

Replacement of ADI ADM1032 with Philips SA56004

The SA56004 can replace the ADM1032 without modifying the software or hardware and will behave exactly the same when the following conditions are true:

- ADM1032 register default setting is used
- SMBus TIMEOUT feature enabled by default is acceptable (SMBus timeout is enable in default for SA56004 and is only enable by programming the register)
- Remote high limit default of 70 °C or 85 °C does not matter (SA56004 default limit is 70 °C and ADM1032 default limit is 85 °C)

1. Comparison

Parameters	SA56004	ADM1032
✓ Package and Pin-to-pin Drop in Replacement	YES	YES
✓ Functionally Identical (ALERT/Configuration/etc)	YES	YES
✓ No Software Change (If the above conditions hold true)	YES	YES
✓ Accuracy $\pm 1^{\circ}\text{C}$ for remote sensor from 60 °C to 100 °C @V _{DD} 3.0 V to 3.6 V	YES	YES
✓ Accuracy $\pm 3^{\circ}\text{C}$ for local sensor from 0 °C to 125 °C @V _{DD} 3.0 V to 3.6 V	YES	YES
✓ 11-bit or 0.125 °C resolution for remote sensor	YES	YES
✓ Same AC/DC Parameters	YES	YES

2. Noticeable Differences

These differences may require software changes if matching features are required.

Parameters	SA56004	ADM1032	Comments
✓ Register 22h	Local temp value low byte	Consecutive Alert	Different
✓ Register BFh	ALERT mode	N/A	Register is specific to SA56004
✓ Manufacturer ID, FEh	A1h	41h	Different
✓ Local temperature Resolution	11-bit ¹	8-bit	SA56004 is Better
✓ I _{DD} Active (During ADC conversion at 16Hz)	500 μA (typical)	600 μA (typical)	SA56004 is Better



✓ I _{DD} Shutdown (ADC converter is off)	10 µA (typical)	3.5 µA (typical)	ADM1032 is Better
✓ Conversion rate at 64Hz	NO	YES	Different
✓ Programming fault queue	Via Configuration Register (3h)	Via Consecutive Alert Register (22h)	Different
✓ SMBus TIMEOUT	Default Enabled (35 ms max)	Default Disabled (65 ms max)	Different
✓ Default remote high temp limit for ALERT	70 °C	85 °C	Different

3. Orderable Part Number Cross Reference

Package	Slave Address	ADM1032	SA56004
SO8/SOIC8	4Ch	ADM1032AR	SA56004ED ²
TSSOP8/MSOP8	4Ch	ADM1032ARM	SA56004EDP ²

Note:

1. Still compatible with the existing 8-bit software used by the ADM1032 because the extra bits stored in separate on a separate register (22h). If the user wants higher resolution when switching to the SA56004, then they simply modify the software to read the lower byte limit (22h). The 11-bit mode gives the temperature resolution of 0.125 °C as compared with the 8-bit mode of 1 °C.
2. SA56004 also comes with seven more slave addresses from the one listed.

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