Register 2 — Configuration Register (address = 02h) (Read/Write)

Bit #	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
Bit Name	RST	MOD2	MOD1	MOD0	CR2	CR1	CR0	EN	$\overline{\text{DRDY}}$	0	0	0	0	0	0	0
Reset Value	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0

Table 1. Configuration Register Bits

Register Description

Table 1 describes the Configuration Register (address = 02h). This register determines the operational modes, conversion rate, $\overline{\text{DRDY}}$ control, initiates a single conversion, performs a software reset, or puts the device into shutdown mode. The Configuration Register is a read/write register.

Bit Descriptions

Bit [15] RST: Software Reset Bit
0 = Normal operation, this bit self-clears
1 = Software reset

Bits [14:12] MOD [2:0]: Mode of Operation
000 = Power-down
111 = Sensor and ambient continuous conversion (MOD)

Bits [11:9] CR [2:0]: ADC Conversion Rate
See Table 2 for description.

Bit [8] EN: $\overline{\text{DRDY}}$ Enable Bit
0 = $\overline{\text{DRDY}}$ pin disabled
1 = $\overline{\text{DRDY}}$ pin enabled

Bit [7] $\overline{\text{DRDY}}$: Data Ready Bit
0 = Conversion in progress
1 = Object voltage and ambient temperature results are ready to read. A temperature or sensor voltage read or a write to the Configuration Register is required to clear the condition.

Bits [6:0] Unused [6:0]

The TMP006 can operate in two modes: continuous and shutdown. A software reset function is also available. Selecting the desired operating mode is done by writing to the Configuration Register conversion mode select bits MOD[2:0]. The duration of the analog-to-digital (A/D) conversion is determined by the conversion rate bits CR[2:0] and is listed in Table 2. Continuous mode, on the other hand, performs an A/D conversion followed by a low-power delay in order to reduce the average power consumption. Multiple options for the conversion time and delay time are available in order to select the desired power/noise performance. Initiating power-down has an immediate effect; it aborts the current conversion and puts the device into a low-power shutdown mode. RST, or software reset, is also immediate and initializes all memory locations with the respective reset values.

CR2	CR1	CR0	CONVERSION RATE (conv/sec)	TOTAL NUMBER OF AVERAGED SAMPLES	AVERAGE I_Q (µA)	PEAK-PEAK NOISE OF T_{OBJECT} RESULT (°C)
0	0	0	4	1	240	0.5
0	0	1	2	2	240	0.35
0	1	0	1	4	240	0.25 (default)
0	1	1	0.5	8	240	0.18
1	0	0	0.25	16	240	0.125

Table 2. Conversion Rate