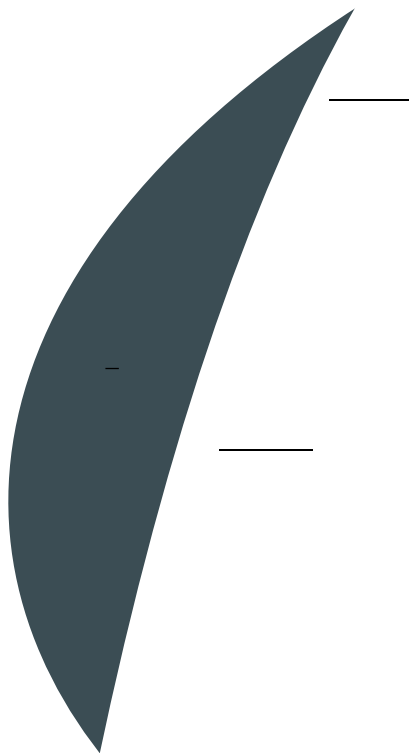


WW = Work Week
▪ = Pb-Free Device

(Note: Microdot may be in either location)



PIN ASSIGNMENTS

V _{DD}	1	[8]	SCL
D+	2	[7]	SDA
D-	3	[6]	ALERT/THERM2
THERM	[4]	[5]	GND

DFN8
(Top View)

ORDERING INFORMATION

See detailed ordering and shipping information on page 1 of this data sheet.

NCT218

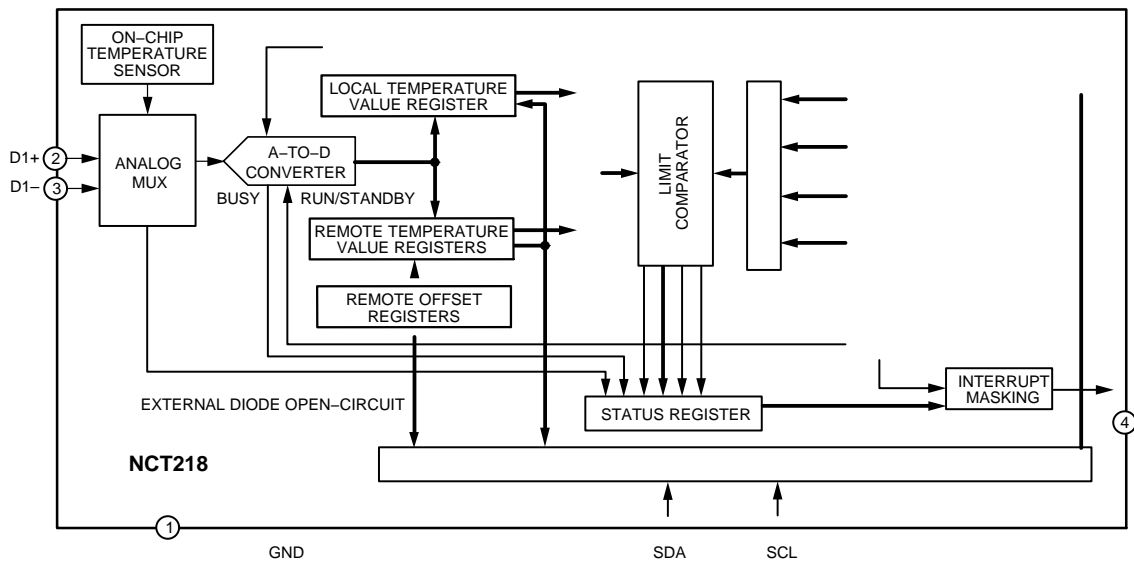


Figure 1. Functional Block Diagram

NCT218

Table 2. ABSOLUTE MAXIMUM RATINGS (Note 1)

Rating	Symbol	Value	Unit
Supply Voltage (V_{DD}) to GND	V_{DD}	-0.3, +3	V
D+		-0.3 to $V_{DD} + 0.25$	V
D- to GND		-0.3 to +0.6	V
SCL, SDA, ALERT, THERM		-0.3 to +5.25	V
Input current on D-		± 1	mA
Input current on SDA, THERM	I_{IN}	-1, +50	mA
Maximum Junction Temperature	$T_{J(max)}$	150.7	$^{\circ}C$
Operating Temperature Range	TOP	-40 to 125	

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Table 4. ELECTRICAL CHARACTERISTICS

($T_A = T_{MIN}$ to T_{MAX} , $V_{DD} = 1.6$ V to 2.75 V. All specifications for -40°C to $+125^{\circ}\text{C}$, unless otherwise noted.)

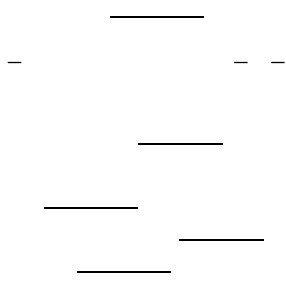
Parameter	Test Conditions	Min	Typ	Max	Unit
TEMPERATURE SENSOR					
Measurement Range		-40		+125	$^{\circ}\text{C}$
REMOTE SENSOR ACCURACY					
$V_{DD} = 1.6$ V to 2.75 V $T_A = 25^{\circ}\text{C}$ to 85°C	$T_D = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$			± 1	$^{\circ}\text{C}$
LOCAL SENSOR ACCURACY					
$V_{DD} = 1.6$ V to 2.75 V	$T_A = 25^{\circ}\text{C}$ to 85°C $T_A = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$			± 1.75 ± 3	$^{\circ}\text{C}$

Theory of Operation

Temperature Measurement Method

Ω

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—

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Δ

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—

—

Series Resistance Cancellation

—

o

Ω

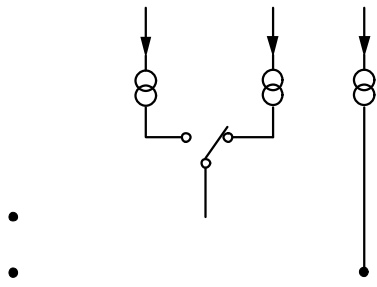


Figure 4. Input Signal Conditioning

**Table 6. TEMPERATURE DATA FORMAT
(Temperature High Byte)**

Temperature	Binary	Offset Binary (Note 1)
-55°C	0 000 0000 (Note 2)	0 000 1001
0°C	0 000 0000	0 100 0000
+1°C	0 000 0001	0 100 0001
+10°C	0 000 866w1.com	

Conversion Rate Register

Table 9. STATUS REGISTER BIT ASSIGNMENTS

Bit	Name	Function
7	BUSY	1 when ADC is converting
6	LHIGH (Note 4)	1 when local high temperature limit is tripped
5	LLOW (Note 4)	1 when local low temperature limit is tripped
4	RHIGH (Note 4)	1 when remote high temperature limit is tripped
3	RLOW (Note 4)	1 when remote low temperature limit is tripped
2	OPEN (Note 4)	1 when remote sensor is an open circuit
1	RTHRM	1 when remote THERM limit is tripped
0	LTHRM	1 when local THERM limit is tripped

4. These flags stay high until the status register is read or they are reset by POR unless Pin 6 is configured as THERM2. Then, only Bit 2 remains high until the status register is read or is reset by POR.

Table 10. SAMPLE OFFSET REGISTER CODES

Offset Value	0x11	0x12
-128°C	1000 0000	00 00 0000
-4°C		

Offset Register





SERIAL INTERFACE

Addressing the Device



NCT218

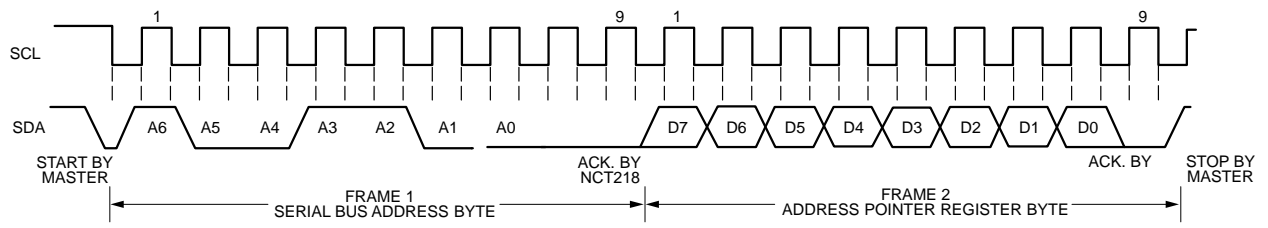


Figure 5. Writing to the Address Pointer Register

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Table 14. ORDERING INFORMATION

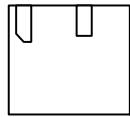
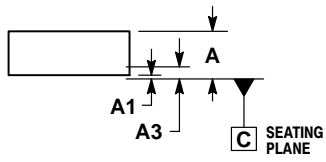
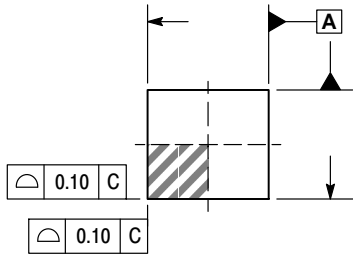
Device Number	Package Type	Shipping†
NCT218MTR2G	WDFN8 (Pb-Free)	
NCT218FCT2G	WLCSP8 (Pb-Free)	

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

WDFN8 2x1.8, 0.5P
CASE 511BU
ISSUE O

DATE 18 JAN 2012

SCALE 4:1



DIM	MILLIMETERS	
	MIN	MAX
A		

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