High-Temperature Logger iButton with 8KB Data-Log Memory

ABSOLUTE MAXIMUM RATINGS

I/O Voltage Range to GND ....-0.3V to +6V
I/O Sink Current...20mA
Operating Temperature Range ....+15°C to +140°C

Junction Temperature ....+150°C
Storage Temperature Range...........................-25°C to +140°C*

*Storage or operation above +50°C significantly reduces battery life with an upper limit of 300hr cumulative at +140°C. The recommended storage temperature for maximum battery lifetime is between +5°C and +35°C.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

(V_{PUP} = 3.0V to 5.25V.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Operating Temperature	T_A	DS1922E (Note 1)	+15		+140	°C
I/O PIN GENERAL DATA						
1-Wire Pullup Resistance	R_{PUP}	(Notes 2, 3)			2.2	kΩ
Input Capacitance	C_{IO}	(Note 4)		100	800	pF
Input Load Current	I_L	I/O pin at V_{PUP}		6	10	µA
High-to-Low Switching Threshold	V_{TL}	(Notes 5, 6)	0.4		3.2	V
Input Low Voltage	V_{IL}	(Notes 2, 7)			0.3	V
Low-to-High Switching Threshold	V_{TH}	(Notes 5, 8)	0.7		3.4	V
Switching Hysteresis	V_{HY}	(Note 9)	0.09		N/A	V
Output Low Voltage	V_{OL}	At 4mA (Note 10)			0.4	V
Recovery Time (Note 2)	t_{REC}	Standard speed, R_{PUP} = 2.2kΩ	5			µs
		Overdrive speed, R_{PUP} = 2.2kΩ	2			
		Overdrive speed, directly prior to reset pulse; R_{PUP} = 2.2kΩ	5			
Rising-Edge Hold-Off Time	t_{REH}	(Note 11)	0.6		2.0	µs
Time Slot Duration (Note 2)	t_{SLOT}	Standard speed	65			µs
		Overdrive speed, V_{PUP} > 4.5V	8			
		Overdrive speed (Note 12)	**9.5**			
I/O PIN 1-Wire RESET, PRESENCE-DETECT CYCLE						
Reset Low Time (Note 2)	t_{RSTL}	Standard speed, V_{PUP} > 4.5V	480		720	µs
		Standard speed (Note 12)	**690**		720	
		Overdrive speed, V_{PUP} > 4.5V	48		80	
		Overdrive speed (Note 12)	**70**		80	
Presence-Detect High Time	t_{PDH}	Standard speed, V_{PUP} > 4.5V	15		60	µs
		Standard speed (Note 12)	15		**63.5**	
		Overdrive speed (Note 12)	2		**7**	

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