

SMBus Digital Interface

From a software perspective, the MAX6581 appears as a series of 8-bit registers that contain temperature-measurement data, alarm threshold values, and control bits. A standard SMBus-compatible, 2-wire serial interface is used to read temperature data and write control bits and alarm threshold data. The same SMBus slave address also provides access to all functions.

The MAX6581 employs four standard SMBus protocols: write byte, read byte, send byte, and receive byte (Figure 2). The shorter receive-byte protocol allows quicker transfers, provided that the correct data register was previously selected by a read-byte instruction. Use caution with the shorter protocols in multimaster systems, since a second master could overwrite the command byte without inform-

ing the first master. Figure 3 is the SMBus write timing diagram and Figure 4 is the SMBus read timing diagram.

The remote-diode-measurement channels provide 11 bits of data (1 LSB = 0.125°C). The eight most significant bits (MSBs) can be read from the local temperature and remote temperature registers. The remaining 3 bits for remote can be read from the extended temperature register. If extended resolution is desired, the extended-resolution register should be read first. This prevents the MSBs from being overwritten by new conversion results until they have been read. If the MSBs have not been read within a SMBus timeout period (nominally 37ms), normal updating continues. Table 1 shows the main temperature register (high-byte) data format and Table 2 shows the extended-resolution register (low-byte) data format.

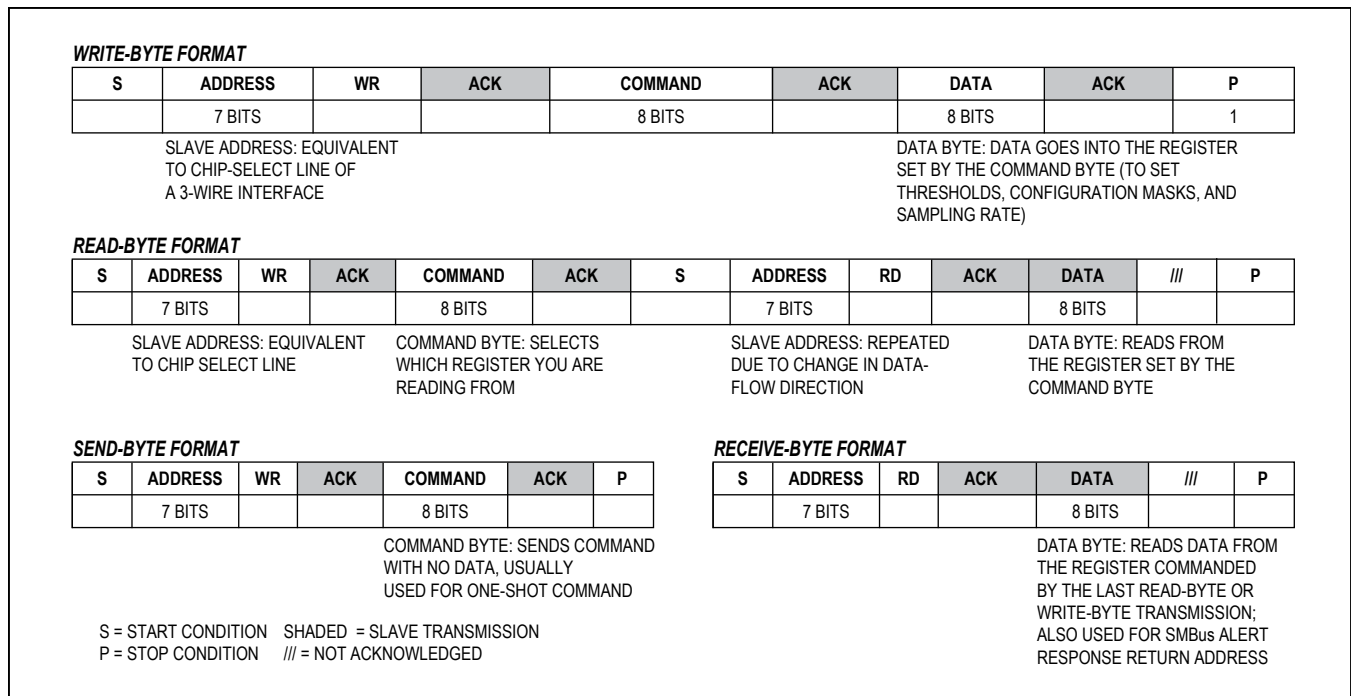


Figure 2. SMBus Protocols

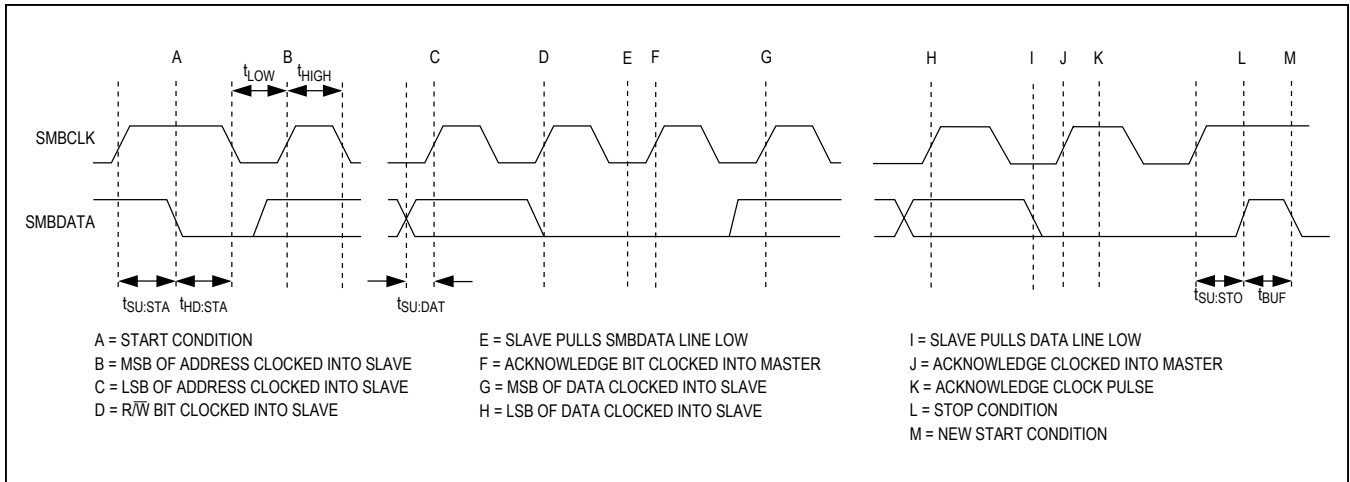


Figure 3. SMBus Write Timing Diagram

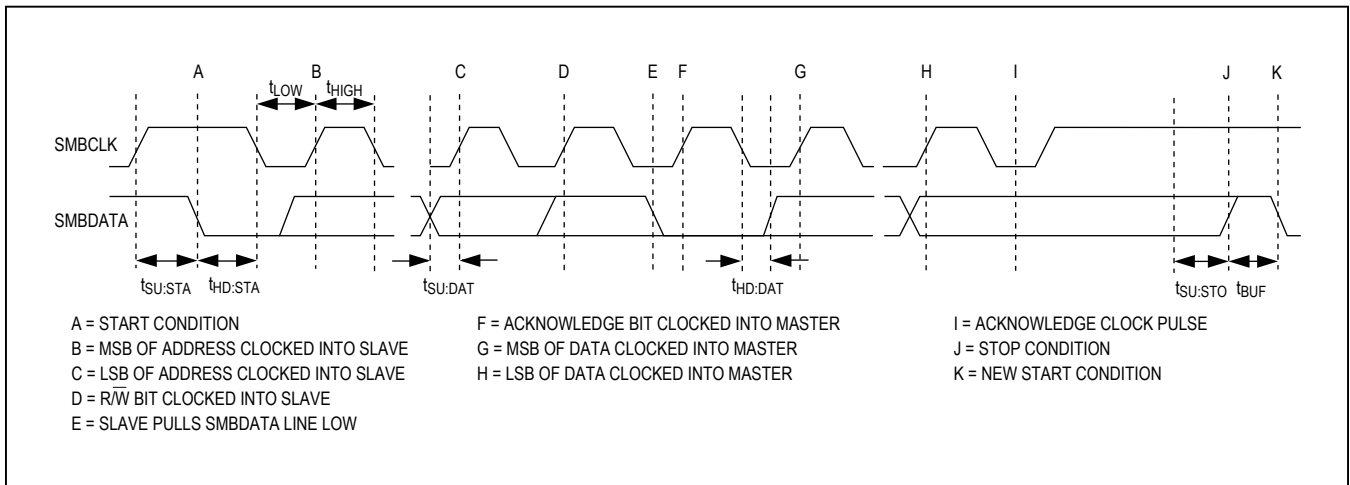


Figure 4. Read-Timing Diagram