

# CFAX34 and CFAX17

## FAX Modem Devices



### FEATURES

- Two-chip modem solution:
  - CFAXxx modem in 48-pin TQFP or 100 FSBGA with external memory interface.
  - CSP1040 DAA in 20-pin ETSSOP.
- FAX mode capabilities:
  - ITU-T.T.31 (FAX class 1) interface.
  - ITU-T.T.32 (FAX class 2.1) interface.
  - V.34: 33600—2400 bits/s (CFAX34 only).
  - V.17: 14400—2400 bits/s.
  - V.29, V.27, V.21.
  - ECM with on-chip 64 Kbytes buffer.
- CFAX modem controller includes:
  - ARM7 microcontroller with on-chip RAM and ROM.
  - DP3S with on-chip RAM and ROM.
  - DAA interface and filters.
  - Host interface configurable for 8-bit parallel, serial, or SPI mode.
  - On-chip PWM speaker driver.
  - SIO interface for audio codec used in voice and handset applications.
  - Internal PLL with external low-cost crystal.
- CSP1040 DAA features:
  - Derives power from system for reliable operation on all phone lines.
  - Programmable event detect for caller-ID reception and power ring detection.
  - Programmable pulse shaping and spark quench.
  - Programmable dc-impedance termination for country-specific VI templates.
  - Programmable ac-impedance termination for return-loss matching.
  - Programmable ringer-impedance emulation.
- Hardware support for pulse dialing for accurate make/break timing.
- Hardware support for ringing level and frequency qualification for accurate ring detection.
- Line-in-use and remote handset detection.
- Single 3.3 V supply required for chip set.
- Worldwide caller ID support.



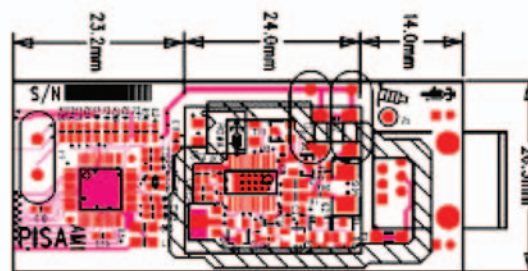
The CFAX family of devices is designed to serve embedded applications where a complete FAX subsystem including protocol processing is desired. The CFAX family includes two devices:

- CFAXV34. Supports V.34, V.17, V.29, and lower FAX rates.
- CFAXV17. Supports V.17, V.29, and lower FAX rates.

The CFAX devices support RS232 and 8-bit micro-processor interfaces. Additionally, the

CFAX devices can be configured for operation on a 4-wire SPI bus.

Figure 1 shows a reference design using the 48-pin CFAX and the CSP1040. This is a 2-layer PCB with components on top-side only. The layout can be integrated into a larger PCB or built as a separate module with connectors.



**Figure 1.** "Pisa" Embedded Modem Module (shown approximately actual size when printed on 8.5" x 11" paper.)

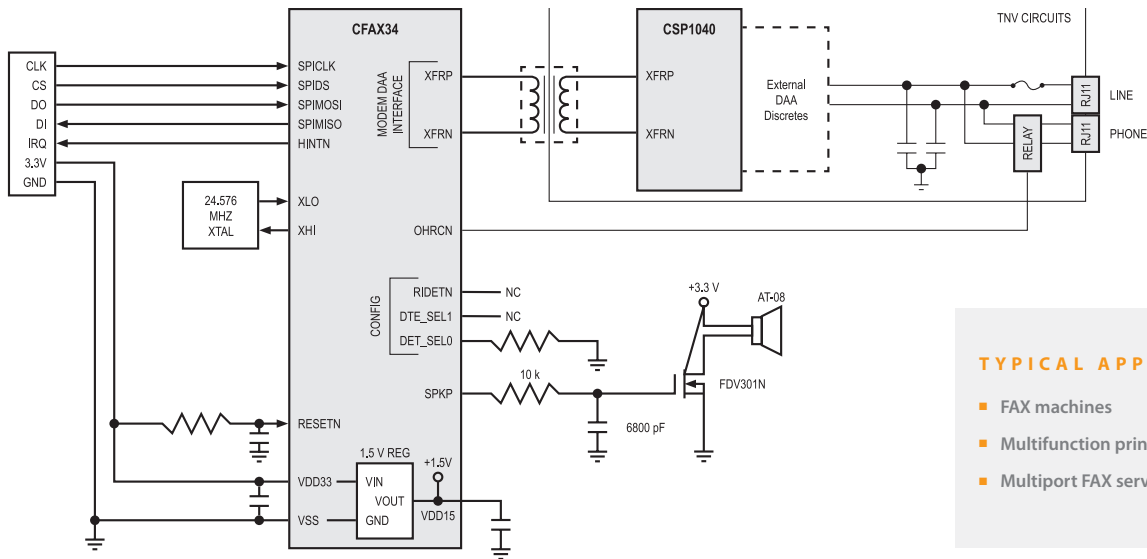
\* Actual speeds over U.S. telephone lines vary and are less than 56K due to current FCC regulations and line conditions.

## CFAX/CSP1040 System Overview

The LSI CFAXxx chip set is a two-chip solution consisting of an LSI CFAXxx modem controller and a CSP1040 DAA.

The CFAXxx devices support FAX modes with rates up to 33.6 kbits/s and include support for ECM using an on-chip 64 Kbyte buffer. The CFAX device is available in a 48-pin TQFP suitable for most applications. In this package, the internal ARM7 is running from the on-chip ROM. For code development and for applications where customized code is required, the CFAX device is also offered in a 100 FSBGA package.

Figure 2 shows a typical application using a CFAX34 modem controller along with a CSP1040 silicon DAA to add FAX capability to a system.



### TYPICAL APPLICATIONS

- FAX machines
- Multifunction printers (MFPs)
- Multiport FAX servers

Figure 2. CFAXV34 and CSP1040 in a Typical Application

All CFAX devices support a PWM output for low-cost audio and an optional T38 audio codec for applications requiring a digitally connected handset or microphone and speaker for telephone answering machine or speakerphone applications. The T38 codec provides both single-ended and differential inputs and outputs tailored for use with mic/speaker and handsets.

## Ordering Information

Table 1. SV92A Oding Information

DEVICE	PART NUMBER	DESCRIPTION	PACKAGE	COM CODE
CFAX17	L-CFAX17-T48A-DB	V.17 FAX	48 TQFP	7110109440
	L-CFAX17-T48A-DT	V.17 FAX	48 TQFP	7110109450
CFAX34	L-CFAX34-T48A-DB	V.34 FAX	48 TQFP	7110109620
	L-CFAX34-T48A-DT	V.34 FAX	48 TQFP	7110109630
	L-CFAX34-F100A-DB	V.34 FAX	100 FSBGA	7110109460
	L-CFAX34-F100A-DT	V.34 FAX	100 FSBGA	7110109470
CSP1040	L-CSP1040A3-E11-D	DAA version 3	20-pin ETSSOP	7110072260
	L-CSP1040A3-E11-DT	DAA version 3	20-pin ETSSOP	7110072670

- Notes:
- 1) Part numbers beginning with "L" are lead-free, RoHS compliant devices.
  - 2) Part numbers ending in "T" are tape and reel packaging. Others are shipped in trays.

For more information and sales office locations, please visit the LSI web sites at: [lsi.com](http://lsi.com) [lsi.com/contacts](http://lsi.com/contacts)

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