PHILIPS

Replacement of ADI AD7416 with Philips LM75A

The LM75A can replace AD7416 without modifying the software or hardware and will behave the same.

1. Comparison

Parameters	LM75A	AD7416
✓ Package and Pin-to-pin Drop in Replacement	YES	YES
✓ Functionally Identical (Configuration/etc)	YES	YES
✓ No Software Change (Identical Register Definition)	YES	YES
✓ Accuracy ±2 °C From –25 °C to 100 °C	YES	YES
✓ Compatible AC/DC spec	YES	YES
✓ Identical thermal shutdown default setting (T_{OS} and $T_{hysteresis}$)	YES	YES

2. Noticeable Differences

The major difference between AD7416 and LM75A is: The LM75A has the higher Temperature Resolutions, and the AD7416 has the faster conversion time. The LM75A do not impact the currently written software for AD7416 or is only used if higher temperature sensor resolution is desired.

Parameters	LM75A	AD7416	Comments
✓ Temperature Resolution	11-bit [1]	10-bit	LM75A is Better
✓ Temperature accuracy ±3 °C	-55 °C to 125 ° C	-40 °C to 125 °C	LM75A is Better
Conversion time	100 ms	400 µs	In normal operation mode

Note:

1. Still compatible with the existing 10-bit software used by the AD7416 because the extra bits are transparent to the software. Switching to LM75A, the user automatically benefits the 11-bit resolution no software change. Both devices require 16 clock cycles to read the temperature value. It doesn't matter if the intended temperature reading is for 10-bit or 11-bit.

3. Orderable Part Number Cross Reference

Package	AD7416	LM75A
SO8/SOIC	AD7416AR, AD7416ARZ*	LM75AD
TSSOP8/MSOP8	AD7416ARM, AD7416ARMZ*	LM75ADP

*Pb-free Part

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