11.21 TEMP Electrical specification

11.21.1 Temperature Sensor Electrical Specification

Symbol	Description	Min.	Typ.	Max.	Units
t_{TEMP}	Time required for temperature measurement		36		µs
$T_{TEMP,RANGE}$	Temperature sensor range	-20		70	°C
$T_{TEMP,RANGE,EXT}$	Temperature sensor extended temperature range	-40		105	°C
$T_{TEMP,ACC}$	Temperature sensor accuracy	-5		5	°C
$T_{TEMP,ACC,EXT}$	Temperature sensor accuracy, extended temperature range	-7		7	°C
$T_{TEMP,RES}$	Temperature sensor resolution		0.25		°C
$T_{TEMP,STB}$	Sample to sample stability at constant device temperature			±0.25	°C
$T_{TEMP,OFFST}$	Sample offset at 25°C	-3		3	°C

11.22 TWIM Electrical specification

11.22.1 TWIM interface electrical specifications

Symbol	Description	Min.	Typ.	Max.	Units
$f_{TWIM,SCL}$	Bit rates for TWIM[16]	100		1000	kbps
$t_{TWIM,START}$	Time from STARTRX/STARTTX task to transmission started		1.5		µs

11.22.2 Two Wire Interface Master (TWIM) timing specifications

Symbol	Description	Min.	Typ.	Max.	Units
t_{TWIM,SU_DATI}	Input data setup time before positive edge on SCL – all modes	20			ns
t_{TWIM,HD_DATO}	Output data hold time after negative edge on SCL – 100, 250 and 400 kbps	500		625	ns
$t_{TWIM,HD\_STA,100kbps}$	TWIM master hold time for START and repeated START condition, 100 kbps	10000			ns
$t_{TWIM,HD\_STA,250kbps}$	TWIM master hold time for START and repeated START condition, 250 kbps	4000			ns
$t_{TWIM,HD\_STA,400kbps}$	TWIM master hold time for START and repeated START condition, 400 kbps	2400			ns
$t_{TWIM,SU\_STO,100kbps}$	TWIM master setup time from SCL high to STOP condition, 100 kbps	5000			ns
$t_{TWIM,SU\_STO,250kbps}$	TWIM master setup time from SCL high to STOP condition, 250 kbps	2000			ns
$t_{TWIM,SU\_STO,400kbps}$	TWIM master setup time from SCL high to STOP condition, 400 kbps	1250			ns
$t_{R,100kbps}$	Rise time of both SDA and SCL signals, 100kbps			1000	ns
$t_{F,100kbps}$	Fall time of both SDA and SCL signals, 100kbps			300	ns
$t_{R,400kbps}$	Rise time of both SDA and SCL signals, 400kbps			300	ns
$t_{F,400kbps}$	Fall time of both SDA and SCL signals, 400kbps			300	ns
$t_{TWIM,BUF,100kbps}$	TWIM master bus free time between STOP and START conditions, 100 kbps	5200			ns
$t_{TWIM,BUF,250kbps}$	TWIM master bus free time between STOP and START conditions, 250 kbps	2200			ns
$t_{TWIM,BUF,400kbps}$	TWIM master bus free time between STOP and START conditions, 400 kbps	1500			ns

[16] High bit rates or stronger pull-ups may require GPIOs to be set as High Drive, see GPIO — General purpose input/output on page 274 for more details.