SS0515

WIDE RANGE THERMOMETER

FEATURES

- 3V battery operation with very low power consumption
- Wide measurement range (-50°C ~ 150°C , -58°F ~ 302°F)
- Accuracy ±1°C (0 °C - 50 °C), ±2°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°C ~ 150°C , -58°F ~ 302°F covering most domestic and commerce usage. Several bonding options are available for the user the 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_{opg}	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)	Idt			1	mA
Operating Current	Id			6	µA
Standby Current	Ist			4	µA
LCD Supply Voltage	Vlcd		3		V
LCD Frame Frequency	Flcd	150	200	250	Hz
Operating Frequency	Fopg	350	400	450	kHz

THERMISTER CHARACTERISTECS 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 ASSIGMENT

Unit : μm

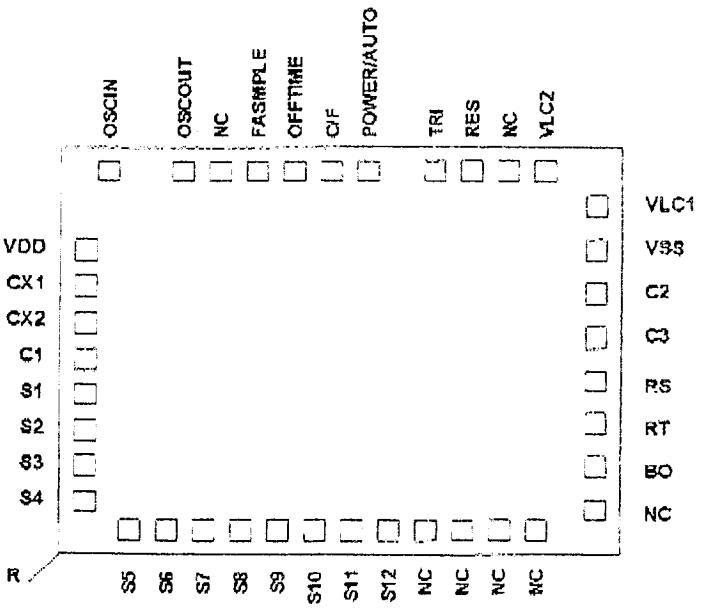
Pad No.	Pad Name	Coordinate		Pad No.	Pad Name	Coordinate	
		X	Y			X	Y
1	VDD	85.50	1132.50	21	NC	1909.50	219.60
2	CX1	85.50	1132.50	22	BO	1909.50	375.60
3	CX2	85.50	994.50	23	RT	1909.50	527.10
4	C1	85.50	865.50	24	RS	1909.50	678.60
5	S1	85.50	736.50	25	C3	1909.50	830.10
6	S2	85.50	607.50	26	C2	1909.50	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	OSCOUT	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. 140μm

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, 50-100°C	-2		+2	°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 ±2°C if the calibration procedure gone through.

KEY OPERATIONS

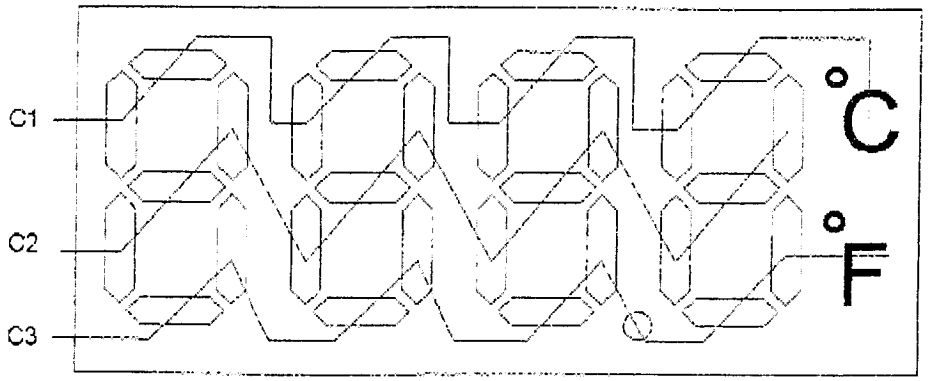
Keys	Descriptions
POWER	User Power off keys

BONDING OPTIONS

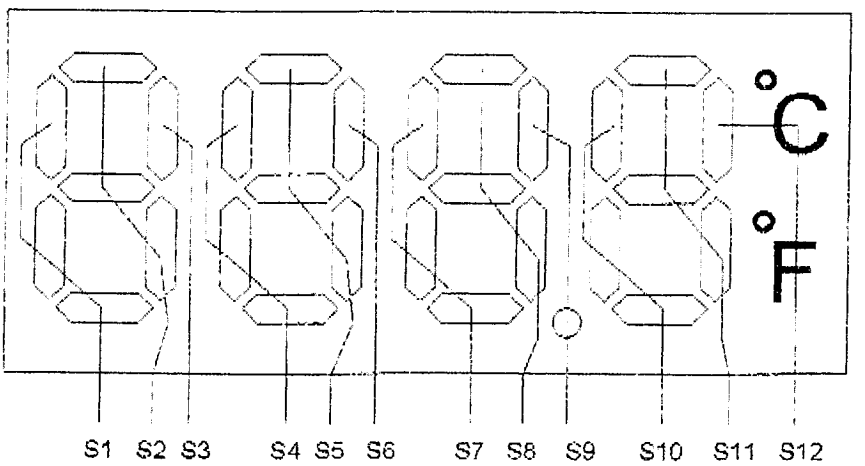
Bonding Options	Option	Functions
AUTO	Not Bonded	Auto power off according to OFFTIME option
	Bonded	Auto power off function disabled
C / F	Not Bonded	Celsius reading display
	Bonded	Fahrenheit reading display
OFFTIME	Not Bonded	Auto power off in 10 minutes (typical)
	Bonded	Auto power off in 5 minutes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

LCD LAYOUT

COMMON



SEGMENT



LCD CHARACTERISTECS REQUIREMENT

Parameters	Symbol	Min	Typ.	Max	Unit
Operating Voltage	Vop		3		V
Duty			1/3		
Bias			1/2		

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