500.60
18	NC	1485.00	88.50	38	OSCAUT	498.00	1500.60
19	NC	1623.00	88.50	39	OSCIN	155.10	1500.60
20	NC	1761.00	88.50				

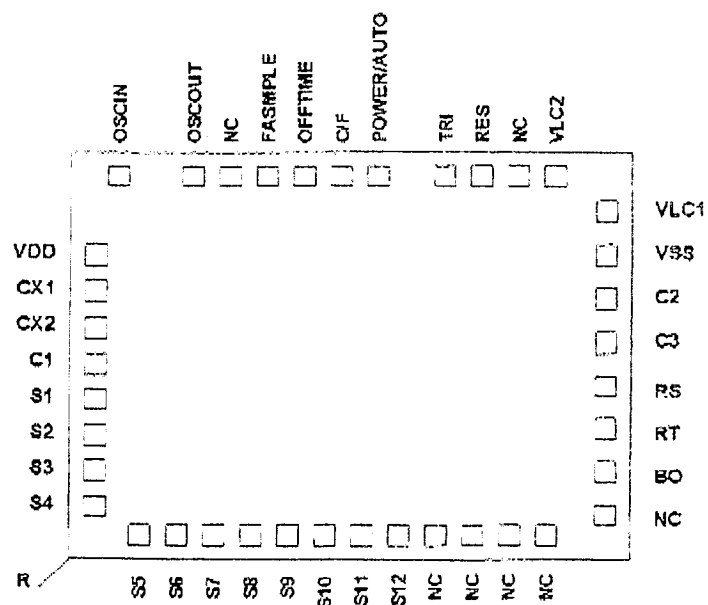
N.B : The Substrate must be connected to GND

CHIP INFORMATION

Chip size 1995x1590 (μm^2)

Pad pitch min. 140 μm

PIN/PAD DIAGRAM



THERMOMETER CHARACTERISTICS

Parameters	Symbol	Condition	Min	Typ.	Max	Unit
Measurement Range	T_{in}		-50		150	°C
Resolution	T_{dd}			0.1		°C
Accuracy	% _{err}	0°C - 50°C	-1		+1	°C
		-50°C - 0 °C _i	-2		+2	°C
		50-100°C				
		100°C - 150°C ***	-3		+3	°C
Sample Frequency	F_s	5 secs option	4	5	6	secs
		10 secs option	8	10	12	secs
Auto Power Off Time	T_{auto}	5 Minutes option	4.5	5	5.5	Mins
		10 Minutes option	9	10	11	Mins

N.B. *** Can be adjusted to $\pm 2^\circ\text{C}$ if the calibration procedure gone through.

KEY OPERATIONS

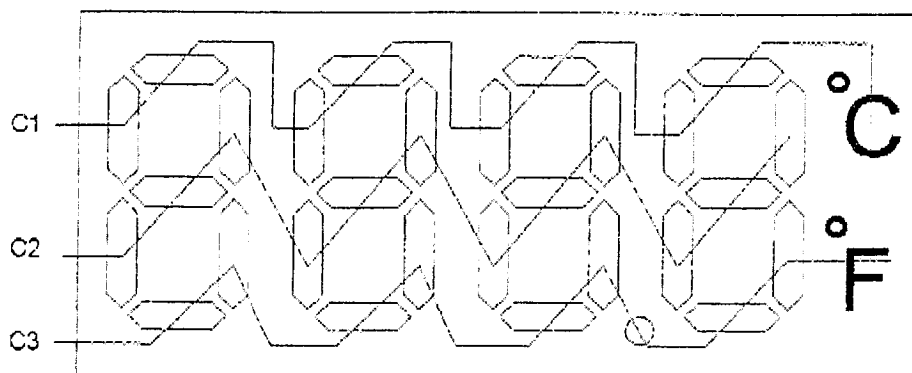
Keys	Descriptions
POWER	User Power off keys

BONDING OPTIONS

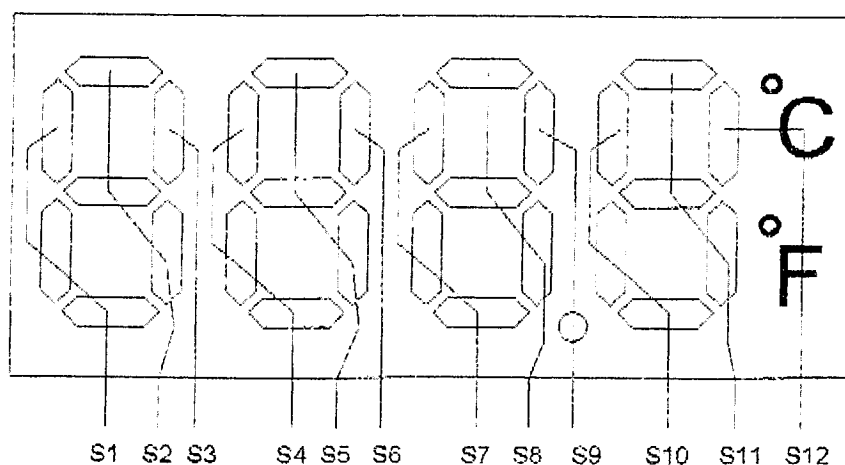
Bonding Options	Option	Functions
AUTO	Not Bonded	Auto power off according to OFFTIME option
	Bonded	Auto power off function disabled
C / F	Not Bonded	Celsius reading display
	Bonded	Fahrenheit reading display
OFFTIME	Not Bonded	Auto power off in 10 minutes (typical)
	Bonded	Auto power off in 5 minutes (typical)
FSAMPLE	Not Bonded	Temperature measurement taken in every 10 secs
	Bonded	Temperature measurement taken in every 5 secs

LCD LAYOUT

COMMON



SEGMENT



LCD CHARACTERISTICS REQUIREMENT

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	V _{op}		3		V
Duty			1/3		
Bias			1/2		

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地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83376549 83376489 83387030 83387016

传真：0755-83376182 83338339 邮编：518033 手机：(0)13902971329

深圳展销部：深圳华强北路赛格电子市场 2583 号 TEL/FAX :
0755-83665529 25059422

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

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上海分公司：上海市北京东路 668 号上海赛格电子市场 2B35 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)
西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382

成都：TEL:(0)13717066236

技术支持：0755-83394033 13501568376