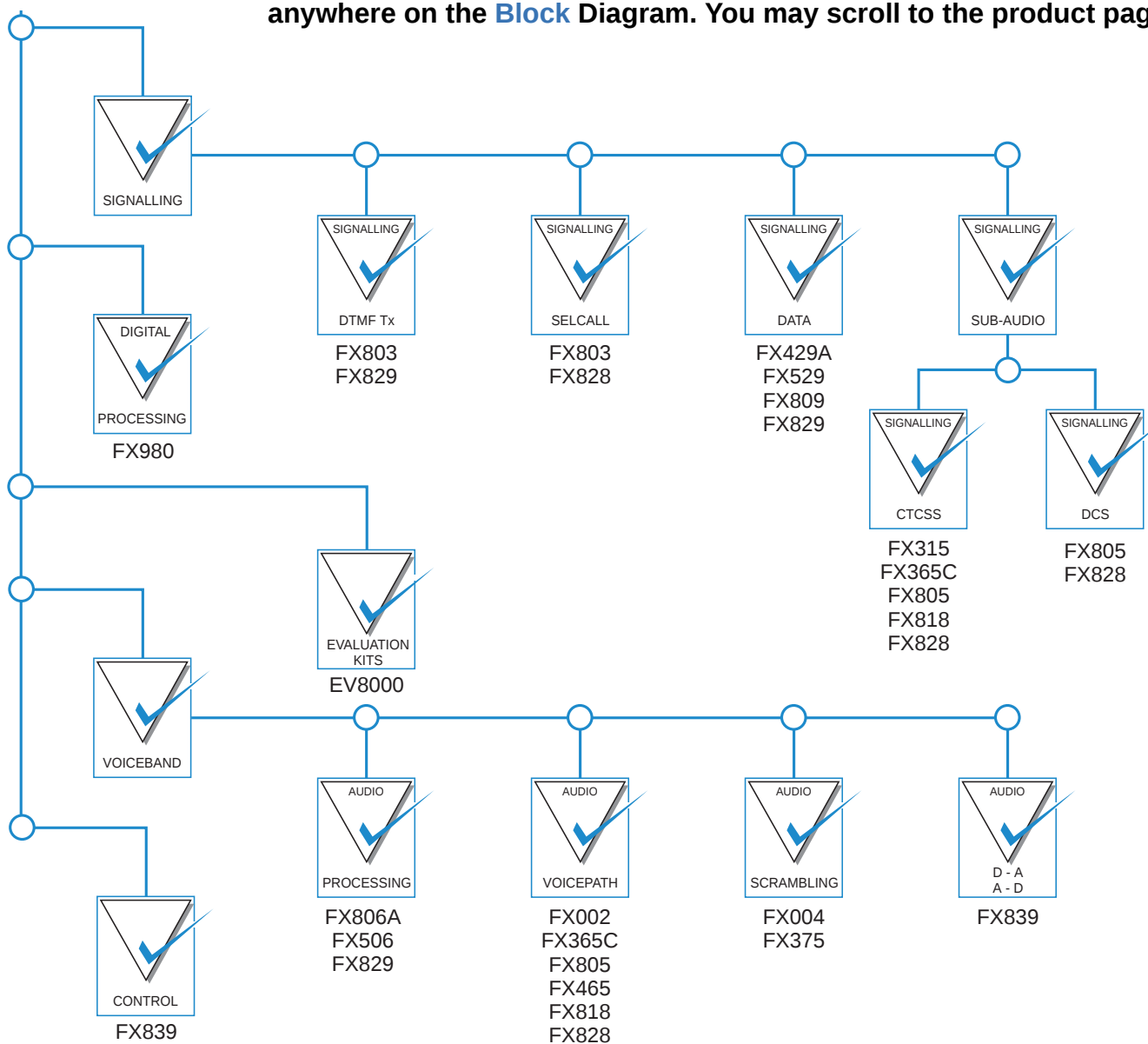


PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.

Mobile
Radio



FX002 Signal-to-Noise Enhancer

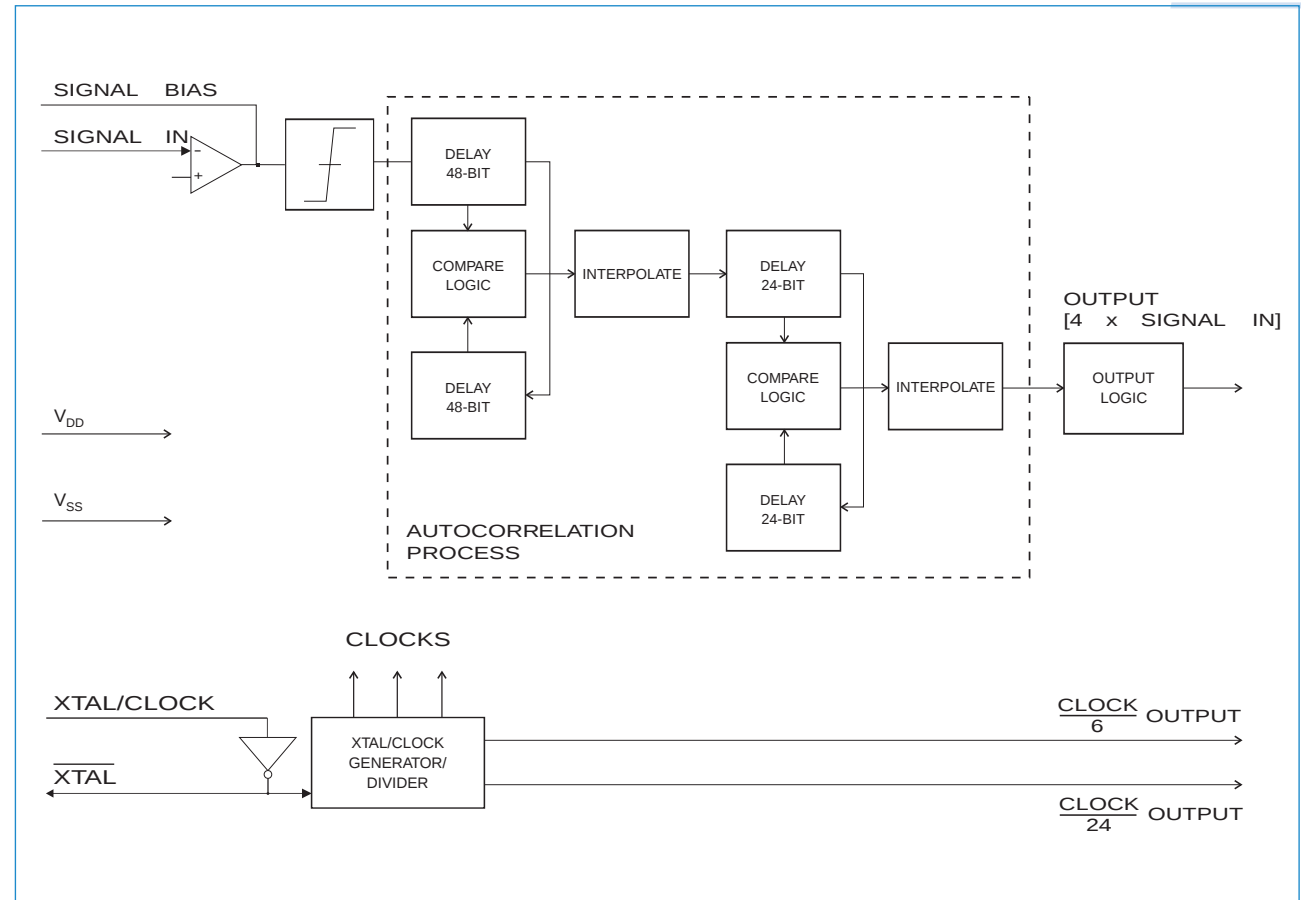
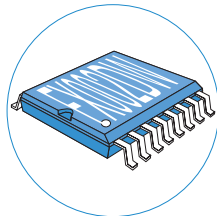
Mobile
Radio

Features:

- ❑ Up to 8.5dB Signal-to-Noise Improvement
- ❑ Input Frequency Range: 17Hz to 13kHz
[Sub-Audio and Audio Frequencies]
- ❑ Low Voltage Operation (2.5V min.)
- ❑ 10mVrms Minimum Signal Input
- ❑ 'Divided-Down' Clock Outputs

Applications:

- .. Radio Communications and Paging Systems
- .. Tone Detection
- .. Sonar Detection and Analysis
- .. Slow Data-Rate Communications
- .. Medical Equipment
- .. Interference Investigation



Packages	
FX002DW	D4
FX002J	J2

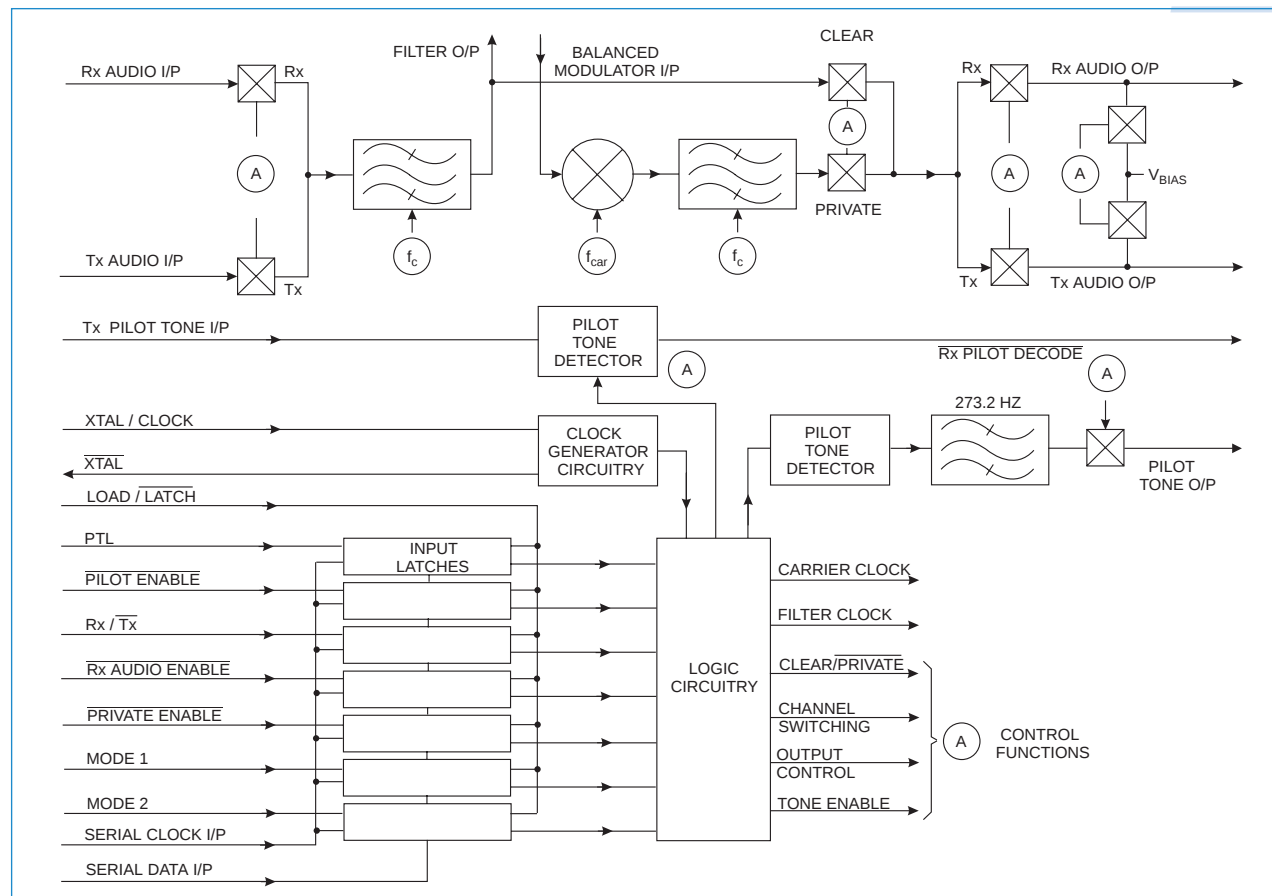
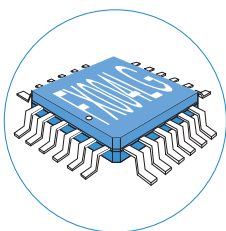
FX004 Voiceband Inverter

Features:

- Half-Duplex Fixed Frequency Inversion
- CTCSS Compatible
- Choice of Three Audio Bandwidths
- μ P Compatible Interface
- Automatic 'Private/Clear' Switching

Applications:

- .. Speech Privacy
- .. CTCSS Controlled Privacy
- .. 'Private Squelch' Systems
- .. Wireless Local Loop



Packages

FX004J	J4
FX004LG	L1

FX315 CTCSS Encoder

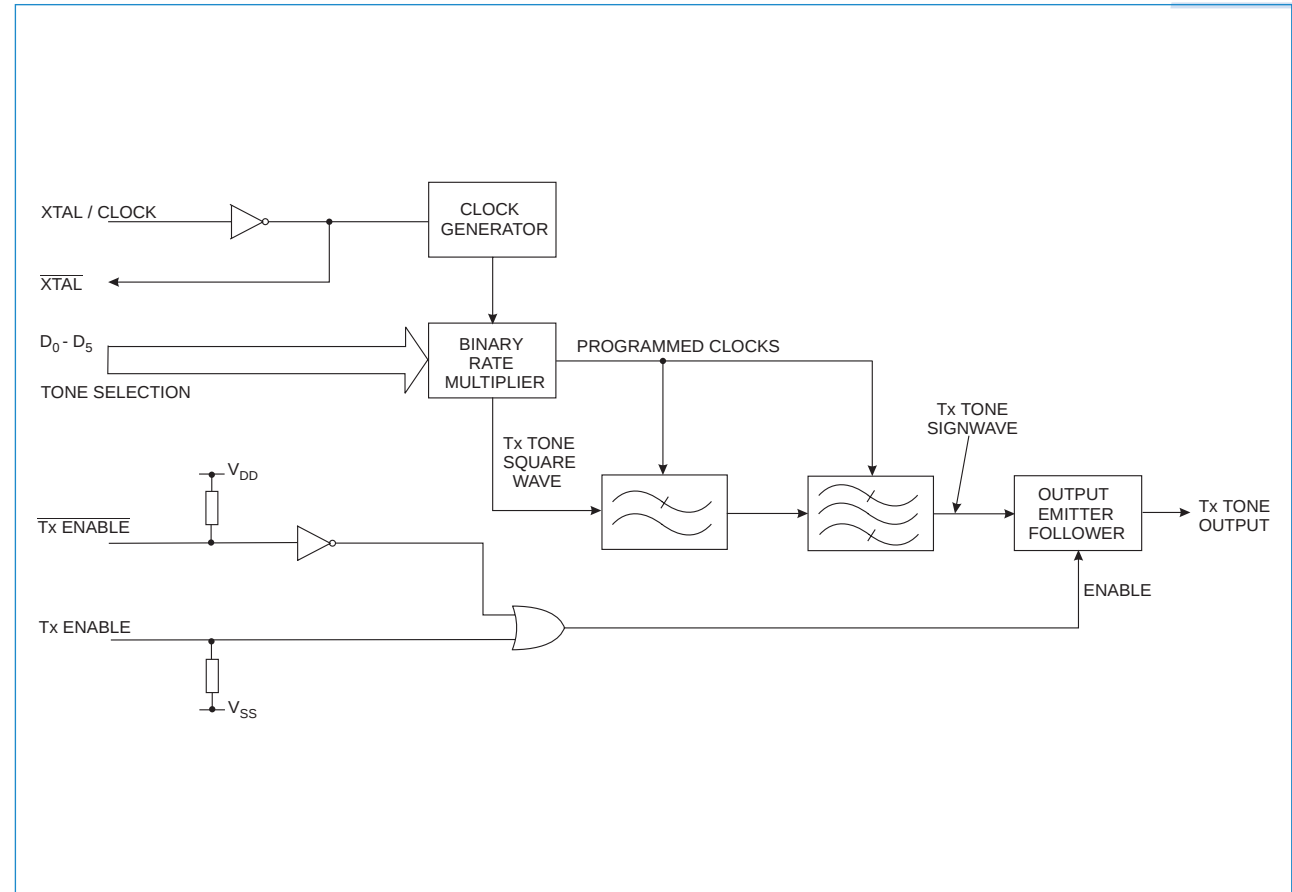
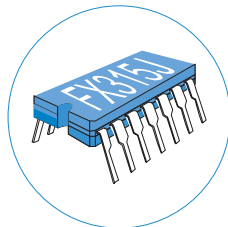
Mobile
Radio

Features:

- 40 CTCSS Frequencies
- Field Programmable Tone Encoder
- Xtal Frequency Stability
- Low Distortion Sinewave Output

Applications:

- CTCSS Encode Applications
- Repeater Access Control
- Mobile or Handheld Radio Squelch Control
- Low-Frequency Tone Generation
- CTCSS Controlled Repeater Access
- Amateur Radio Repeaters



Packages	
FX315J	J1
FX315LG	L1

FX365C CTCSS Encoder/Decoder

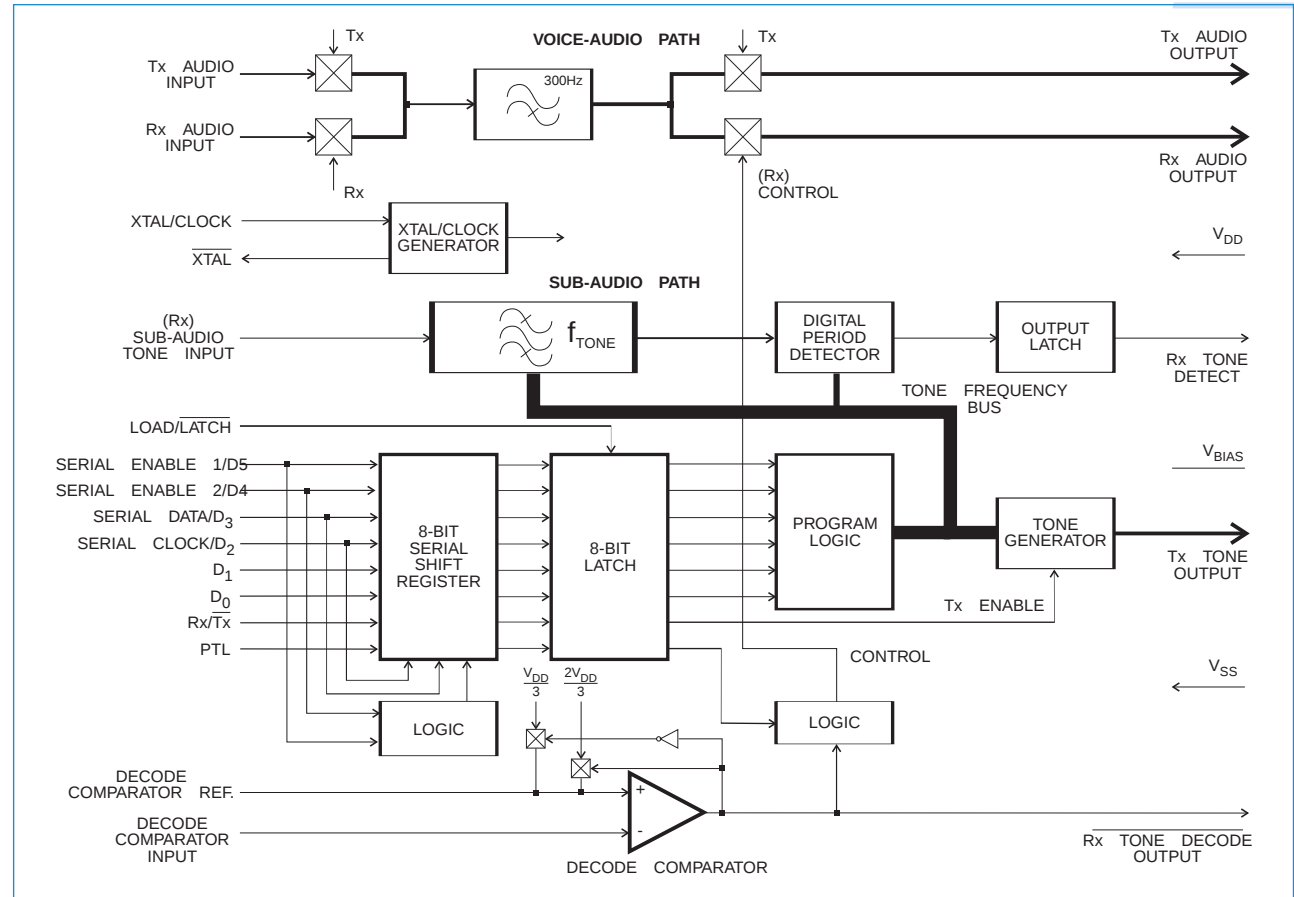
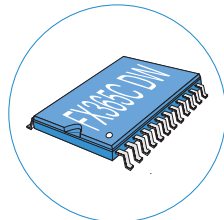
Mobile
Radio

Features:

- 39 Programmable Sub-Audio Tones + Notone
- Meets MPT1306 and EIA-220B
- High Voiceband/CTCSS Isolation
- Separate Sub-Audio and Rx/Tx Audio Paths and Filtering

Applications:

- “ Mobile Radio Systems
- “ Community Base Stations
- “ 'Low Power Radio' (Japan)
- “ Sub-Audio Signalling and Selective Calling
- “ Status and Alarm Systems
- “ Amateur Radio



Packages	
FX365C DW	D2
FX365C J	J2

FX375 Private Squelch Circuit

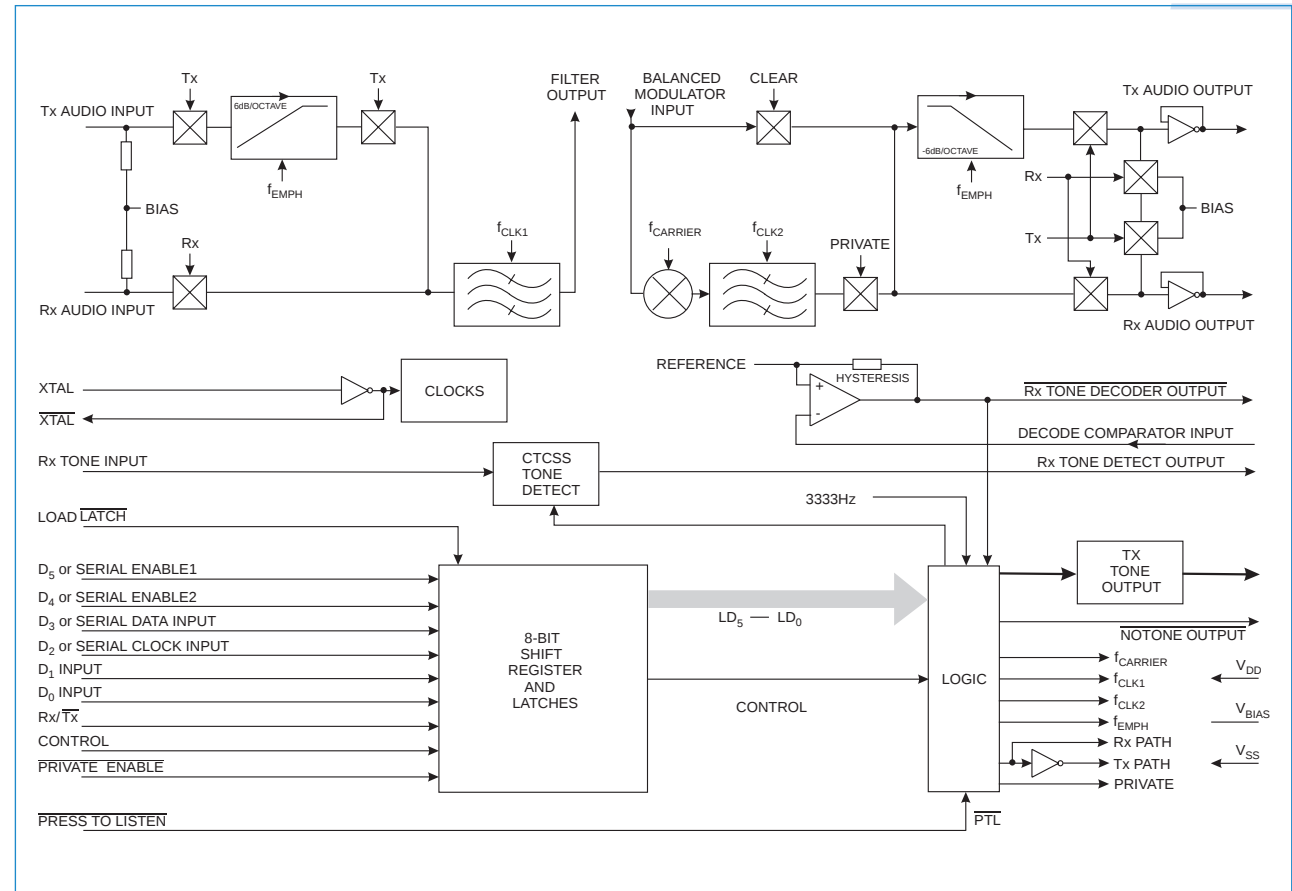
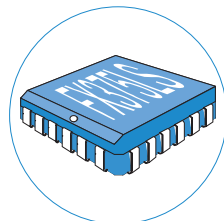
Mobile
Radio

Features:

- Tone-Operated Private/Clear Switching
- CTCSS Tone Encode/Decode
- Separate Rx/Tx Speech Paths
- Fixed-Frequency Speech Inversion
- μ P Compatible Interface with Serial or Parallel Control Loading
- On-Chip Pre- and De-Emphasis Filtering in the Tx Path
- 38 Programmable Tones + Notone Facility
- Audio Path Filtering (300Hz to 3033Hz)

Applications:

- .. Speech Privacy
- .. 'Private Squelch' Systems
- .. Two-Way Mobile Radio



Packages	
FX375LG	L1
FX375LS	L2

FX429A FFSK Modem

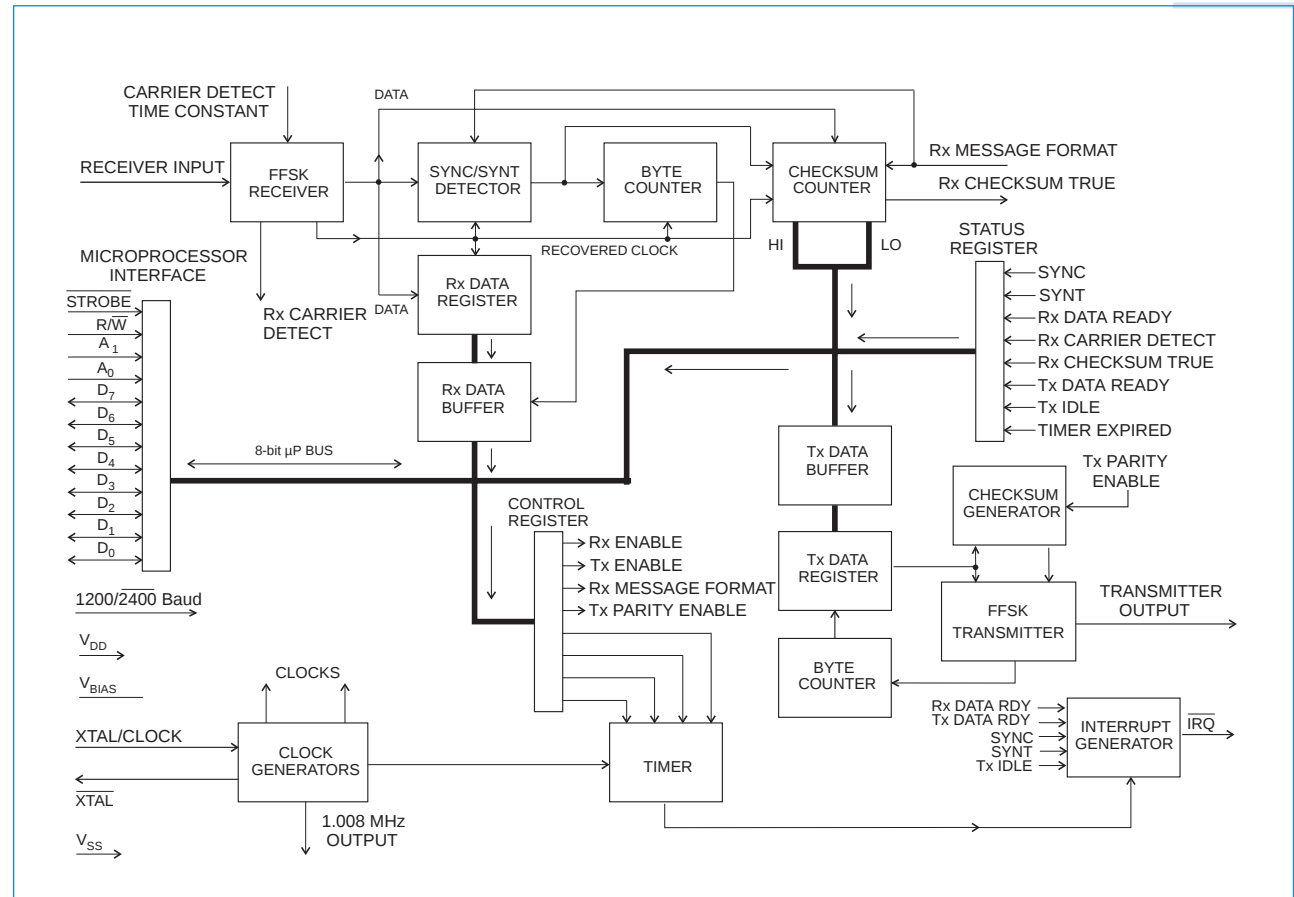
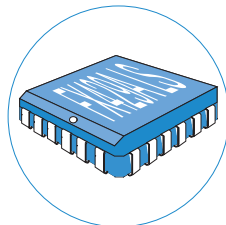
Mobile
Radio

Features:

- ❑ Full Duplex 1200 and 2400 Baud Operation
- ❑ High Intelligence
- ❑ Error-Check Word Generation and Checking
- ❑ Frame SYNC and SYNT Detection
- ❑ Preamble Generation
- ❑ μ Processor Compatible Parallel Interface
- ❑ Low Power Consumption
- ❑ General Purpose Timer

Applications:

- .. MPT 1327 and General Purpose Trunked Radio Applications
- .. Radio Telemetry
- .. Radio Packet Data



Packages
FX429A J4
FX429A L1
FX429A L2

FX465 Extended-Code CTCSS Encoder/Decoder

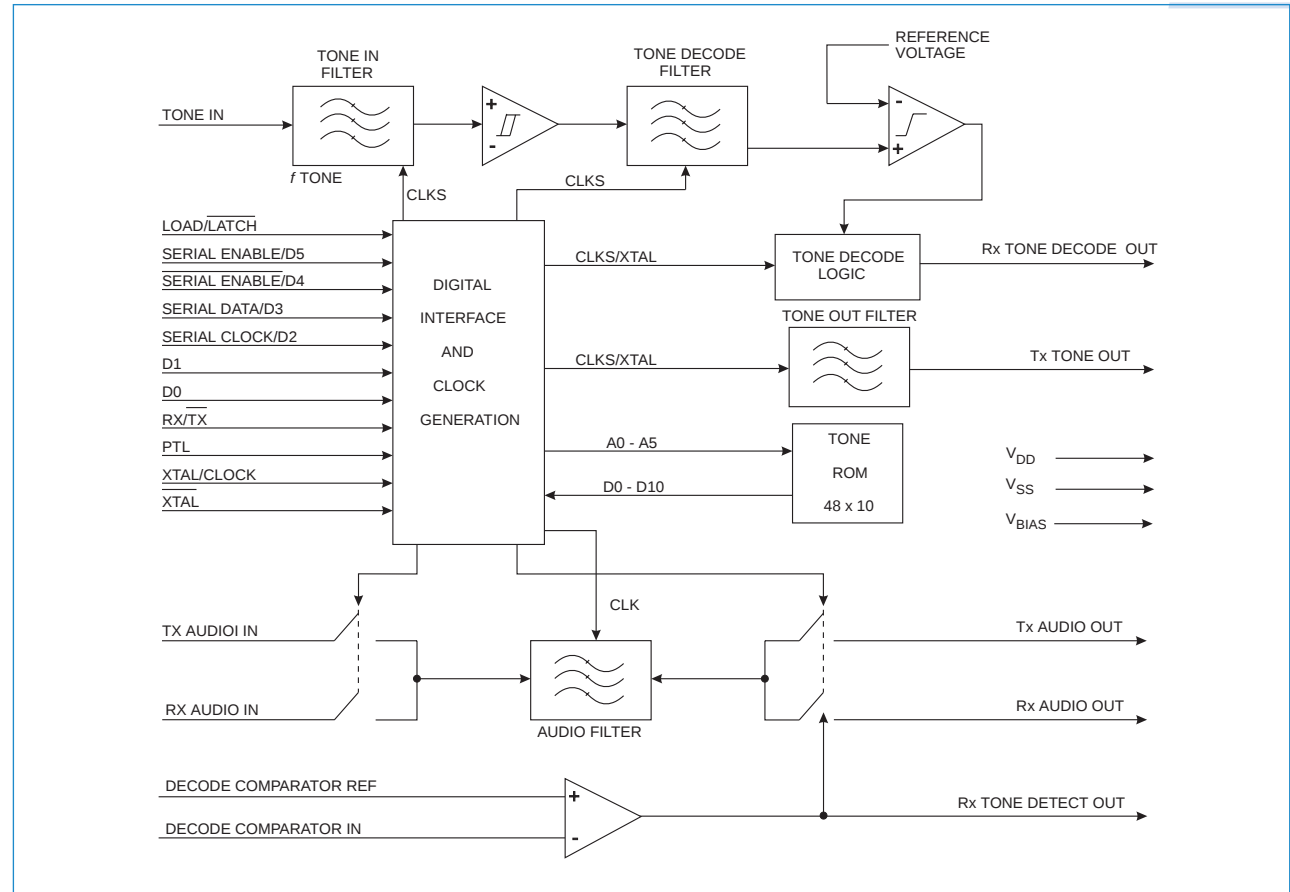
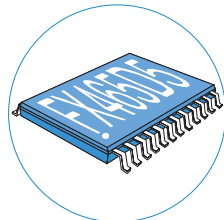
Mobile
Radio

Features:

- 47 Programmable Sub-Audio Tones + Notone
- Meets TIA/EIA 603 Specification
- High Voiceband/CTCSS Isolation
- Separate Sub-Audio and Rx/Tx Audio Paths and Filtering

Applications:

- .. Mobile Radio Systems
- .. Community Base Stations
- .. 'Low Power Radio' (Japan)
- .. Sub-Audio Signalling and Selective Calling
- .. Status and Alarm Systems
- .. Amateur Radio
- .. Business Short Range Radio



Packages
FX465D5

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX506 PMR Audio Processor

Mobile
Radio

Features:

- ☐ Full Rx and Tx Filtering to CEPT Standards
- ☐ Digital Control of Volume, Noise-Squelch and R.S.S.I.
- ☐ Tx VOGAD Circuitry
- ☐ Serial μ P Control of ALL Chip Functions
- ☐ Deviation Limiter
- ☐ 16kbit Data and Voice Scrambler Compatible

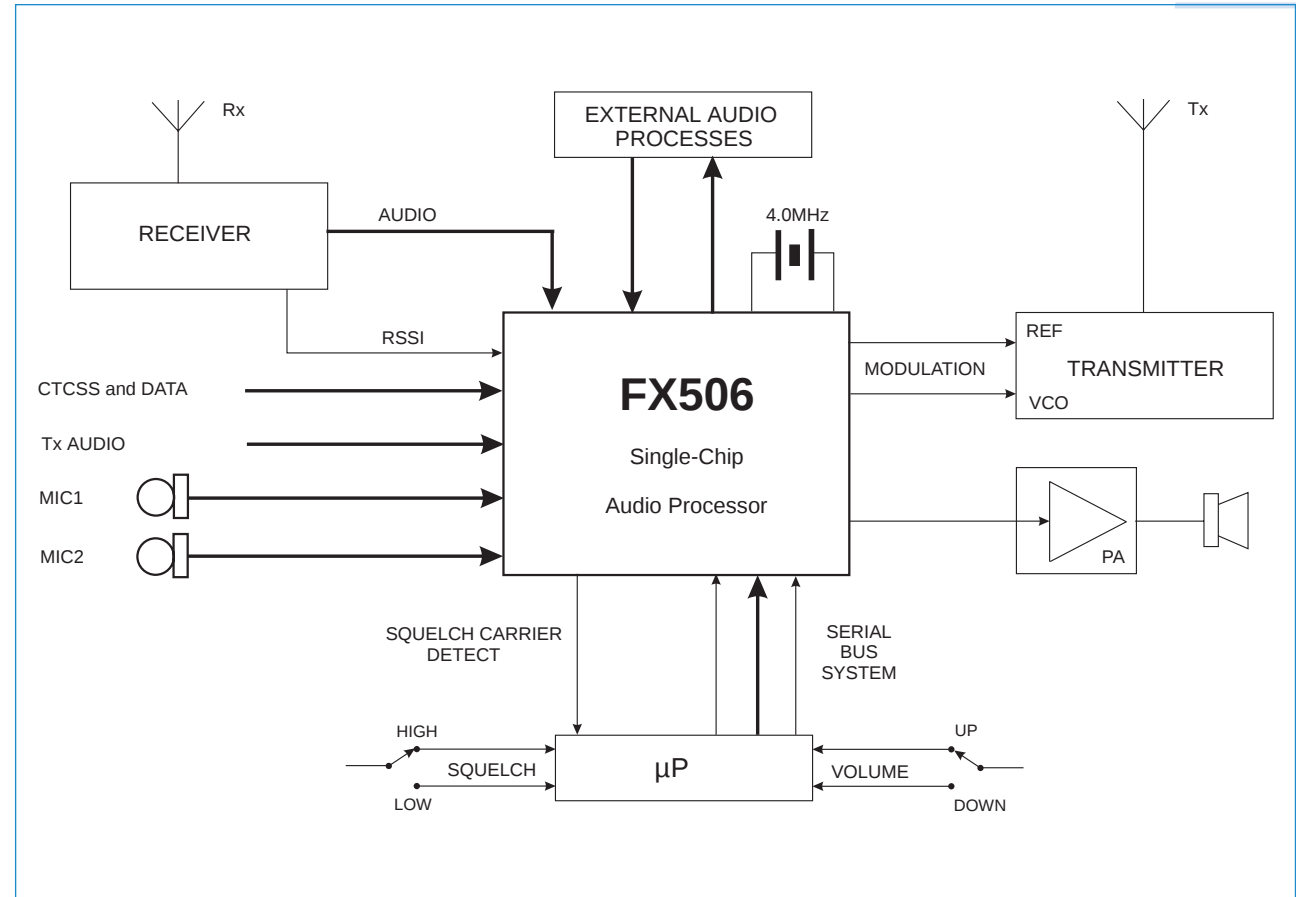
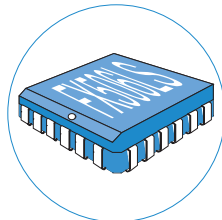
Application FX529 FFSK Modem Features:

- ☐ Full Duplex 1200 Baud Operation
- ☐ High Intelligence
- ☐ Error-Check Word Generation and Checking
- ☐ Frame SYNC and SYNT Detection
- ☐ Preamble Generation
- ☐ μ Processor Compatible Parallel Interface
- ☐ Low Power Consumption
- ☐ General Purpose Timer

Applications:

- PAA 1382 and General Purpose Trunked Radio Applications
- Meets ETSI I-ETS 300 230 Binary Signalling Specification
- Data Based Selection
- Radio Packet Data

FX529J	J4	On Chip	yes
FX529LG	L1	Noise Squelch	
FX529LS			



Packages	
FX506LG	L1
FX506LS	L2
FX506P	P4

FX529 FFSK Modem

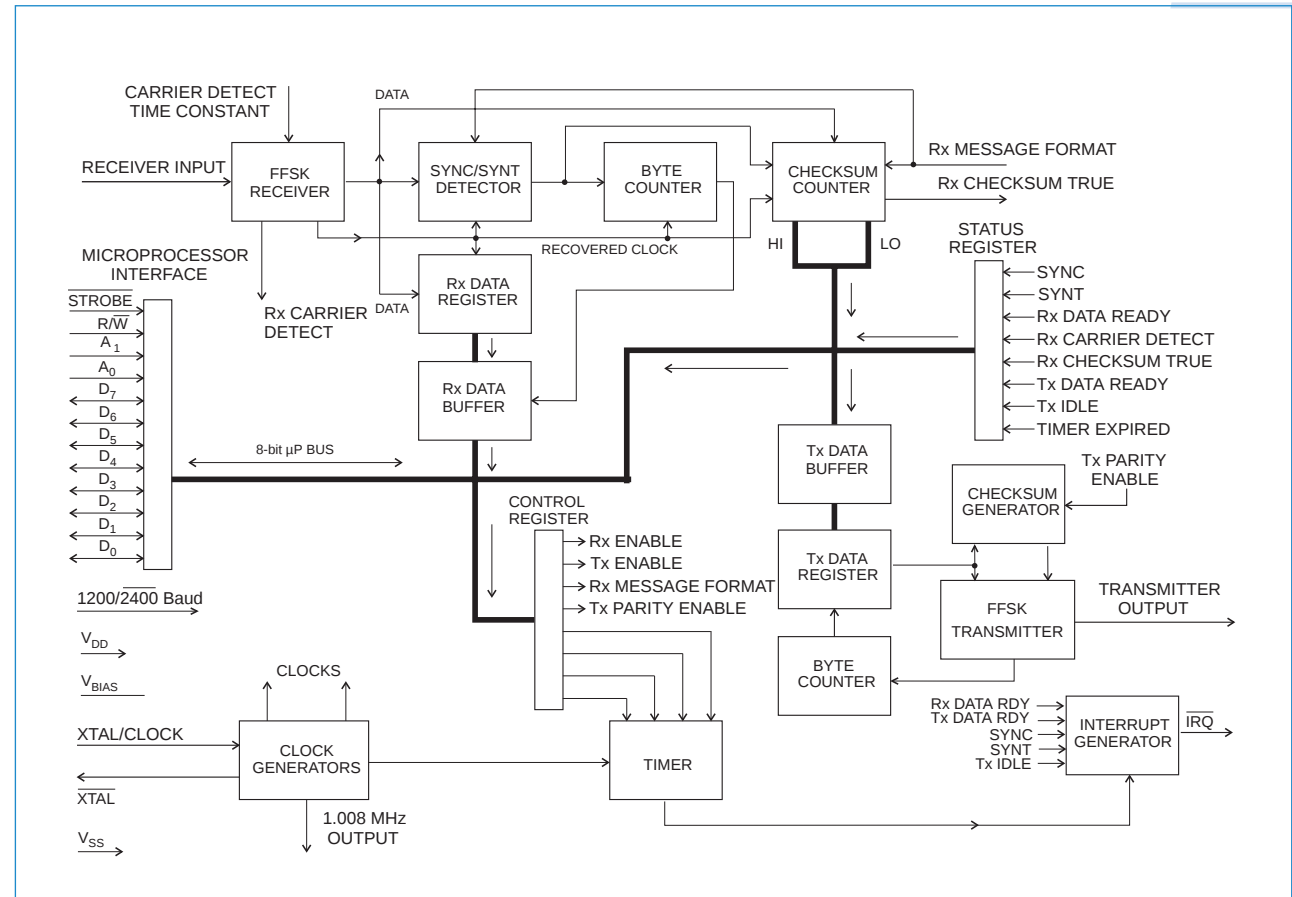
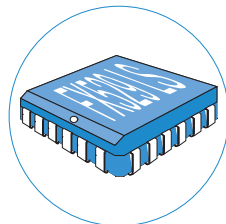
Mobile
Radio

Features:

- ❑ Full Duplex 1200 Baud Operation
- ❑ High Intelligence
- ❑ Error-Check Word Generation and Checking
- ❑ Frame SYNC and SYNT Detection
- ❑ Preamble Generation
- ❑ μ Processor Compatible Parallel Interface
- ❑ Low Power Consumption
- ❑ General Purpose Timer

Applications:

- .. PAA 1382 and General Purpose Trunked Radio Applications
- .. Meets ETSI I-ETS 300 230 Binary Signalling Specification
- .. Data Based Selective Calling
- .. Radio Packet Data



Packages	
FX529J	J4
FX529LG	L1
FX529LS	L2

FX803 Audio Signalling Processor

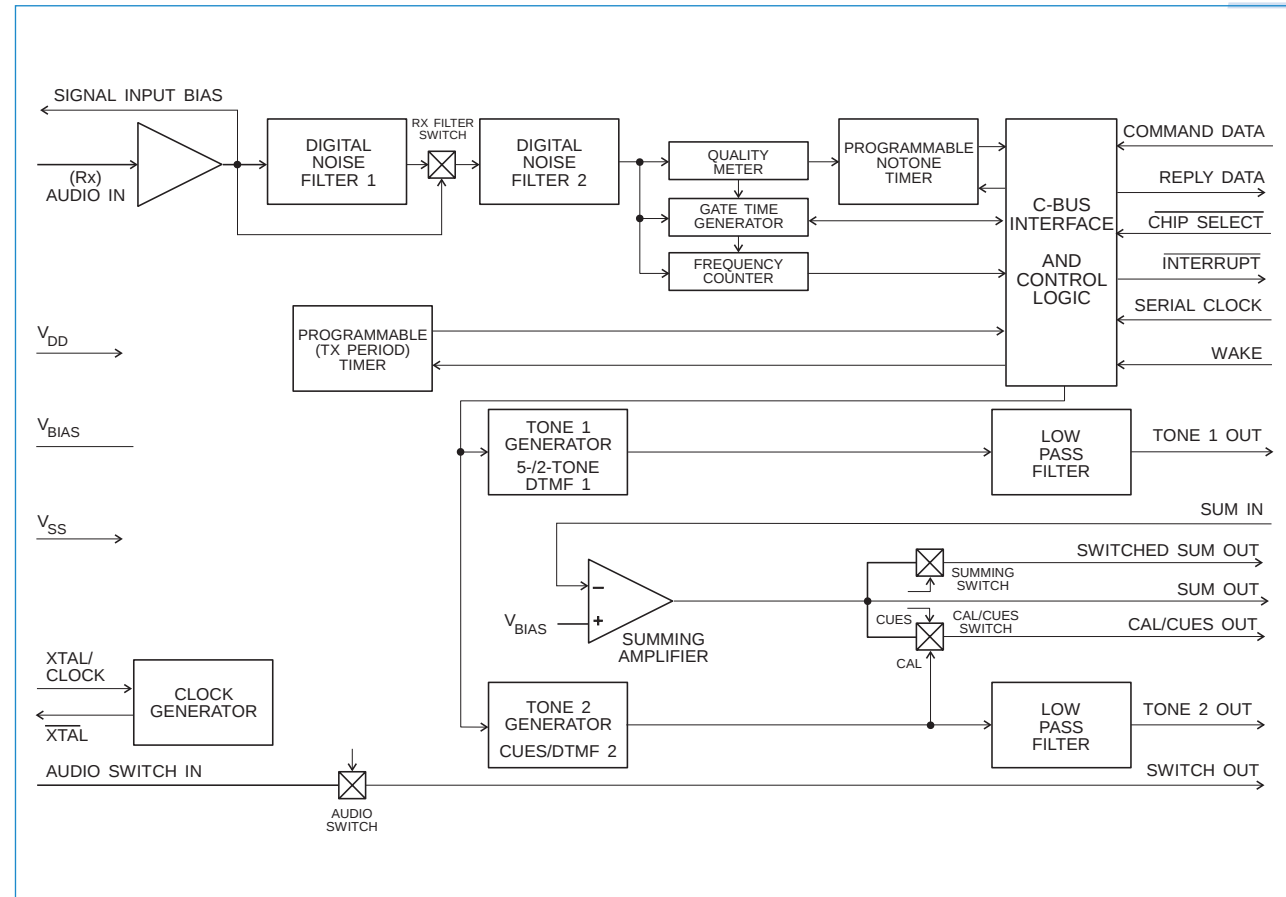
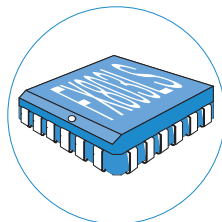
Mobile
Radio

Features:

- ❑ Non-Predictive Tone Decoding
- ❑ Programmable Rx Notone Timer
- ❑ Two Individual Tone Encoders
- ❑ Transmit Period Timer
- ❑ On-Chip Summing Facility
- ❑ DTMF Encoder
- ❑ "C-BUS" Serial Command/Data Interface

Applications:

- .. Selective Calling
- .. Radio - PSTN Overdial
- .. Voice Pager Switching and Signalling
- .. Wireless Local Loop
- .. Telecom Tone Generator/Detector



Packages

FX803DW	D2
FX803LG	L1
FX803LS	L2
FX803P4	

FX805 Sub-Audio Signalling Processor

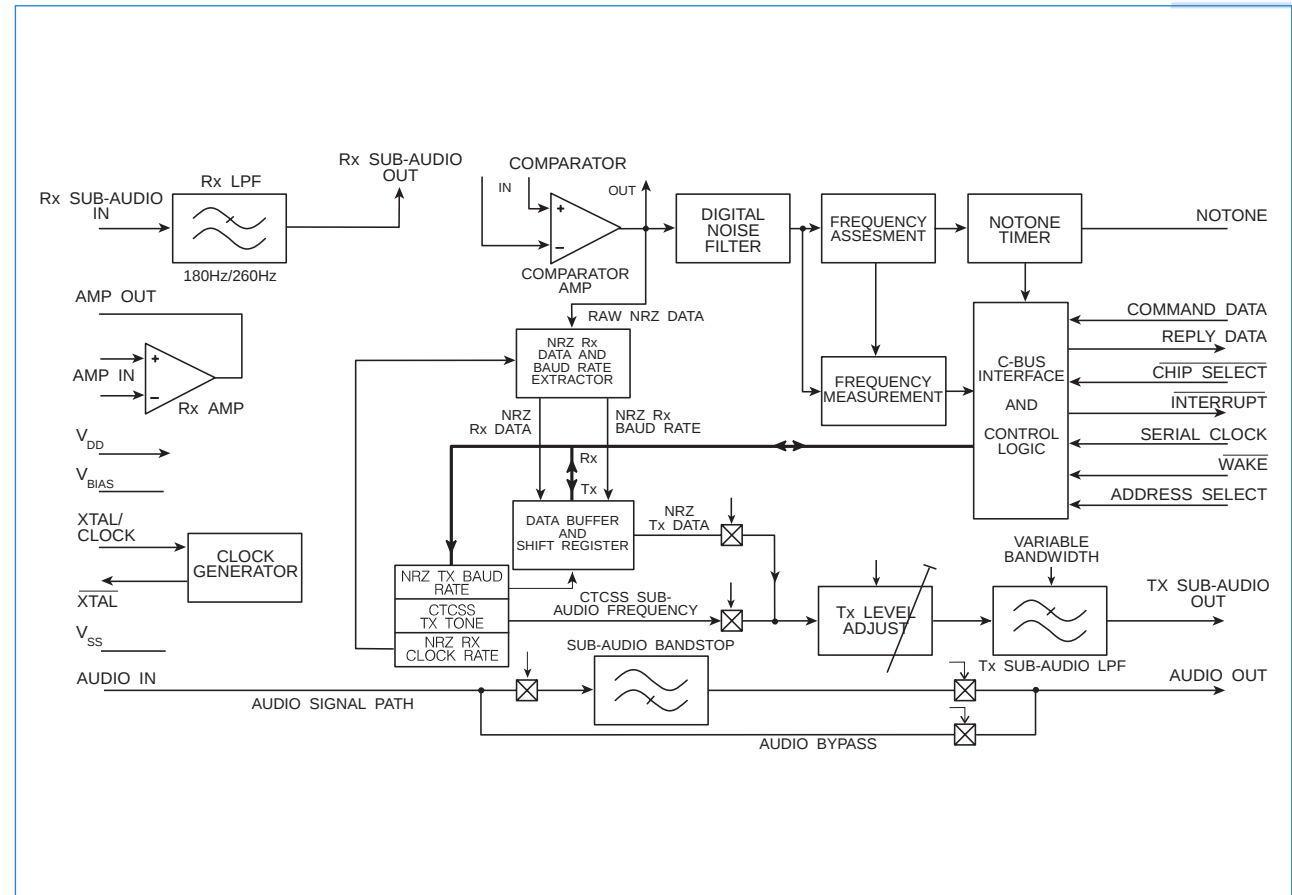
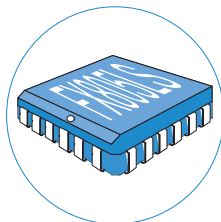
Mobile
Radio

Features:

- ❑ Non-Predictive Sub-Audio Tone Decoder
- ❑ Sub-Audio Tone Encoder
- ❑ Digitally Coded Squelch (DCS) Decoder
- ❑ Digitally Coded Squelch (DCS) Encoder
- ❑ Transmit Level Adjustment
- ❑ Audio Path with Selectable Sub-Audio Bandstop Filter
- ❑ "C-BUS" Serial Command/Data Interface

Applications:

- .. CTCSS Systems
- .. DCS Systems
- .. Scanning for Trunked Systems
- .. 'Next' Trunking
- .. Multiple Group CTCSS Systems
- .. PMR Repeaters



Packages	
FX805J	J4
FX805LG	L1
FX805LS	L2

FX806A PLMR Audio Processor

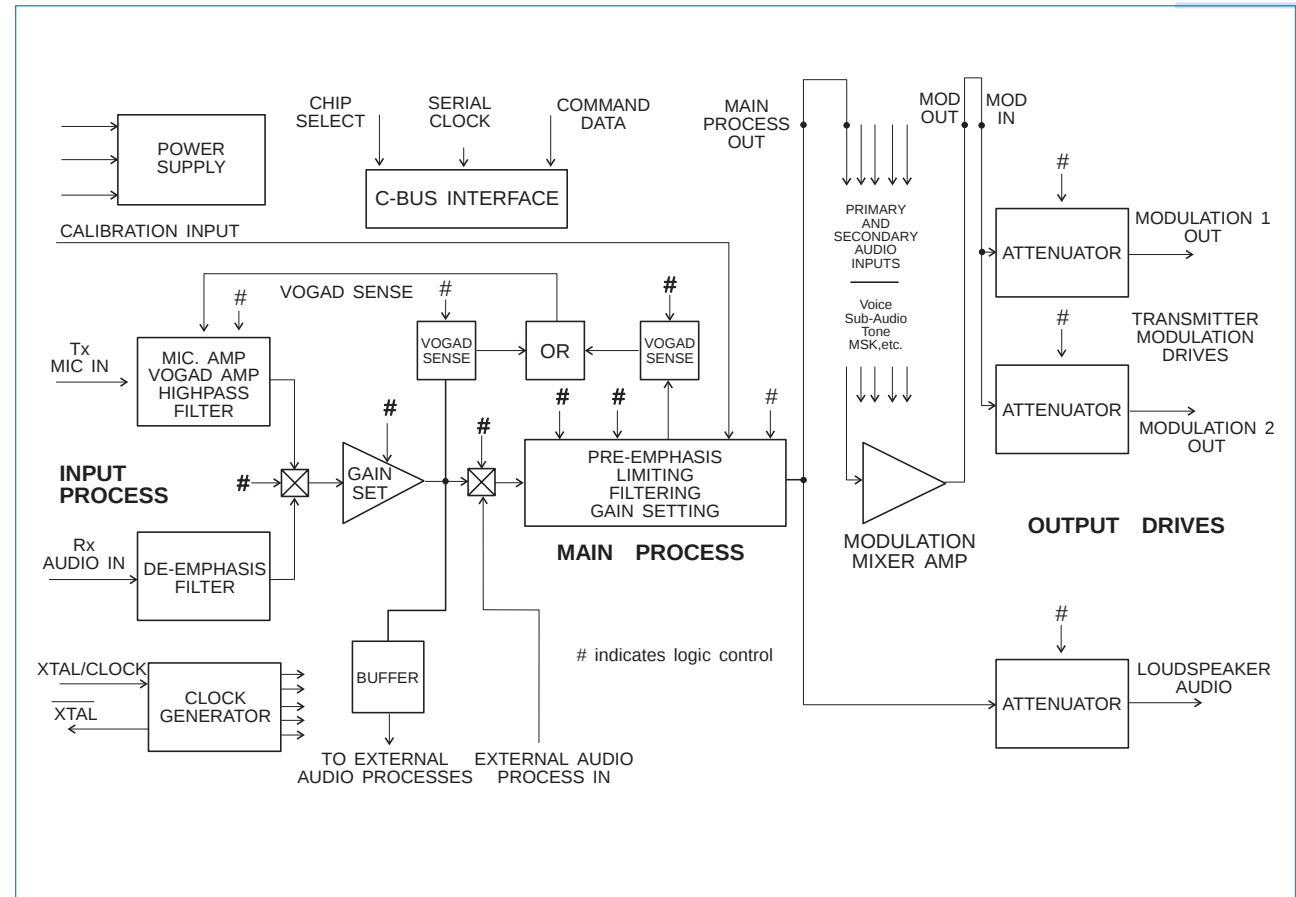
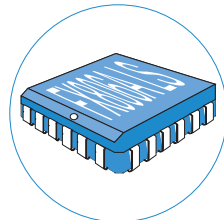
Mobile
Radio

Features:

- Half Duplex Operation with Stage Level Setting
- VOGAD Circuitry
- Pre-Emphasis, De-Emphasis and Limiting
- Modulation Summation for Internal and External Audio/Sub-Audio/Data Inputs
- Transmit Level Adjustment; Two Modulation Drive Outputs
- Controlled Rx Audio Levels
- "C-BUS" Serial Command/Data Interface

Applications:

- .. PAMR/PMR Mobiles
- .. Handheld Radios
- .. Marine VHF Radios
- .. AM/FM Two-Way Radios
- .. Aircraft Radio Terminals



Packages

FX806A J	J4
FX806A LG	L1
FX806A LS	L2

FX809 FFSK Modem

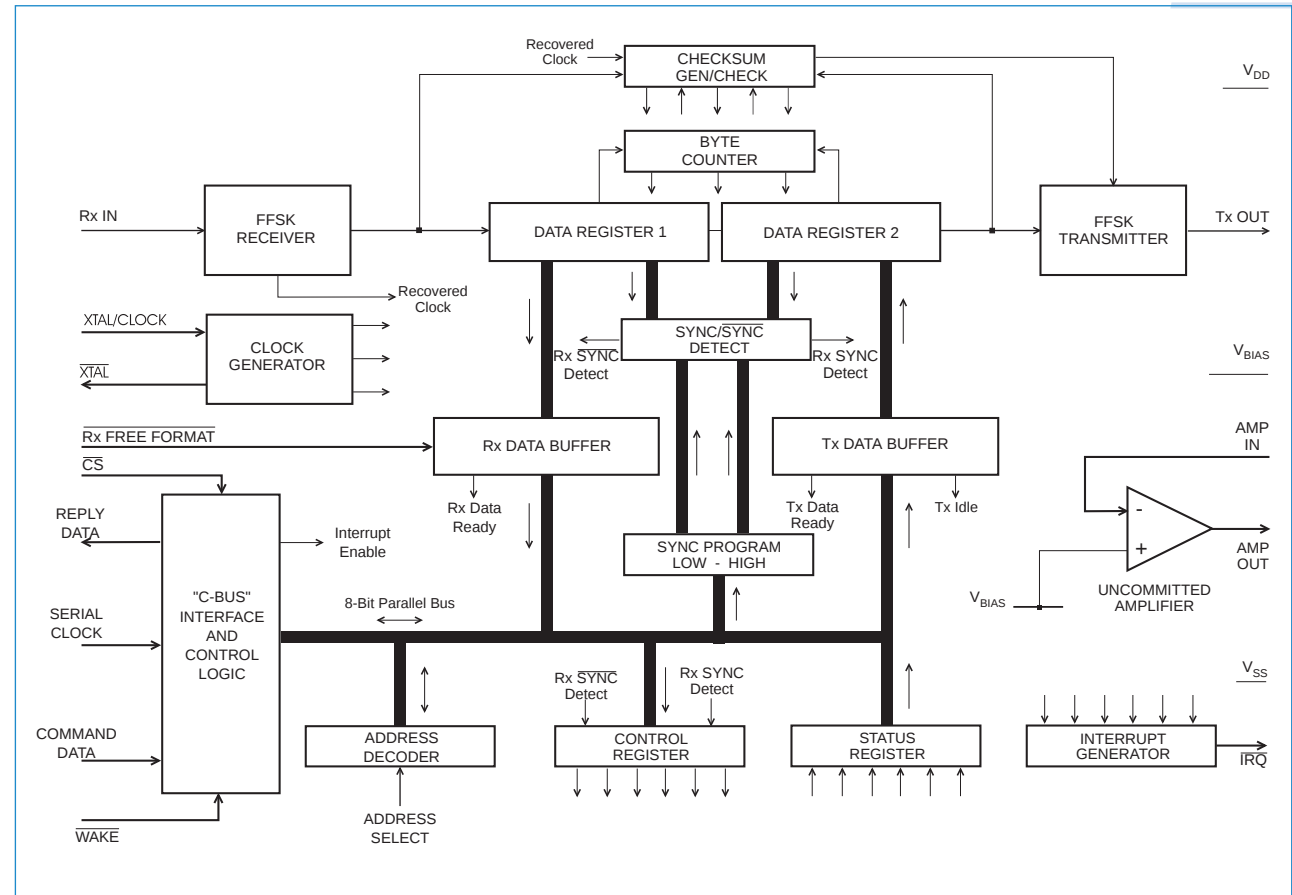
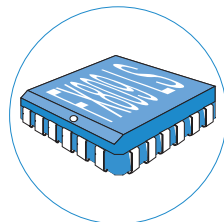
Mobile
Radio

Features:

- Half Duplex 1200 Baud FFSK Operation
- Checksum Generation and Checking
- Rx Clock Recovery
- Non-Committed Op-Amp on Chip
- "C-BUS" Serial Command/Data Interface
- Sync Programming

Applications:

- .. Trunked Mobile Radio
- .. MPT 1327 Systems
- .. MAP 27 Terminals
- .. Telemetry Modems
- .. PAA 1382 Systems
- .. SCADA Systems
- .. ETSI ETS 300 230 Signalling Systems



Packages	
FX809J	J4
FX809LG	L1
FX809LS	L2

FX818 CTCSS Super Codec

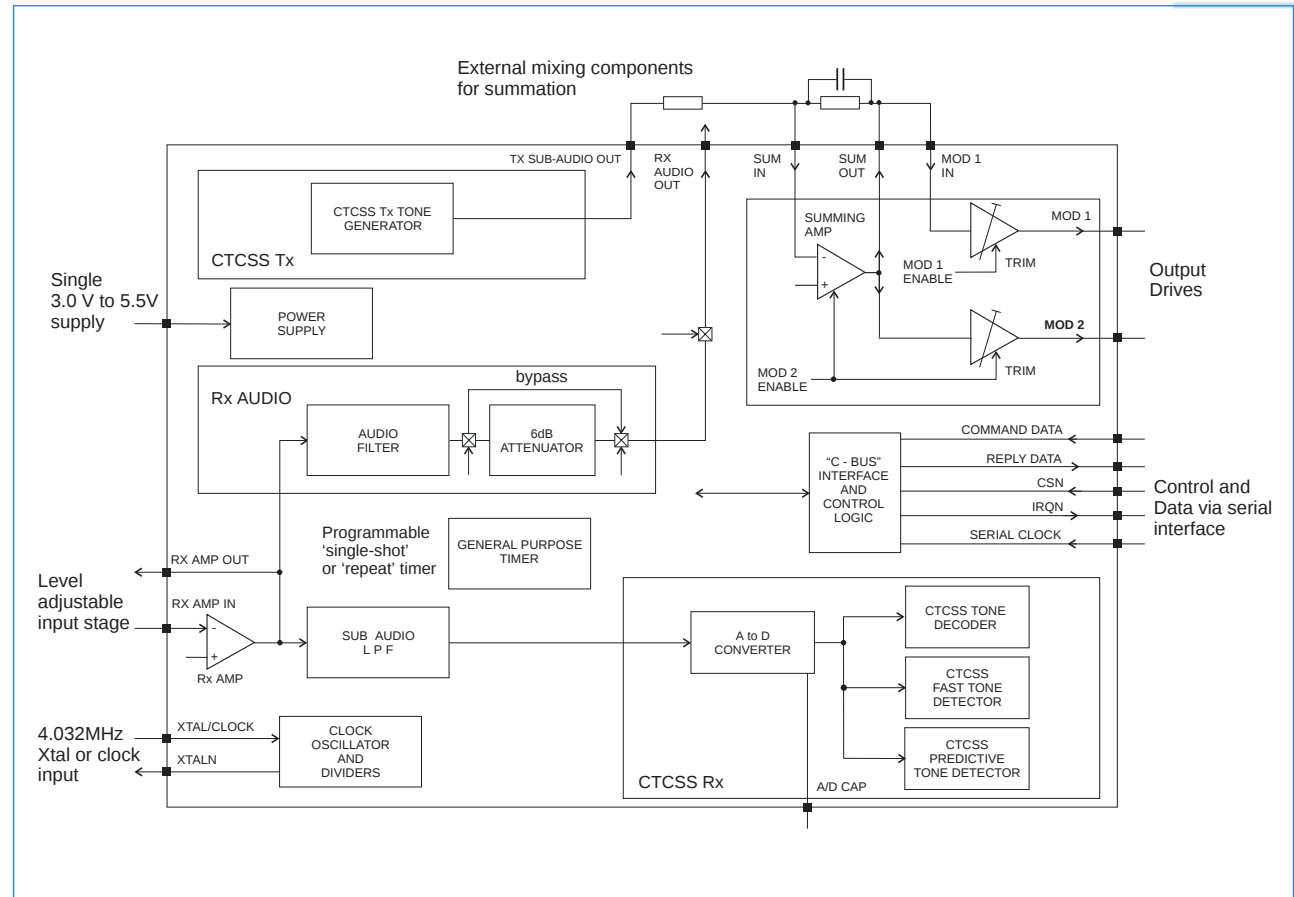
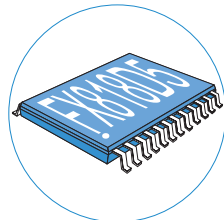
Mobile
Radio

Features:

- Dual CTCSS Decoders
 - Full Standard CTCSS Decode (160ms)
 - Very-Fast (56ms) CTCSS Detect and
 - Very-Fast CTCSS Predictive Decode
 - Multimode CTCSS Operation
 - Single Tone Decode
 - 2 to 15 Tones Decode
 - All Tones Detect
 - No Tones Decode
 - Single Tone Encode
 - Programmable Operation
 - All International Tones
 - Tone-Decode Bandwidth
- Tx Modulation Level Setting

Applications:

- .. Multi-Channel Radio Scanning Systems
- .. Intelligent CTCSS Systems
- .. Multi-User Group CTCSS
- .. CTCSS Controlled Trunked Radio
- .. Repeater Control Panels
- .. Channel Sharing



Packages

FX818D2
FX818D5

FX828 CTCSS + DCS + Selcall Codec

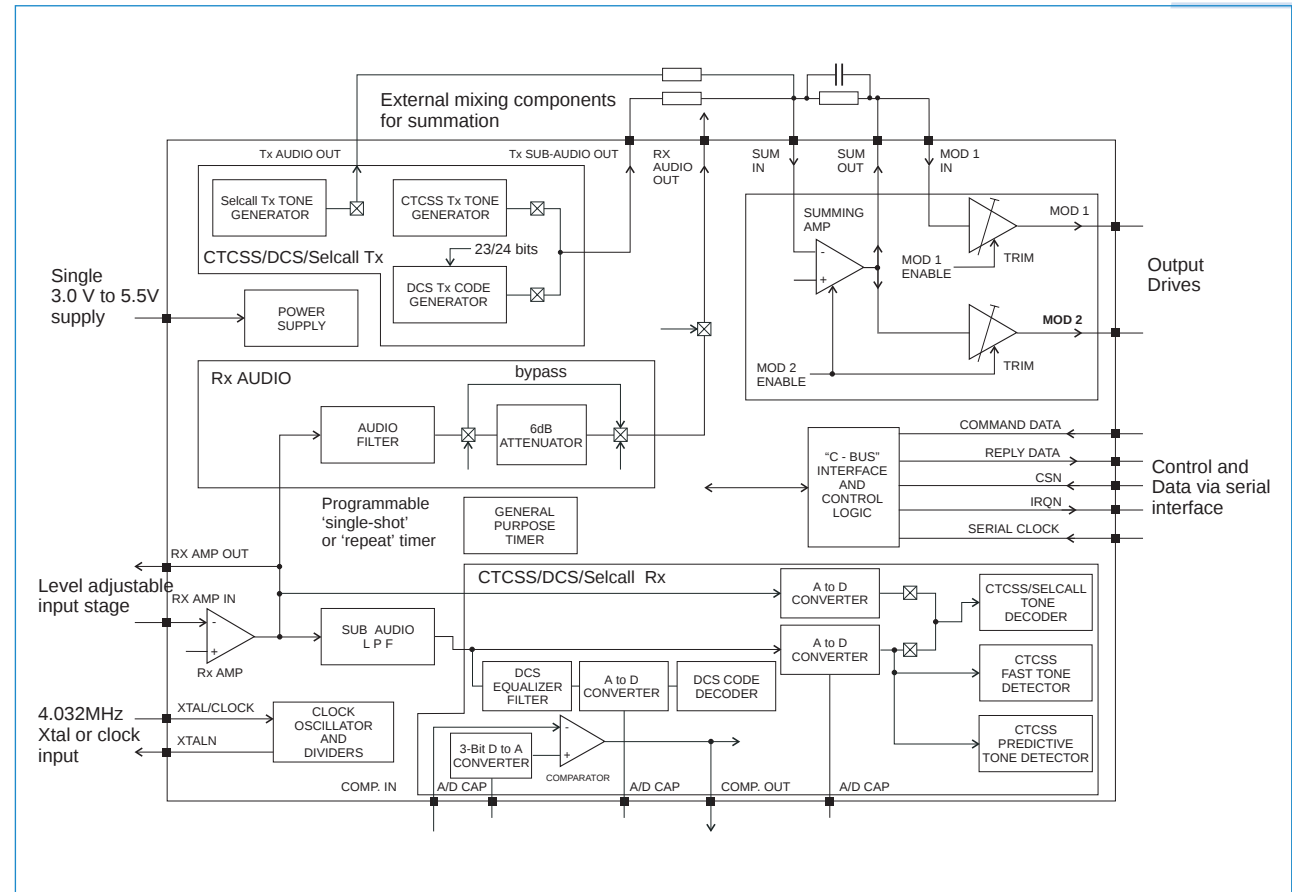
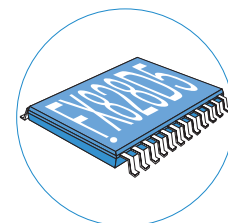
Mobile
Radio

Features:

- Dual CTCSS Decoders
 - Full Standard CTCSS Decode (160ms)
 - Very-Fast (56ms) CTCSS Detect *and*
 - Very-Fast CTCSS Predictive Decode
 - Multimode CTCSS Operation
 - Single Tone Decode
 - 2 to 15 Tones Decode
 - All Tones Detect
 - No Tones Decode
 - Single Tone Encode
 - Programmable Operation
 - All International Tones
 - Tone Decode Bandwidth
- Half Duplex DCS Codec
 - 23 or 24 Bit Code-Selectable DCS
 - Rx 'All Possibilities' Code Correlation; Word Sync Within 23/24 Bits
- Selcall Encoder/Decoder
 - Complete Inband Signalling Facility for All Tone Sets
- Tx Modulation Level Setting

Applications:

- .. Complete PMR Design with CTCSS, DCS and Selcall
- .. Intelligent CTCSS and Selcall
- .. Sub-Audio Repeater Systems
- .. Mixed Mode CTCSS + DCS Systems
- .. Universal Mobile Radio Design *using FX828 and FX829*



Packages

FX828D2
FX828D5

FX829 Baseband Signal Processor

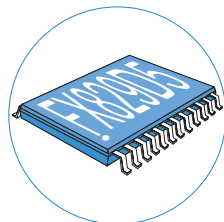
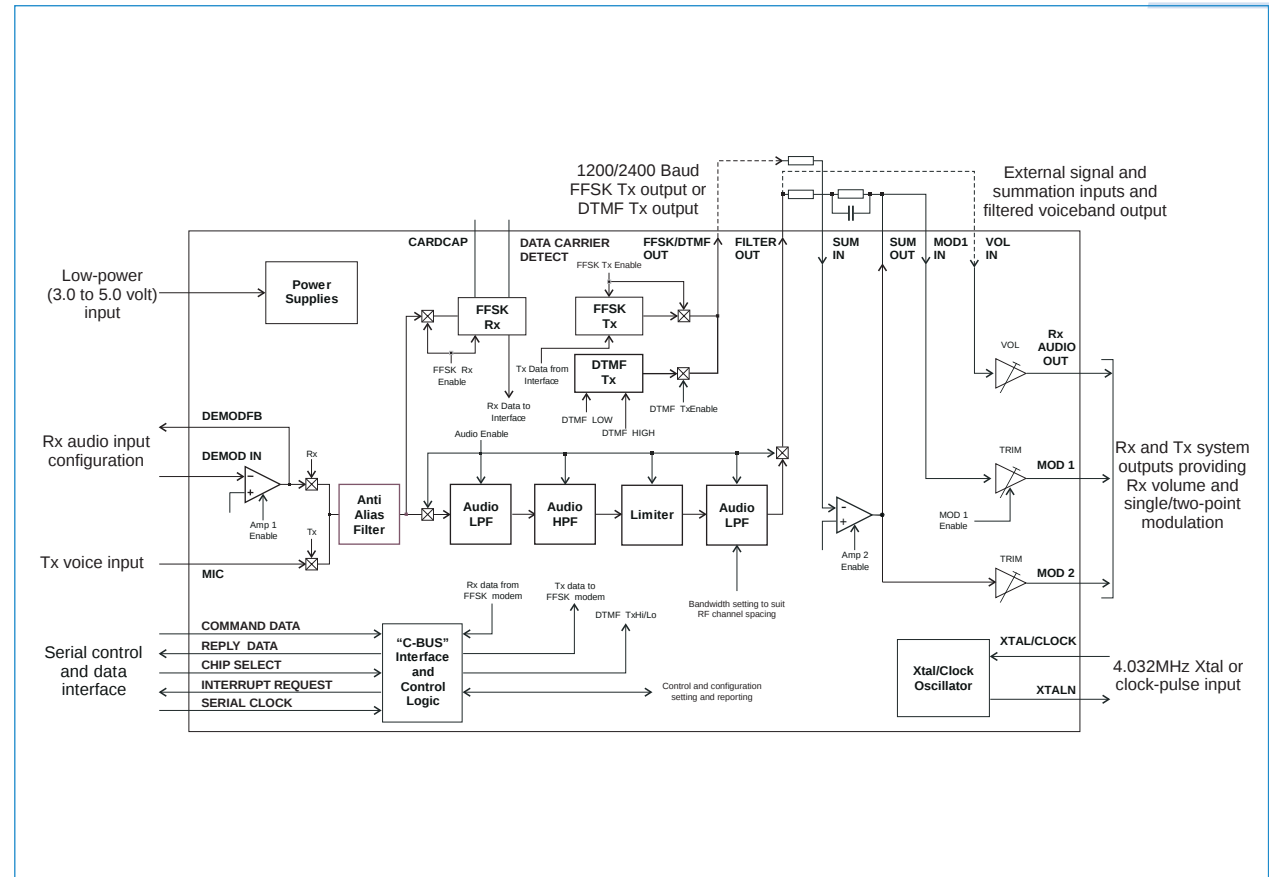
Mobile
Radio

Features:

- ❑ Half Duplex Operation with Function, Level and Path Setting
- ❑ Selectable Voiceband Audio Processor for 25kHz and 12.5kHz RF Channels
- ❑ Multi-Standard 1200/2400 Baud FFSK Modem with Fully Flexible Data Formats
- ❑ DTMF Encoder for Public Telephone Access
- ❑ Serial μ C Interface
- ❑ Summing Amplifier for Internal/External Audio and Signalling
- ❑ Rx Input-Level Setting
- ❑ Selectable and Adjustable Output Drive Configuration
- ❑ Meets ETS 300 086, MPT1327, PAA1382 and I-ETS 300 230 Specifications

Applications:

- .. Trunked Mobile Radio
- .. Universal PMR Radio Design
- .. MPT1327/MAP 27 Terminals
- .. PAA 1382 Trunked Systems
- .. ETSI ETS 300 230 Signalling



Packages

FX829D2
FX829D5

FX839 Analogue Control Interface

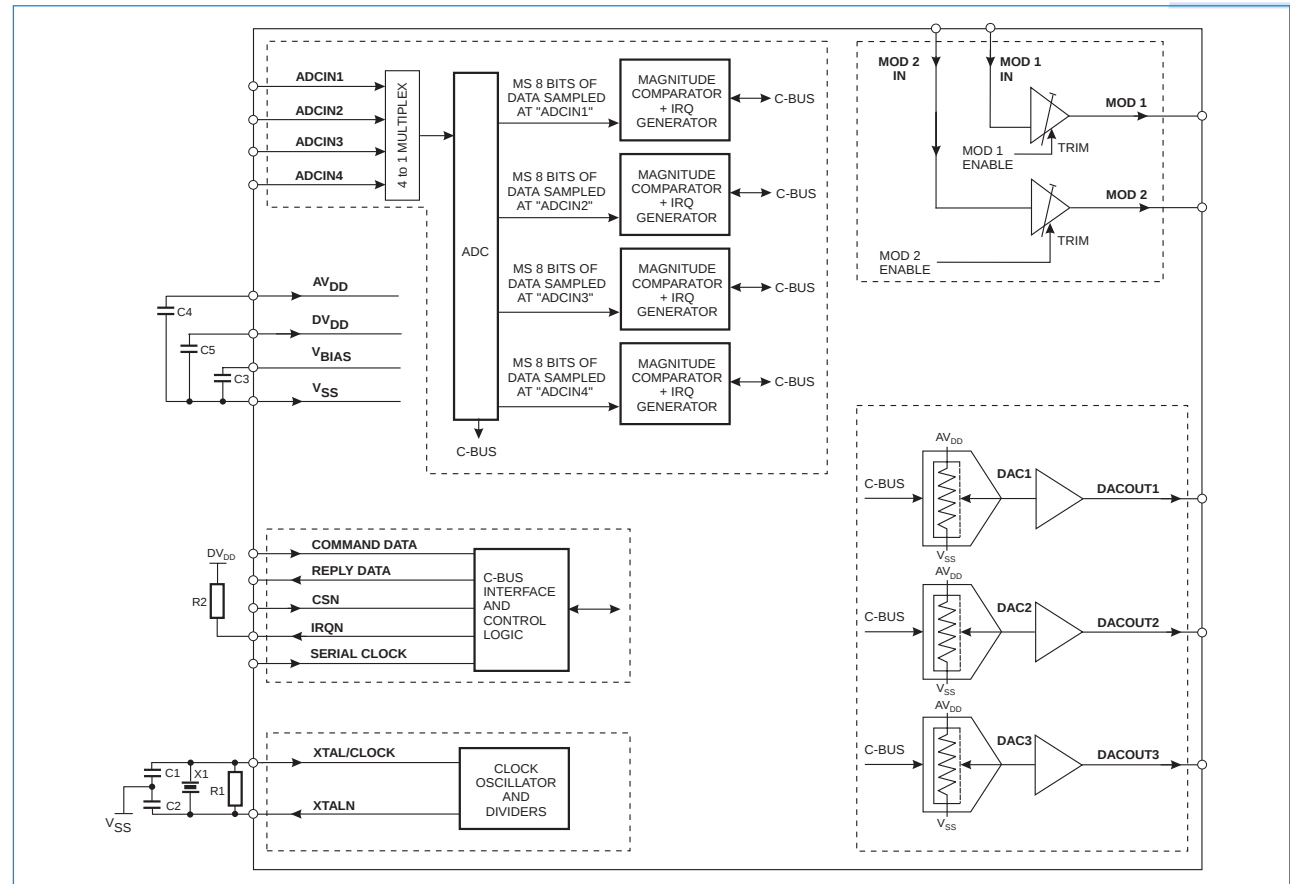
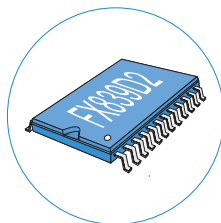
Mobile
Radio

Features:

- ❑ Four DACs
 - 8 or 10-Bit Resolution
- ❑ Custom IRQ Generator with Variable 8-Bit Reference Settings
- ❑ Two Variable Attenuators
- ❑ Multiplexed 4-Input ADC
 - 8 or 10-Bit Resolution
- ❑ Scalable ADC Clock Frequencies from Xtal/Clock
- ❑ Serial Interface to Host μ Controller

Applications:

- .. Mobile Radio
- .. Digital Cellular Telephones
- .. DECT/Digital Cordless Phone
- .. Wireless Data Terminals
- .. Telecoms
- .. Wireless Local Loop
- .. General Purpose



Packages

FX839D2
FX839D5

FX980 TETRA Baseband Processor

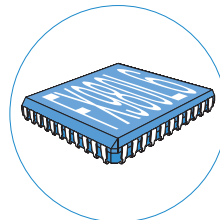
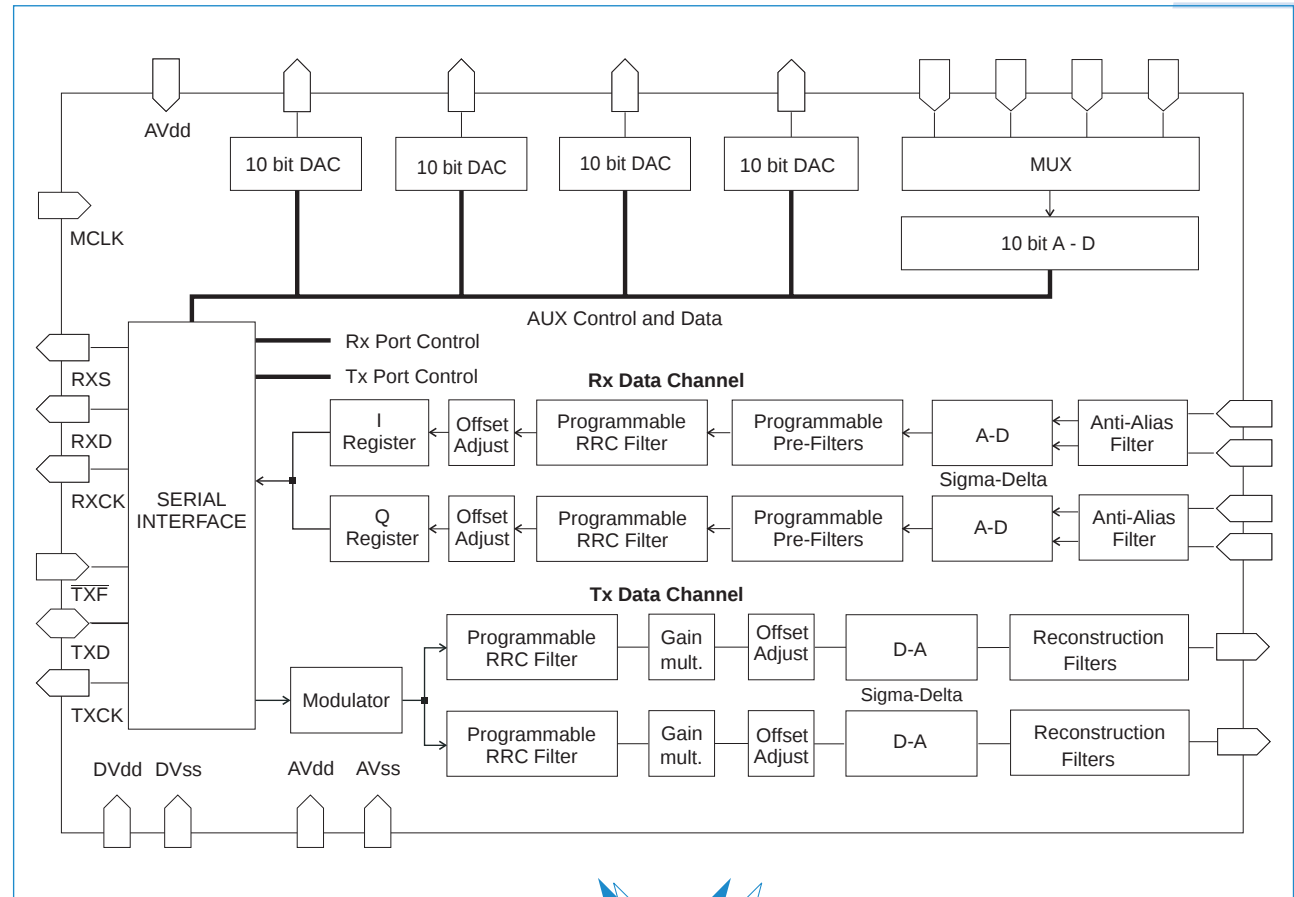
Mobile
Radio

Features:

- ❑ Low Power Operation with Powersave
- ❑ RRC Filters in Rx and Tx Paths
- ❑ p/4 DQPSK Modulation
- ❑ Digital Signal Processing Provides:
 - D to A and A to D Conversion
 - 2 x 16-Bit Resolution Sigma-Delta, D to A
 - 2 x 16-Bit Resolution Sigma-Delta, A to D
- ❑ 4 x 10-Bit D to A
- ❑ 4 Input, 10-Bit A to D
- ❑ Default TETRA Software Coefficients
- ❑ RF Transmit Control and Measurement Facilities
- ❑ All Parameters Selectable via Serial Interface Download
- ❑ Mixed DSP/Analogue Techniques

Applications:

- .. Digital Radio including **TE**rrestrial **T**runked **R**adio (**TETRA**) Systems
- .. Digital Wireless Local Loop
- .. SATCOM Terminals
- .. TFTS: Terrestrial Flight Telephone Systems
- .. High Speed Wireless Data Modems
- .. Mixed Mode Analogue/Digital Radio Networks



Packages
FX980L6
FX980L7

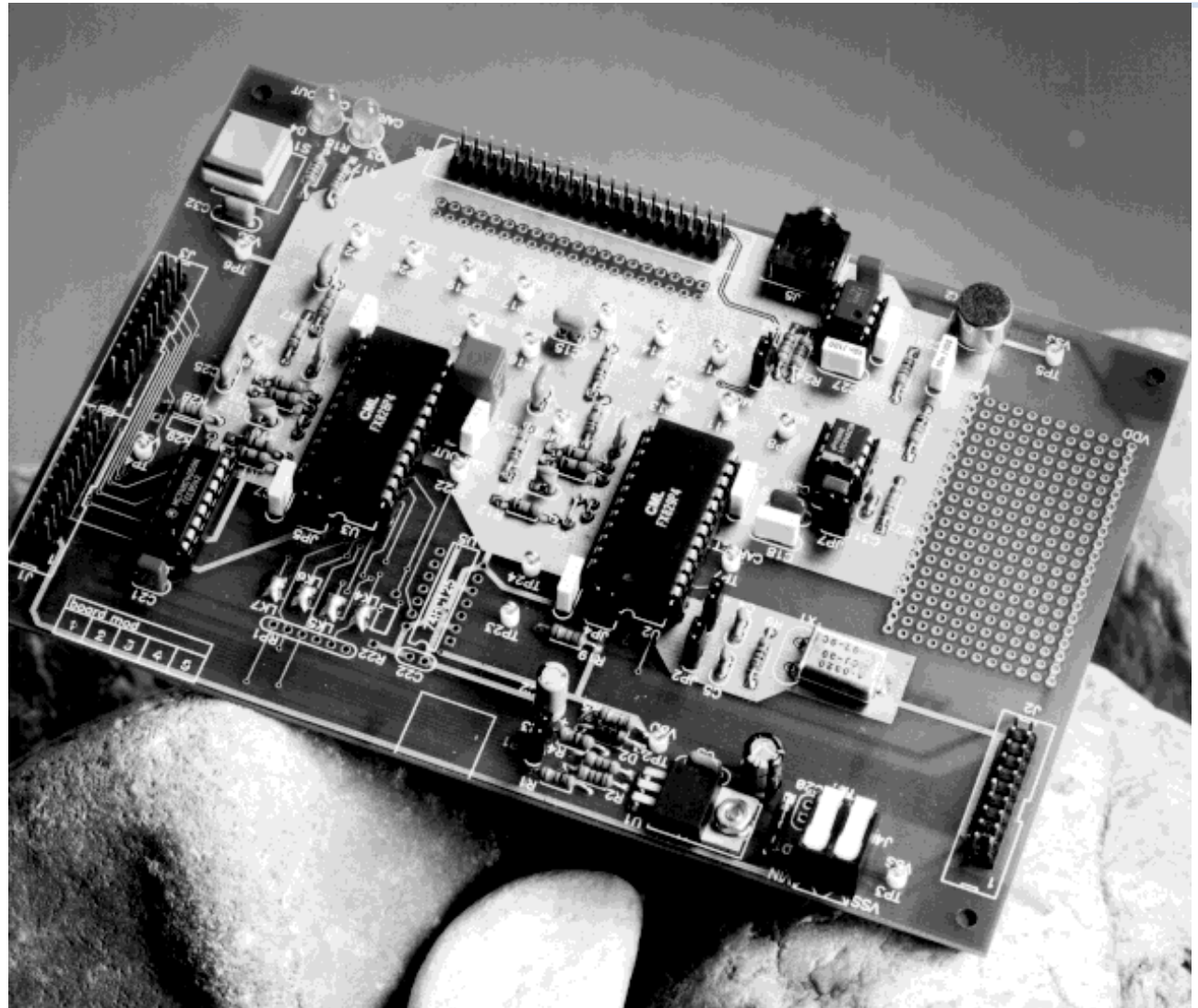
CML is a member of the 'TETRA MOU'

... .. The EV8000 Evaluation Kit

Mobile
Radio

Features:

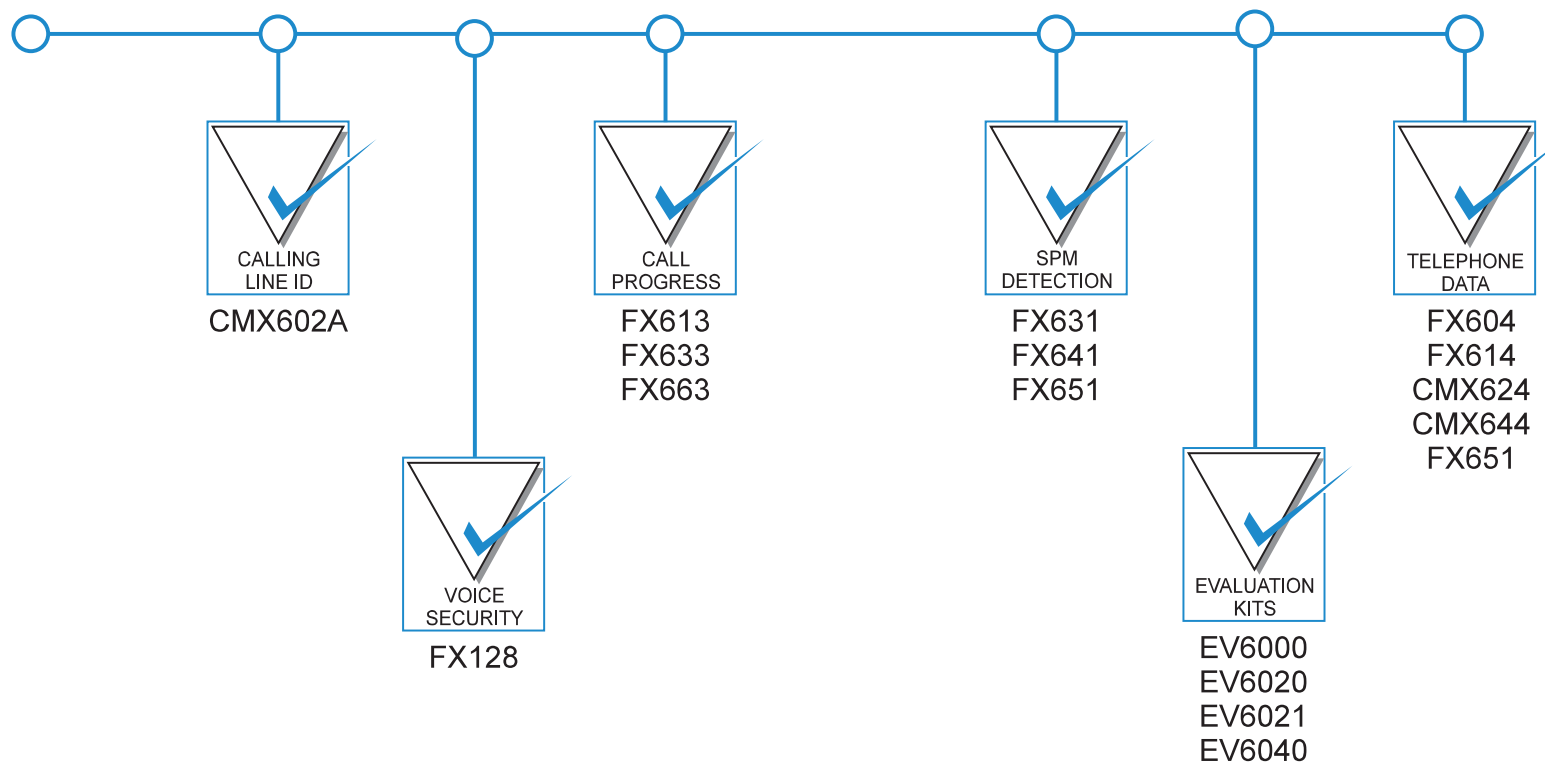
- ❑ Evaluation and Experimentation with FX818, FX828 and FX829 ICs
- ❑ Compatible with the CML (EV6000) μ Controller Board
- ❑ Socketed Discrete Components Around CML Products
- ❑ User's Prototyping Area
- ❑ Easy Access to Test Points
- ❑ On-Board Regulator Accepts 8V to 35V DC Range
- ❑ FX Product Operation Selectable to 3.3V or 5.0V
- ❑ "C-BUS" Serial Interface to μ Controller
- ❑ On-Board (Electret) Microphone
- ❑ Speaker Output (3.5mm Mono) Jack Socket
- ❑ Software and Firmware Available: Upgrades via <http://www.cmlmicro.co.uk/>



PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.

Wireline
Telecoms



FX128 Cordless Telephone Scrambler

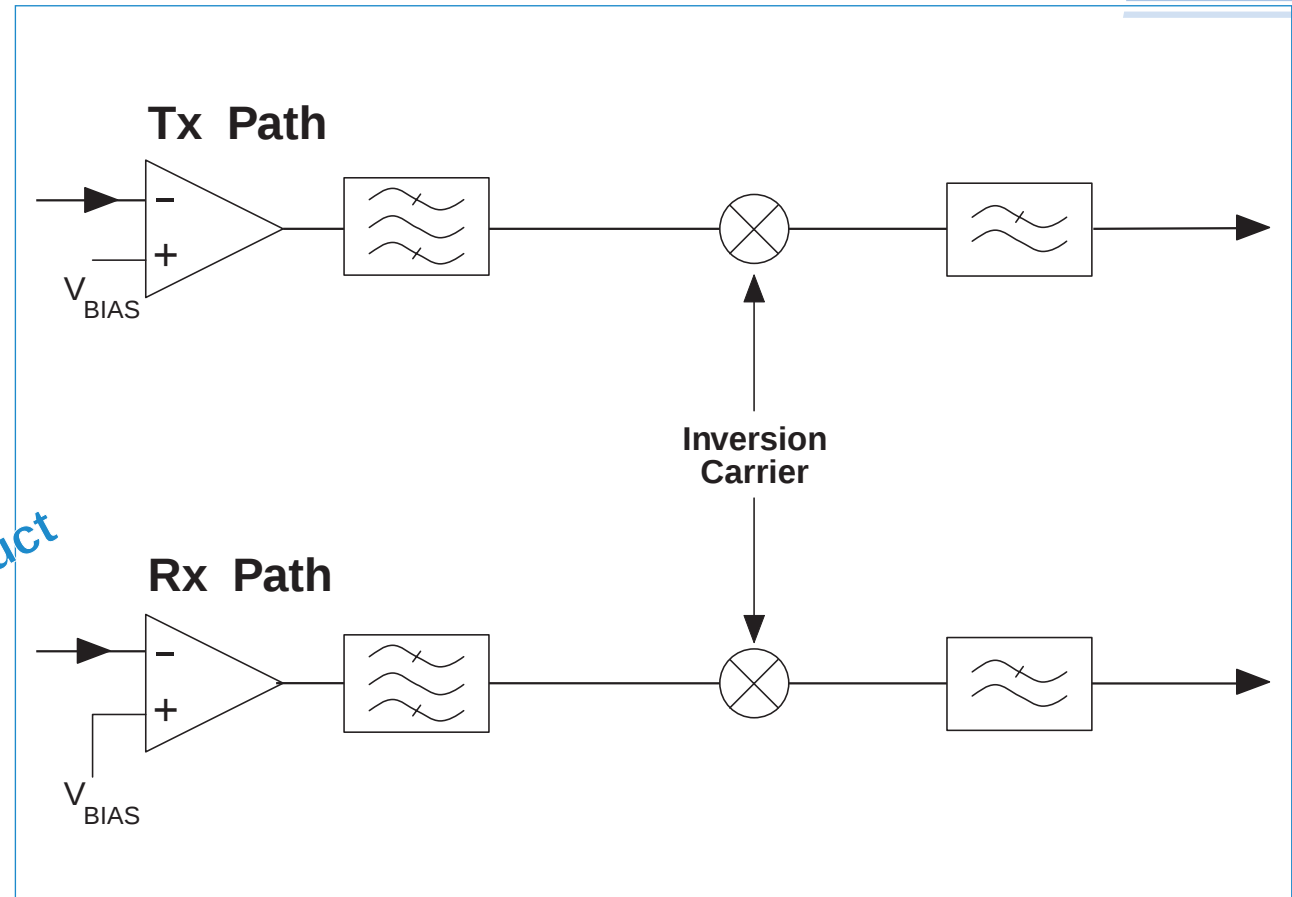
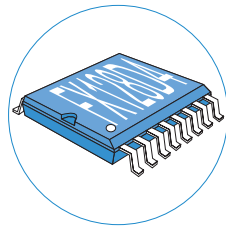
Wireline
Telecoms

Features:

- Full Duplex Frequency Inversion Scrambling
- On-Chip Bandpass and Lowpass Audio Filters
- High Quality Audio Output
- Carrier Rejection >55dB
- Selectable Xtal/Clock Frequency
10.24MHz or 3.58/3.6864MHz
- Low Power 3.0 to 5.0 Supply Requirement

Applications:

- Cordless Telephones
- Wireless PABX
- Base and Portable Systems



Packages
FX128D4
FX128P3

CMX602A Calling Line Identifier *plus* Call Waiting

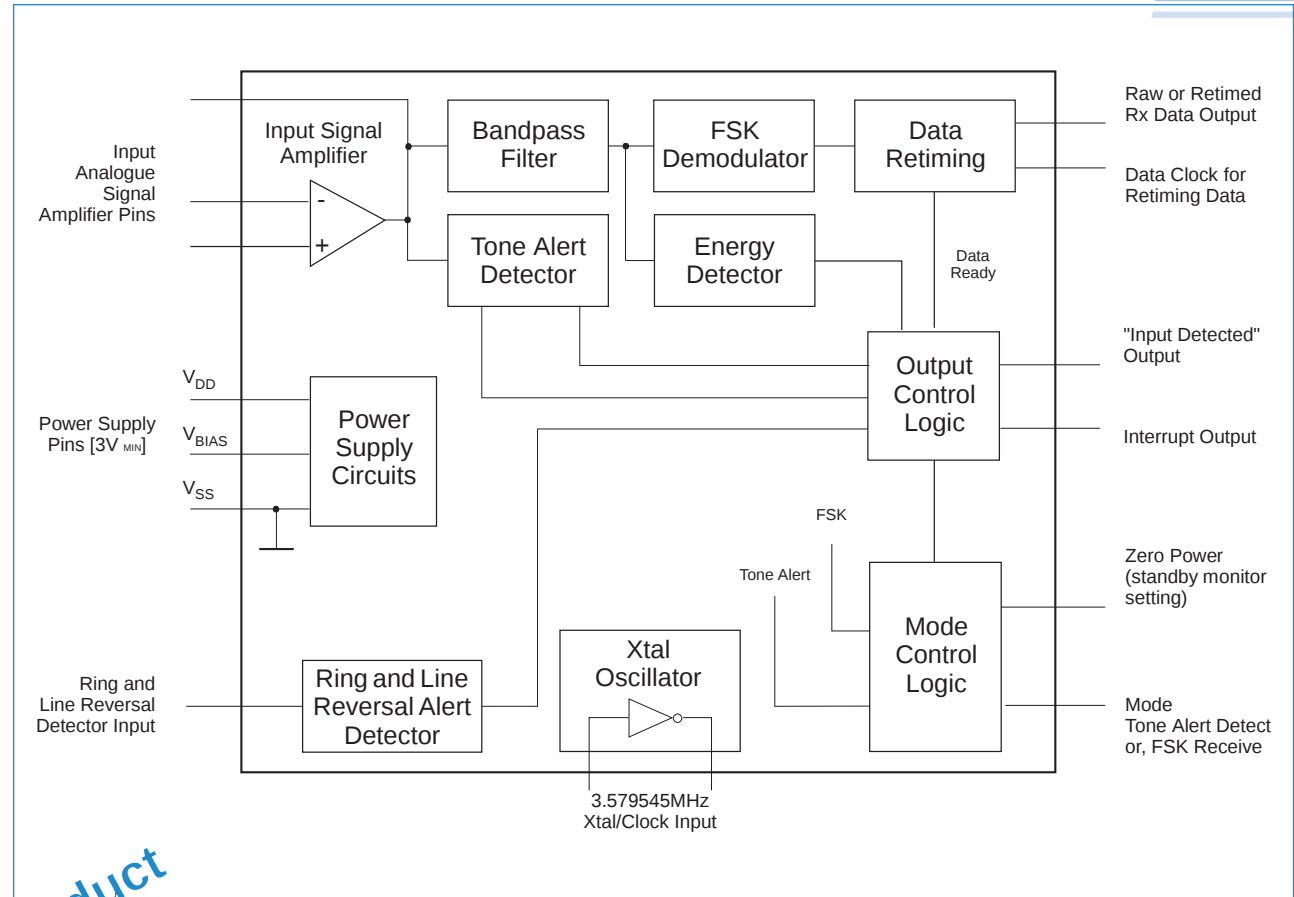
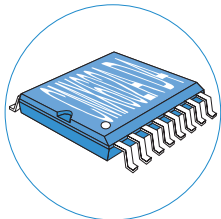
Wireline
Telecoms

Features:

- CLI and CIDCW Detector with:
 - 'Zero-Power' Ring or Line Polarity Reversal Detector
 - V23/Bell 202 FSK Demodulator with Data Retiming Facility
 - Dual Tone Alert Detector
 - On and Off-Hook Operation
- Meets Bellcore, British Telecom and ETSI 'CLI and CIDCW' Specifications
- μ C Interrupt/Wake-Up Output to Minimize System Operating Power
- PC Based Evaluation Kit (EV6020) Available

Applications:

- Calling Line ID and Call Waiting Systems
- Adjunct Boxes
- Computer Security Systems
- Call Monitoring
- Computer Billing Systems
- Telephone Based Utility Metering
- No Ring Calling



Packages
CMX602AD4
CMX602AP3

FX604 CCITT V23 Compatible FSK Modem

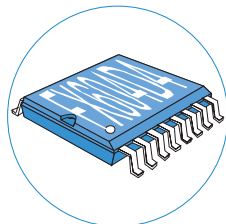
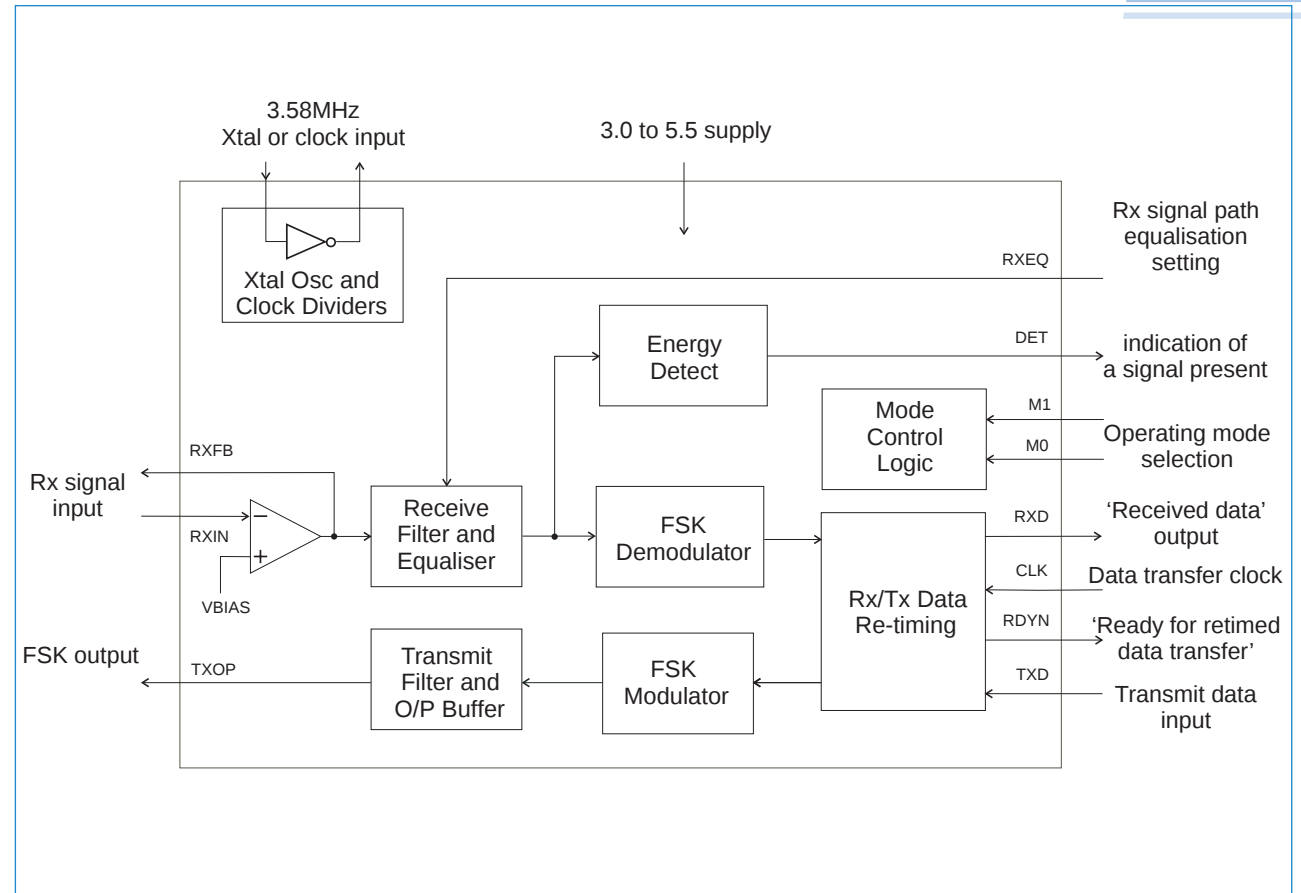
Wireline
Telecoms

Features:

- 3.0 to 5.5 Volt Supply:
1.0mA typ. at 3.0 Volts
'Zero Power Mode: 1µA typ.
- 1200/75b/s Full Duplex V23 Compatible Modem with:
 - Optional 75b/s Back Channel
 - Optional 1200b/s Data Retiming Facility
 - 3.58MHz 'Telecom' Xtal/Clock
 - Optional Line Equalisation
- Rx Data Filter: Tx (1200b/s / 75b/s) Data Filter
- Input Level-Setting Facility

Applications:

- .. Automatic Meter Reading:
BT SIN 236 and 237
- .. Line Powered Telemetry
- .. Unattended Security Systems
- .. Telecommand Systems
- .. Payphone Telemetry
- .. GMDSS Radio
- .. Automatic Telephone Network Diagnostics Reporting
- .. Vending Machine Status Reporting
- .. Marine Radio Data
- .. Remote Point-Of-Sale Units



Packages
FX604D4
FX604P3

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

... .. and the Telecoms Products' Evaluation Kits

Features:

EV6000

- ☐ For use with EV6020 and EV6040
- ☐ Executes Application Software for FX602, FX604 and FX614
- ☐ Serial (RS232) Interface to a PC
- ☐ Based upon a PIC 16C74JW μ C
- ☐ PCB, Diagnostic Firmware and Software and Interconnecting Cables
- ☐ On-Board PIC Programming with Serial Interface and PC Software
- ☐ On-Board Supply Regulator

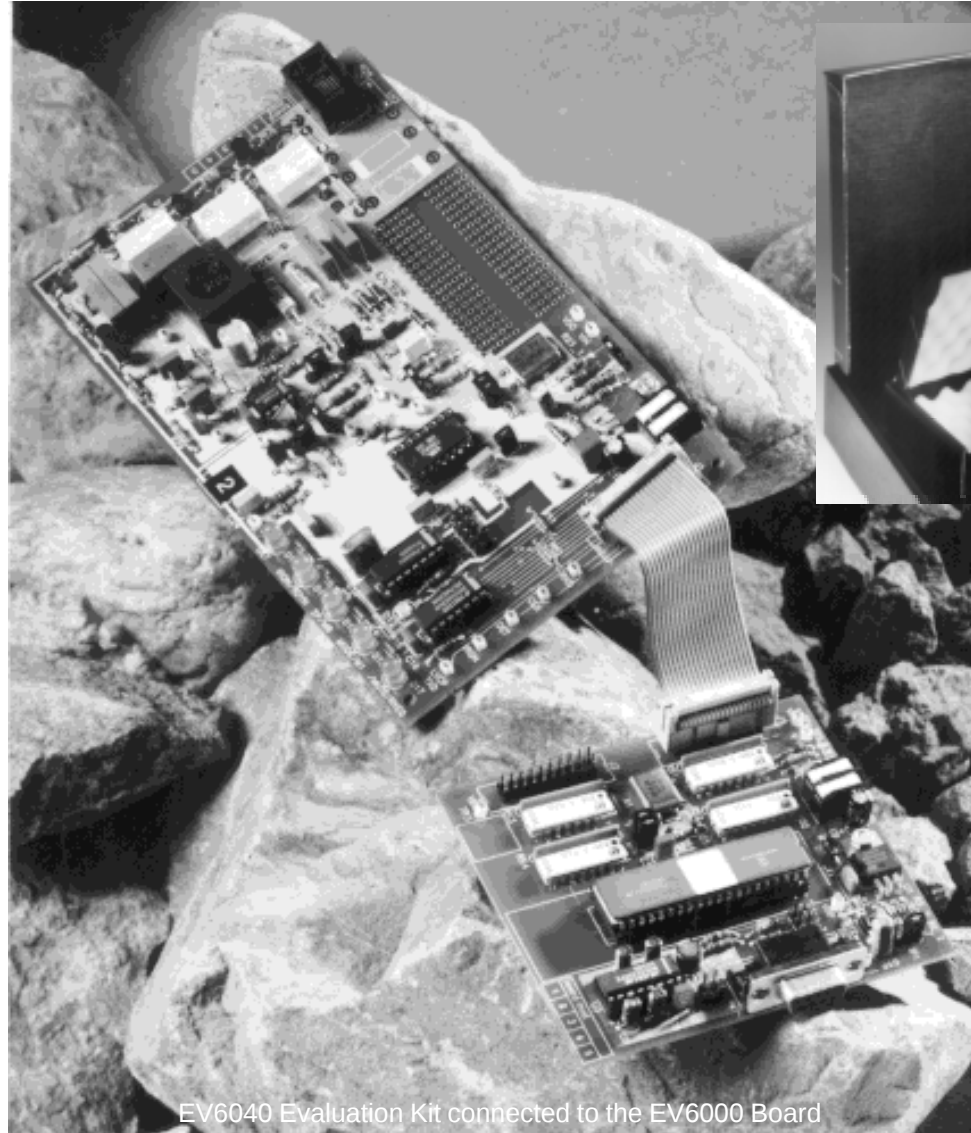
EV6020

- ☐ For FX602 Product Evaluation
- ☐ Reconfigurable PCB with Interface to Optional μ C Board
- ☐ Parallel Telephone Detector
- ☐ User's Prototyping Area
- ☐ Space for Optional and Telecom Specific Components

EV6021

- ☐ For CMX602A Product Evaluation
- ☐ Adjunct Box or Featurephone Configuration
- ☐ 2 to 4-Wire Interface with Handset Socket
- ☐ LCD or Serial (RS232) Interface to a PC; with Software
- ☐ Socketed Components allow Adjustment to Target CMX602A
- ☐ User's Prototyping Area
- ☐ On-Board PIC Programming with Serial Interface
- ☐ Space for Optional and Telco-Specific Components
- ☐ Single Power Supply Operation with On-Board Regulator

Three Evaluation Kits for test and evaluation of the FX602, CMX602A, FX604 and FX614 telecom microcircuits; and a compatible microcontroller board and software.



EV6040 Evaluation Kit connected to the EV6000 Board



EV6020 Evaluation Kit

EV6040

- ☐ For FX604 and FX614 Product Evaluation
- ☐ Reconfigurable PCB with Interface to Optional μ C Board
- ☐ Parallel Telephone Detector
- ☐ User's Prototyping Area
- ☐ Space for Optional and Telecom Specific Components

FX613 Universal Call Progress Decoder

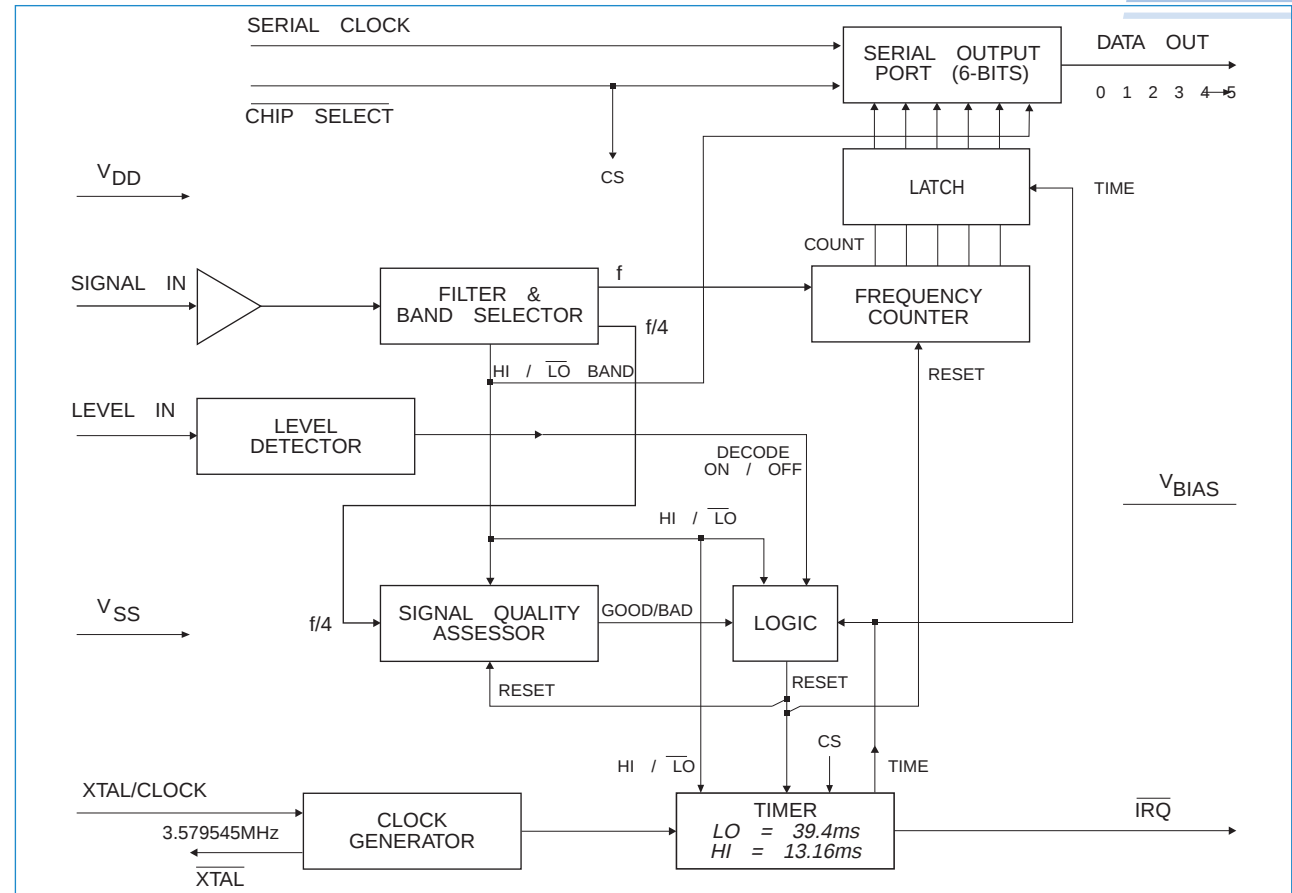
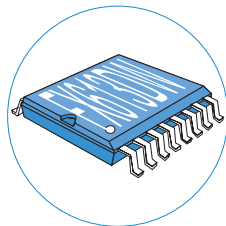
Wireline
Telecoms

Features:

- ❑ Covers Worldwide Call Progress Frequencies (300Hz to 2150Hz)
- ❑ <1mA Requirement
- ❑ Decodes Single or Modulated Tones
- ❑ Analogue In / Serial Data Out
- ❑ Speech Discrimination Ability
- ❑ μ P Compatible Outputs
- ❑ Mixed Analogue / Digital Technology

Applications:

- .. Telephone / Telecoms, Radio and Fax/Modem
- .. Automatic Telephone / Telemetry Equipment



Packages	
FX613DW	D4
FX613P	P2

FX614 Bell 202 Compatible FSK Modem

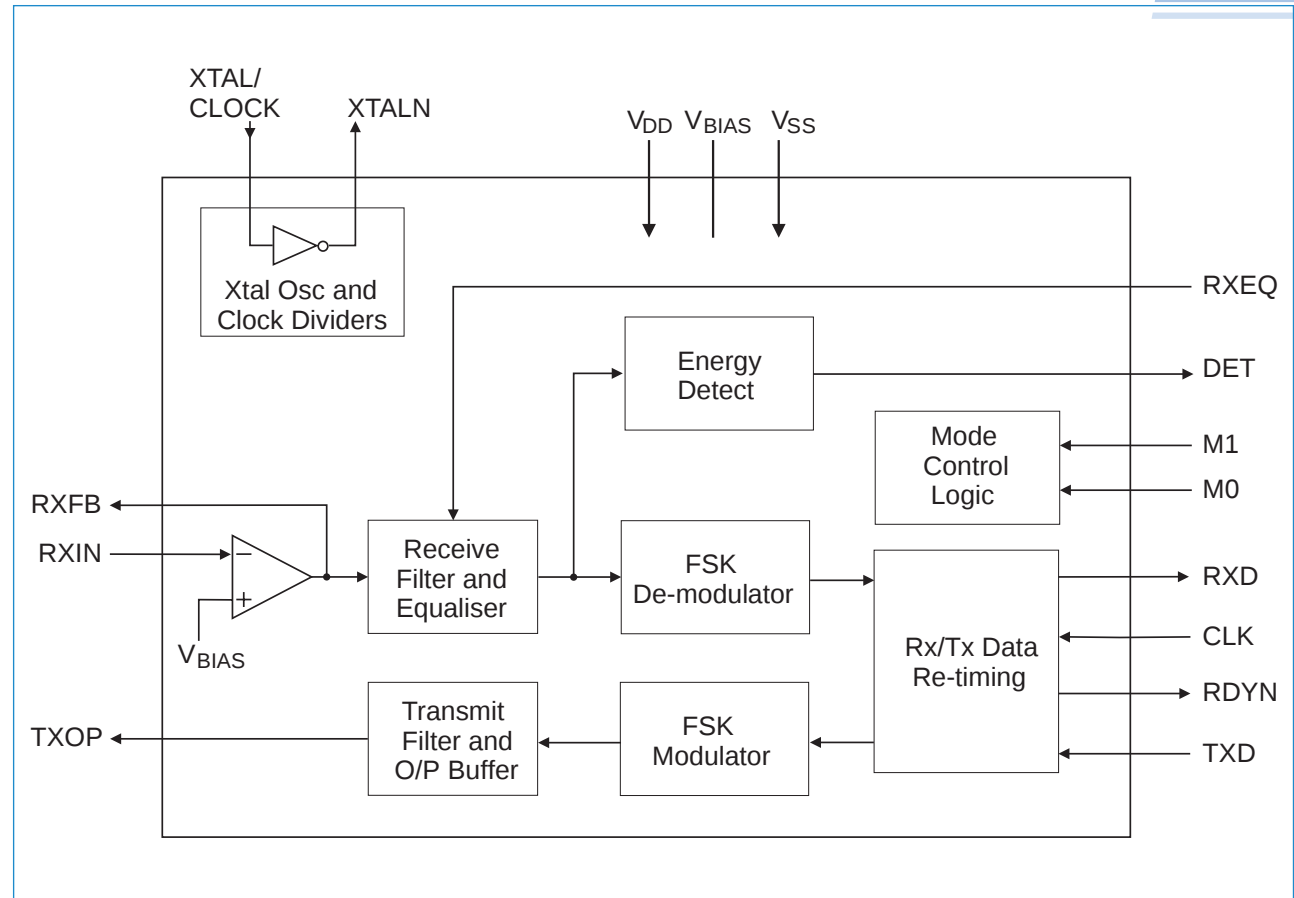
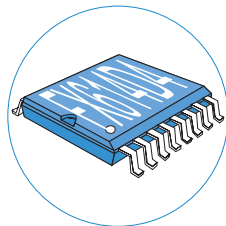
Wireline
Telecoms

Features:

- 3.0 to 5.5 Volt Supply:
1.0mA typ. at 3.0 Volts
'Zero Power Mode': 1 μ A typ.
- 1200b/s Half Duplex Bell 202 Compatible Modem with:
 - Optional 5b/s Back Channel
 - Optional 1200b/s Data Retiming Facility
 - 3.58MHz 'Telecom' Xtal/Clock
 - Optional Line Equalisation

Applications:

- Line Powered Telemetry
- Unattended Security Systems
- Telecommand Systems
- Payphone Telemetry
- Automatic Telephone Network Diagnostics Reporting
- Vending Machine Status Reporting
- Remote Point-Of-Sale Units



Packages

FX614D4
FX614P3

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

CMX624 Full Duplex V23 and Bell202 Modem with DTMF Generator

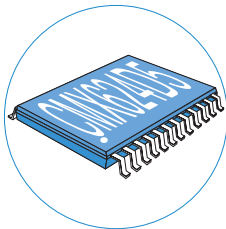
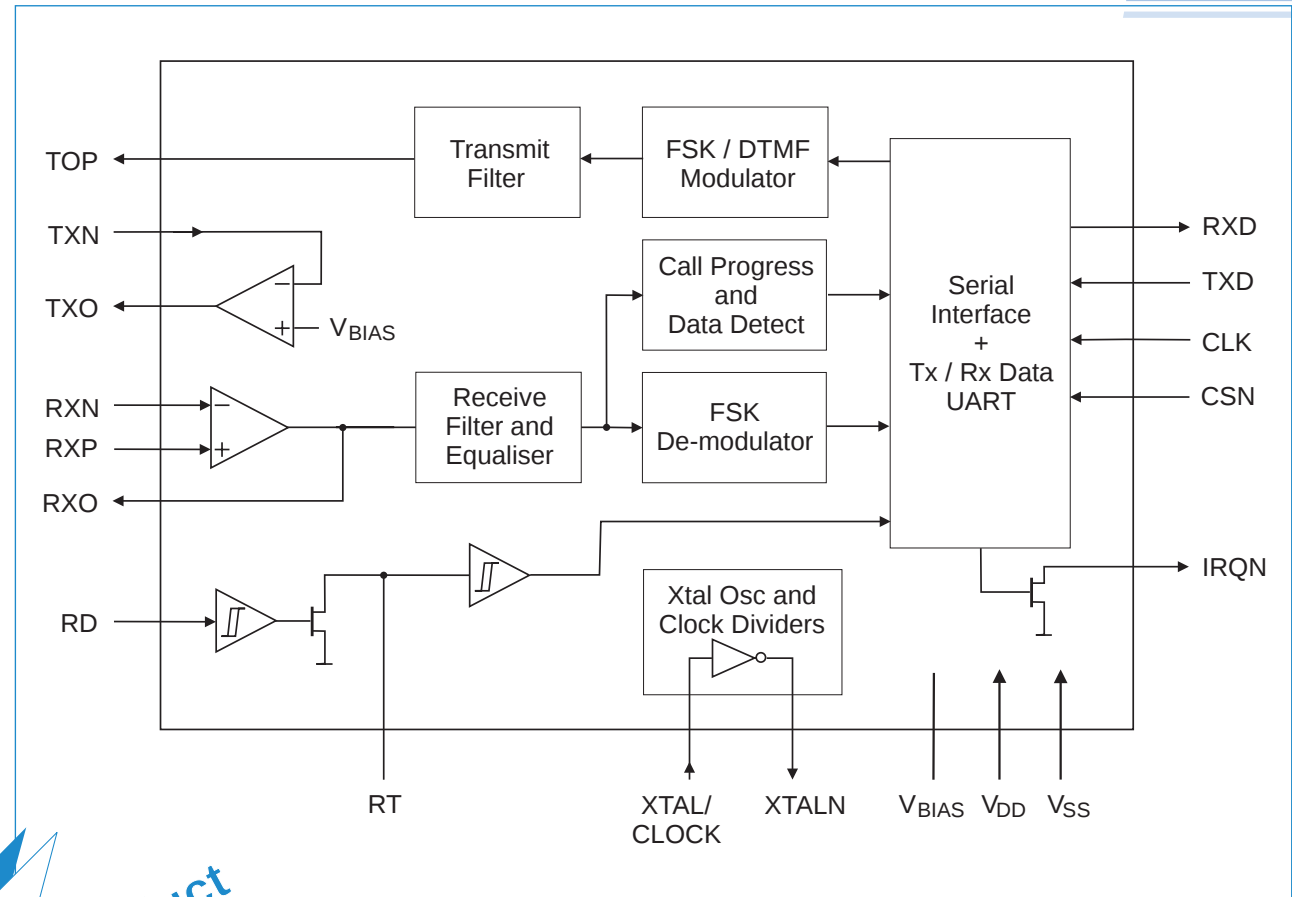
Wireline
Telecoms

Features:

- ❑ Multiple Operation Modes:
 - ❑ 1200/75 b/s Tx/Rx
 - ❑ 1200/75 b/s Tx/Rx
 - ❑ 75/1200 b/s Tx/Rx
 - ❑ 1200/1200 b/s Half Duplex
 - ❑ 1200/1200 b/s Full Duplex (4 Wire)
- ❑ Flexible UART On Chip
- ❑ Simple Serial Interface
- ❑ Answer/Originate Tone Detection
- ❑ Call Progress Tone Detection
- ❑ Integrated DTMF Encoder
- ❑ Line Reversal and Ring Detector
- ❑ Low Voltage Operation with 'Zero Power' Standby Mode
- ❑ On-Chip Line Hybrid and Line Driver

Applications:

- .. Telephone Telemetry Systems
- .. Remote Utility Meter Reading
- .. Security Systems
- .. Payphones
- .. Cable-TV Set-Top Boxes
- .. Industrial Control Systems
- .. Electronic Cash Terminals
- .. Vending Machines



Packages
CMX624D2
CMX624D5
CMX624P4

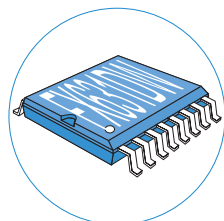
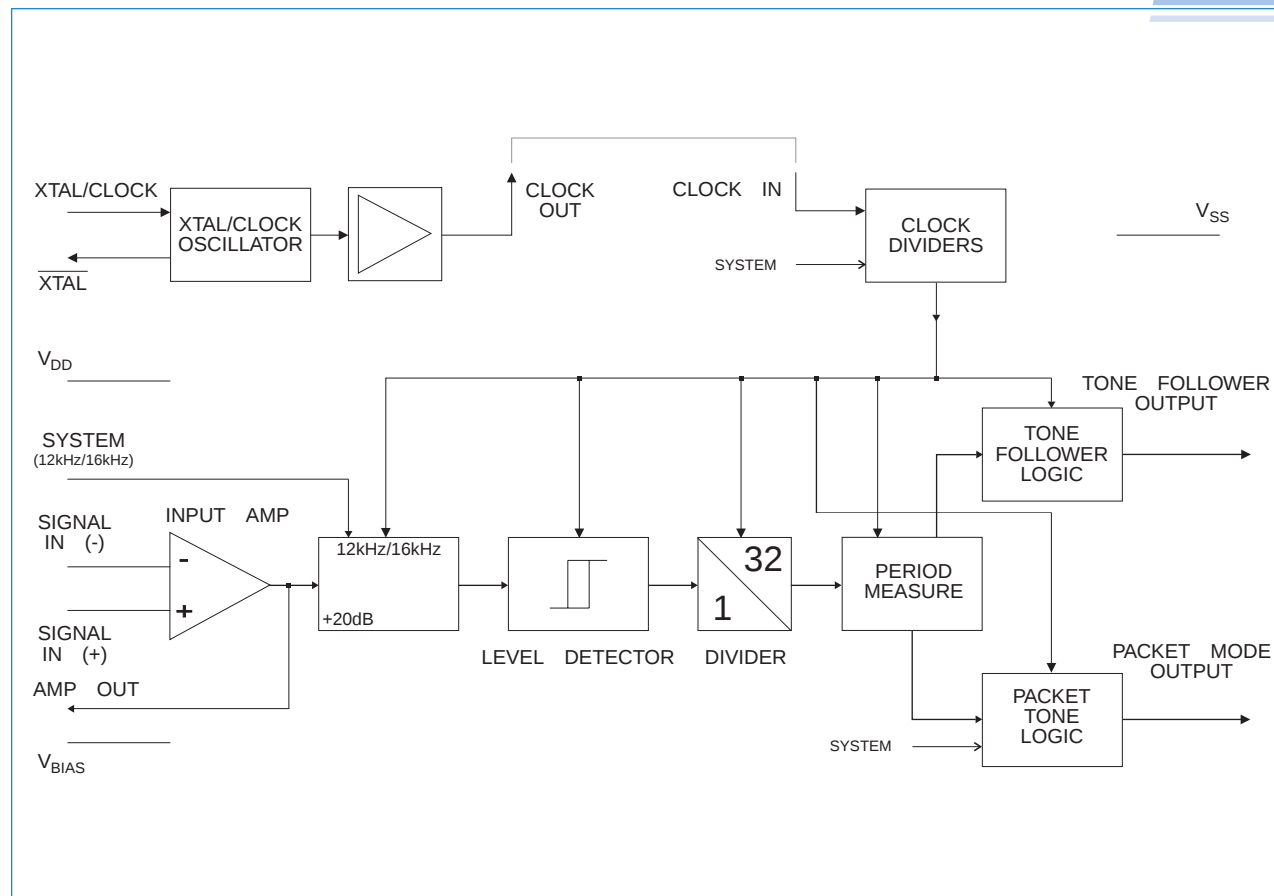
FX631 SPM Detector

Features:

- Low Power (3 Volt <1mA) Operation
- Detects 12kHz and 16kHz SPM Frequencies
- High Speechband Rejection Properties
- Tone-Follower and Packet-Mode Outputs

Applications:

- .. Complex and/or Simple Telephone Systems
- .. Hotel and Office Call-Charge/-Logging Systems
- .. Billing Systems
- .. Public Call Monitoring
- .. Payphone Systems
- .. PCMCIA Fax and Data Modems



Packages	
FX631DW	D4
FX631D5	
FX631P	P3

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX633 Call Progress Tone Detector

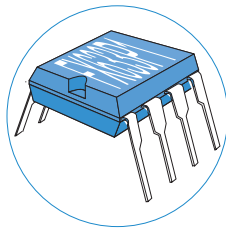
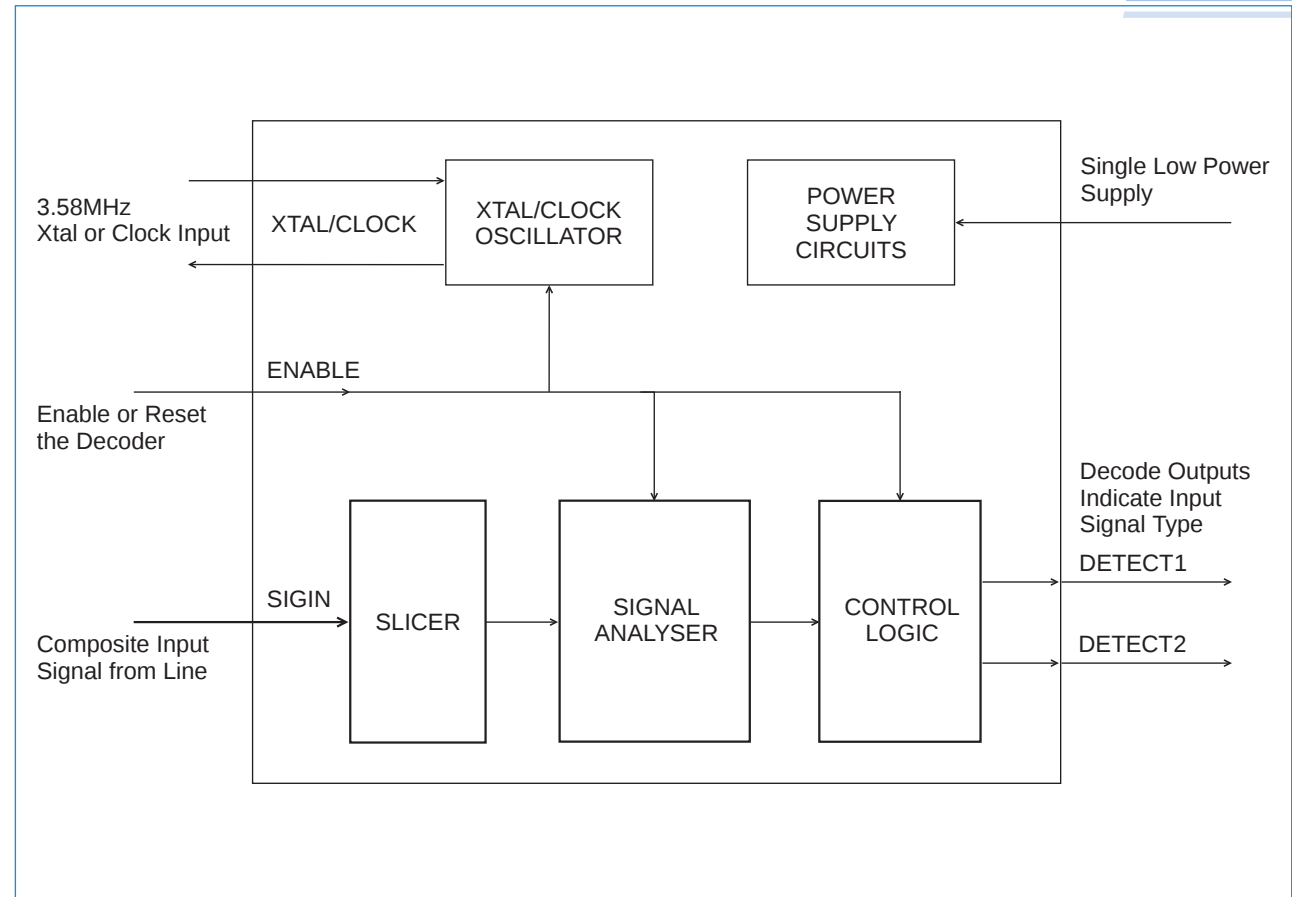
Wireline
Telecoms

Features:

- Worldwide Tone Compatibility
- Single and Dual Tones Detected
- Special "US BUSY-DETECT" Output
- Special "VOICE-DETECT" Output
- Wide Dynamic Signal Range
- Standard 3.58MHz Xtal

Applications:

- Radio and Fax/Modem
- Telephone, PABX, Fax and Dial-Up Modem Applications
- Automatic Telephone / Telemetry Equipment



Packages
FX633P1

FX641 Dual SPM Detector

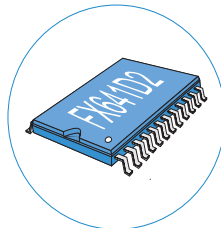
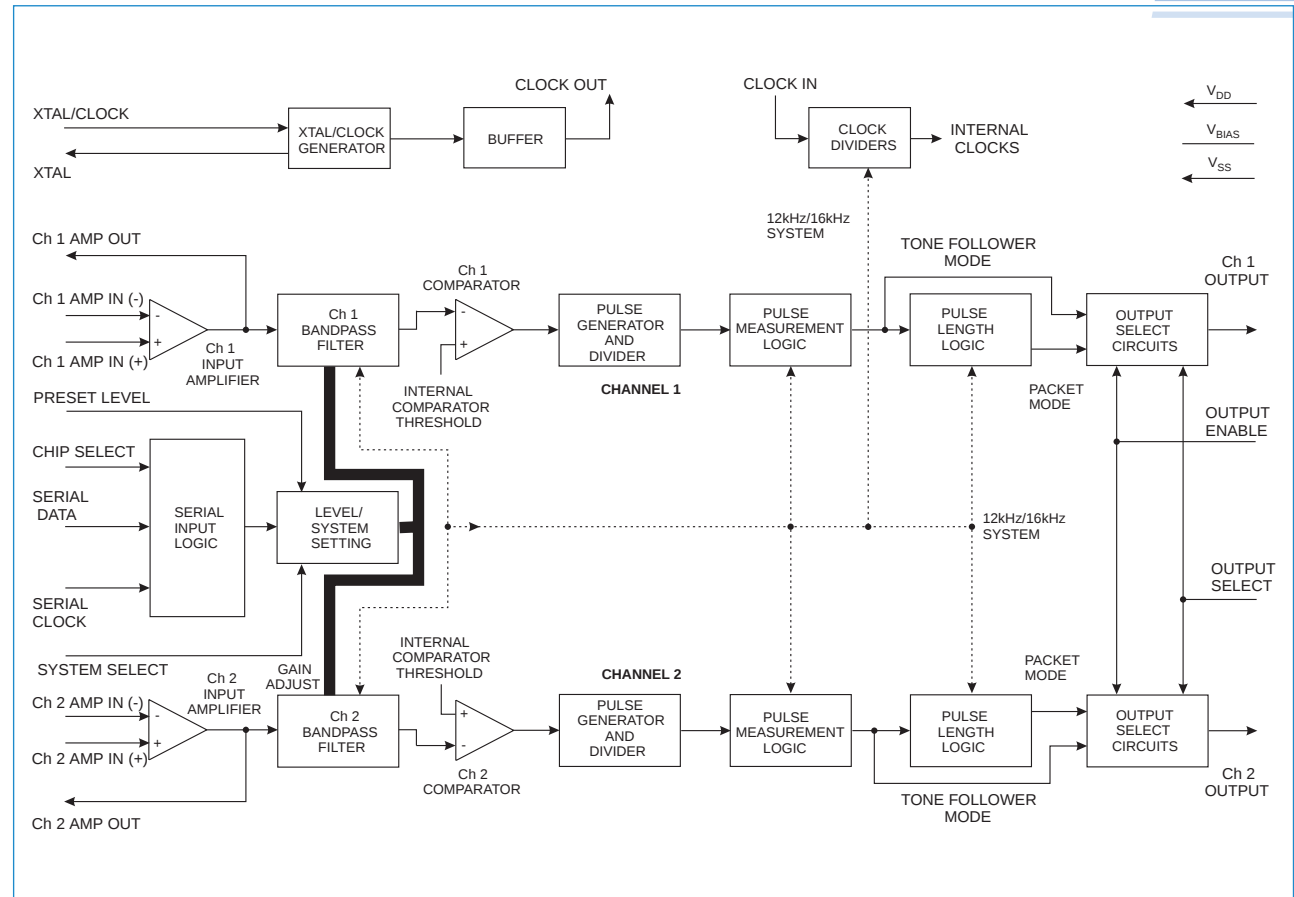
Wireline
Telecoms

Features:

- ❑ Two (12kHz/16kHz) SPM Detectors on a Single Chip
- ❑ Detects 12kHz and 16kHz SPM Frequencies
- ❑ Xtal Accuracy; Stable Frequency Limits
- ❑ "Controlled" (μ C) and "Fixed" Signal Sensitivity Modes
- ❑ Selectable Tone-Follower or Packet-Mode Outputs
- ❑ High Speechband Rejection Properties
- ❑ "Output Enable" Multiplexing Facility

Applications:

- .. Call Charge Applications on PABX Line Cards
- .. Complex and/or Simple Telephone Systems
- .. Hotel and Office Call-Charge/-Logging Systems
- .. Wireless Local Loop
- .. Billing Systems
- .. Public Call Monitoring
- .. Payphone Systems
- .. PCMCIA Fax and Data Modems



Packages
FX641D2
FX641P4

CMX644 Full Duplex CCITT V22 and Bell 212A Modem with DTMF Generator

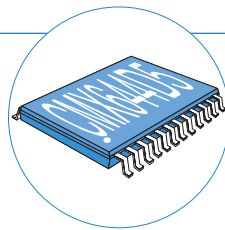
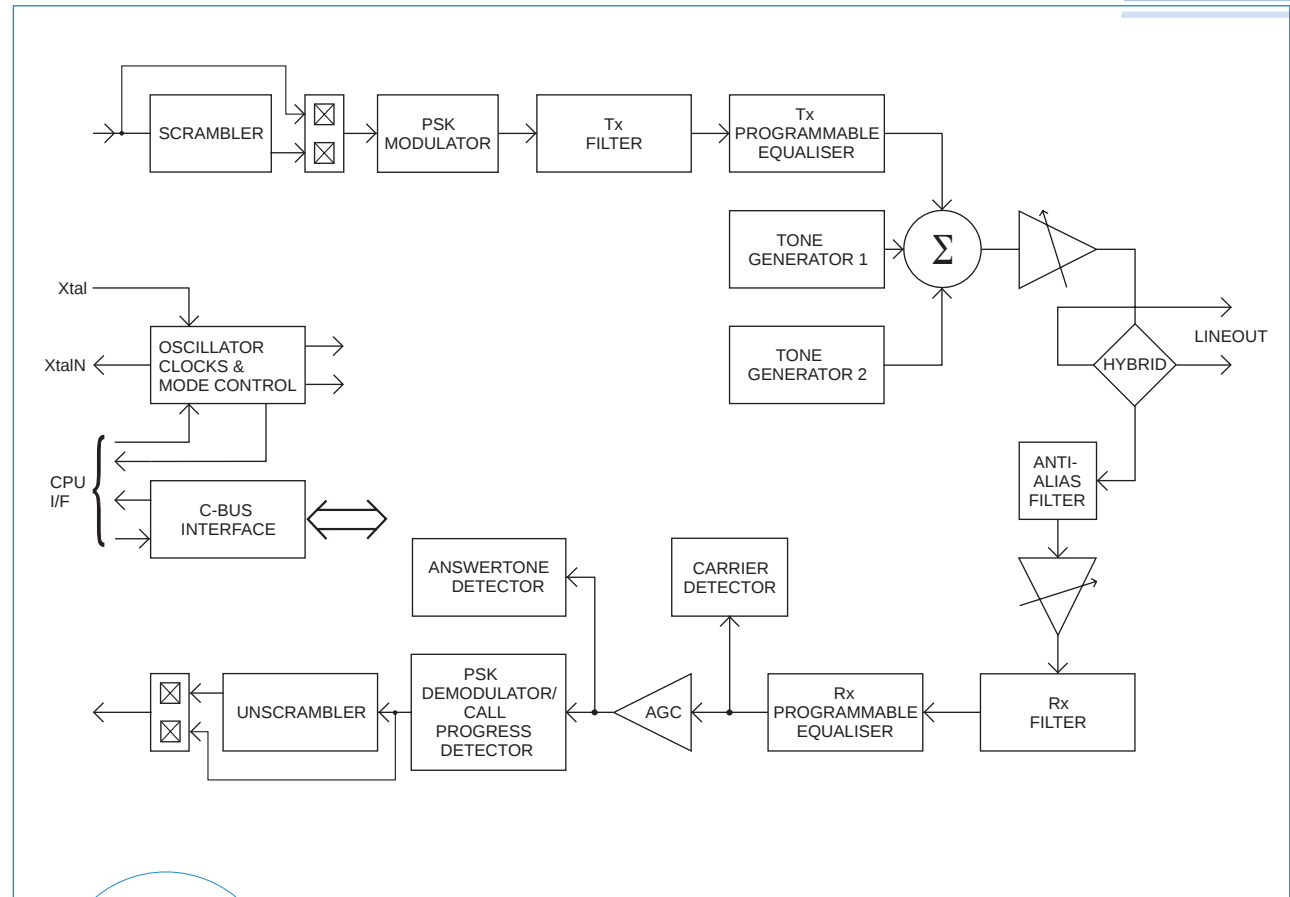
Wireline
Telecoms

Features:

- ❑ V22/Bell 212A Compatible Modem
- ❑ 1200 b/s Full Duplex Operation (2 or 4 Wire)
- ❑ V22 Guard-Tone Generation
- ❑ Programmable Group Delay Equalizer
- ❑ Software Adjustable Tx and Rx Levels
- ❑ Flexible Xtal/Master Clock Selection
- ❑ Simple Serial Control Interface
- ❑ Answer/Originate Tone Generator/Detector
- ❑ Call Progress Tone Detection
- ❑ Integrated DTMF Encoder
- ❑ Line Reversal and Ring Detector
- ❑ Low Voltage Operation with 'Zero Power' Standby Mode

Applications:

- .. Telephone Telemetry Systems
- .. Remote Utility Meter Reading
- .. Security Systems
- .. Payphones
- .. Cable-TV Set-Top Boxes
- .. Industrial Control Systems
- .. Electronic Cash Terminals
- .. Vending Machines



Packages
CMX644D2
CMX644D5
CMX644P4

FX651 SPM and Security Subsystem

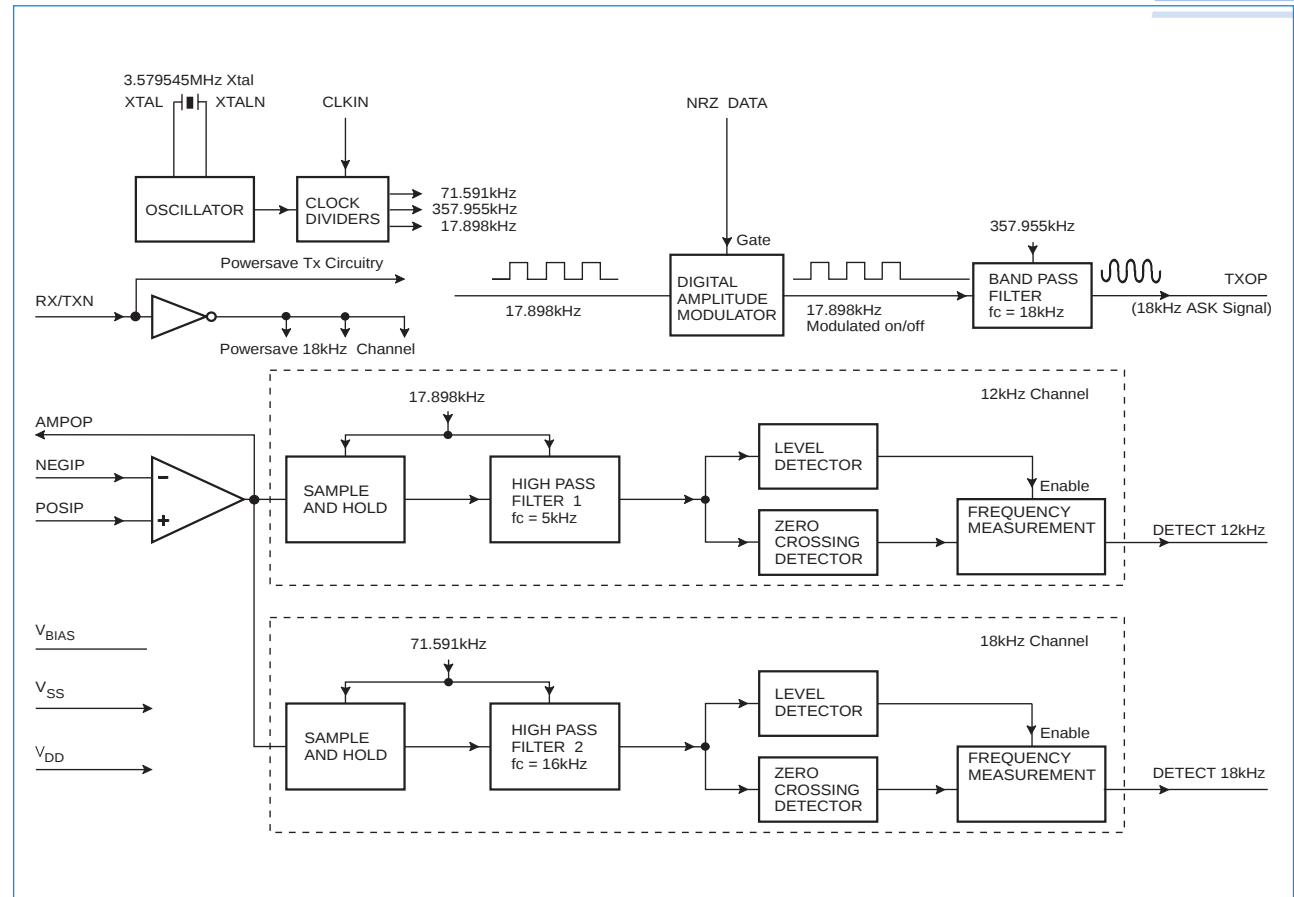
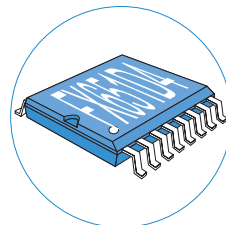
Wireline
Telecoms

Features:

- Two Integrated Telecoms Functions
 - 12kHz SPM Detector
 - Half Duplex 18kHz Modem
- Component Adjustable Input Sensitivity
- Meets European 12kHz SPM Frequency Specifications

Applications:

- .. 12kHz Payphone Applications
- .. Card Operated Telephone Installations
- .. Call Charge Applications on PABX Line Cards
- .. Complex and/or Simple Telephone Systems
- .. Hotel and Office Call-Charge/-Logging Systems
- .. Billing Systems
- .. Public Call Monitoring
- .. Payphone Systems
- .. PCMCIA Fax and Data Modems



Packages
FX651D4

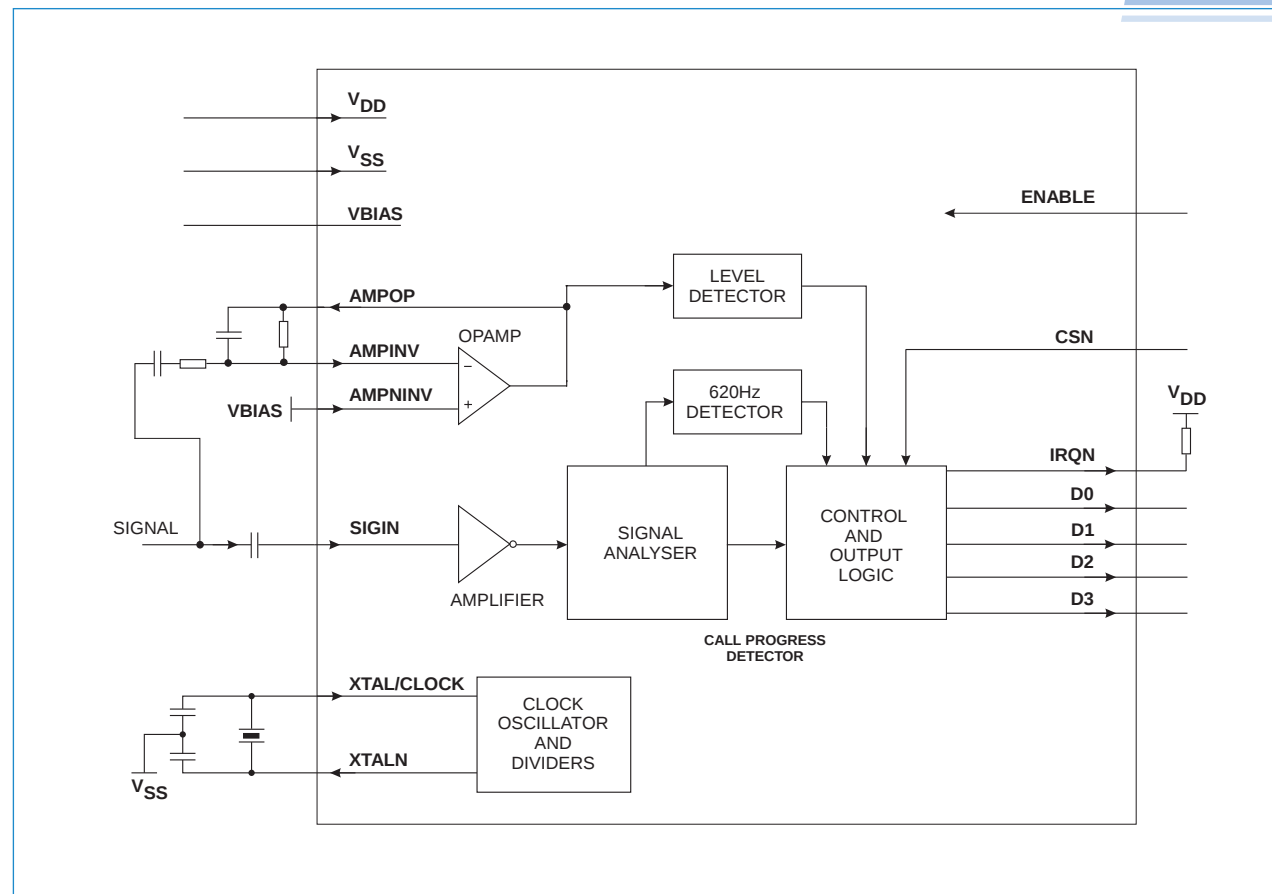
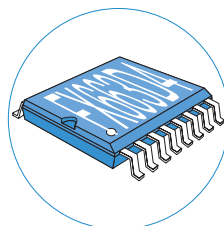
FX663 Call Progress Decoder

Features:

- Decoding and Identification of Worldwide Telephone Call Progress Frequencies, Including:
 - Single and Dual Tone Signals
 - Fax/Modem Answer and Originate Tones
 - 'Special Information Tones'
 - 'US Busy' Tone
- Voice Detection
- Low Power (3 Volt) Operation
- Powersave Facility
- Adjustable Detection-Threshold Level
- 3.58MHz 'Telecom' Xtal/Clock
- 16-Pin SOIC and DIP Packages

Applications:

- .. Automatic Dial Systems
- .. Modems
- .. Fax Machines
- .. Featurephones
- .. Test Equipment and Simulators
- .. Call-Charge and Analysis



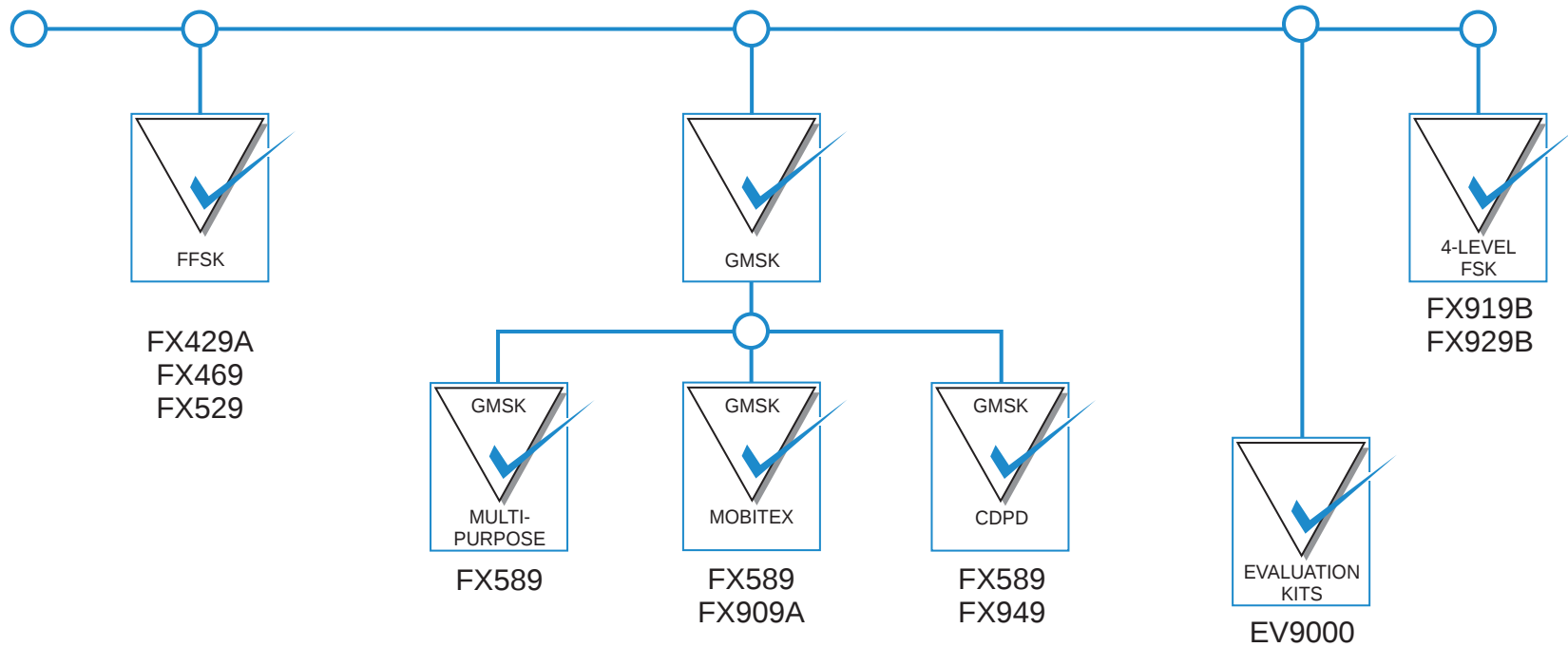
Packages

FX663D4
FX663P3

PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.

Wireless
Data



FX429A FFSK Modem

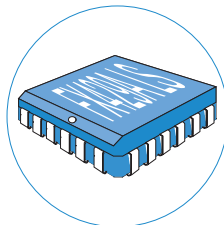
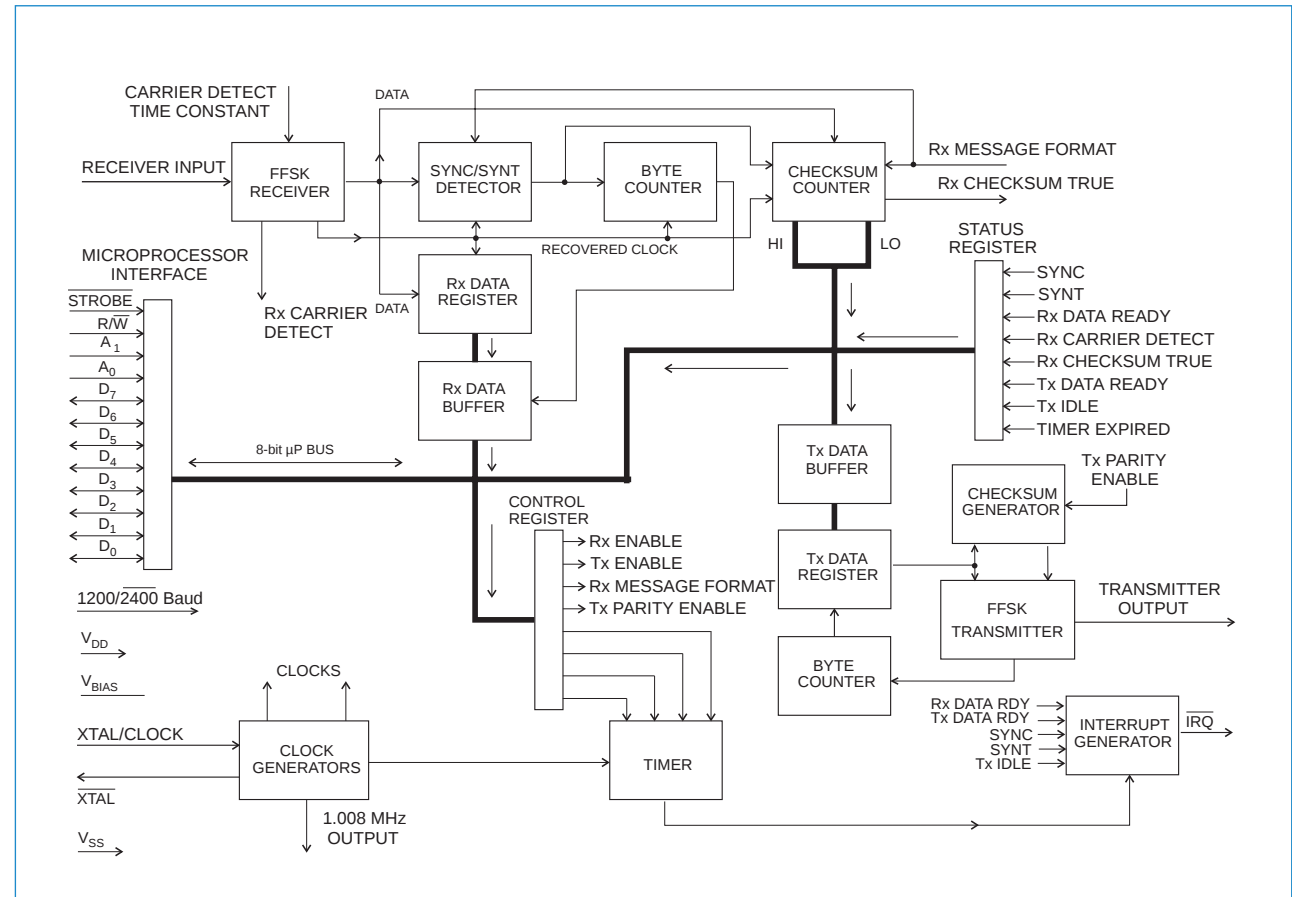
Wireless
Data

Features:

- ❑ Full Duplex 1200 and 2400 Baud Operation
- ❑ High Intelligence
- ❑ Error-Check Word Generation and Checking
- ❑ Frame SYNC and SYNT Detection
- ❑ Preamble Generation
- ❑ μ Processor Compatible Parallel Interface
- ❑ Low Power Consumption
- ❑ General Purpose Timer

Applications:

- .. MPT 1327 and General Purpose Trunked Radio Applications
- .. Radio Telemetry
- .. Radio Packet Data



Packages
FX429A J4
FX429A L1
FX429A L2

FX469 1200/2400/4800 Baud FFSK Modem

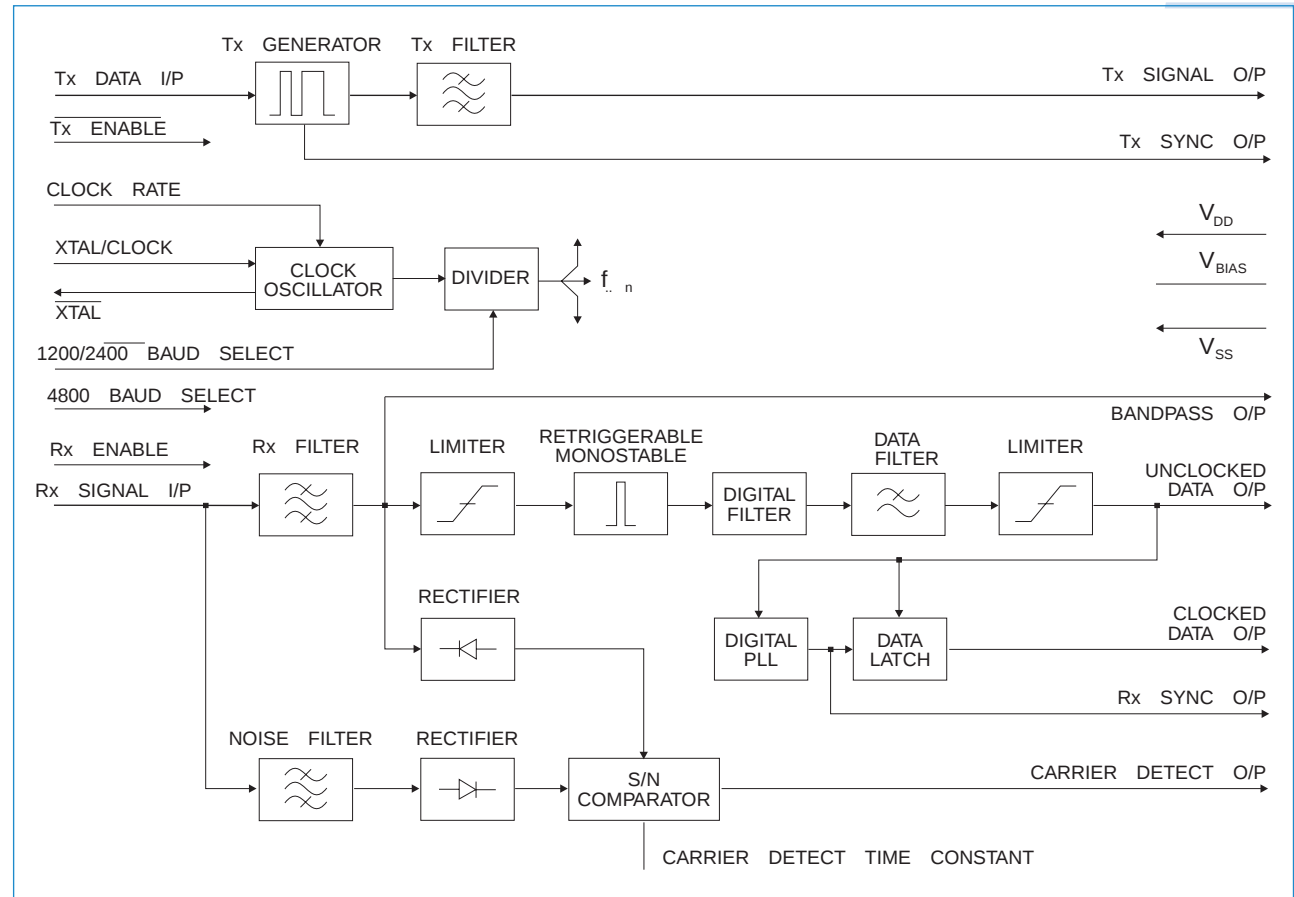
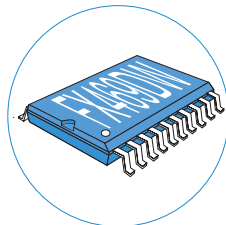
Wireless
Data

Features:

- Selectable Data Rates:
1200, 2400 and 4800 Baud
- Full Duplex FFSK
- Rx and Tx Bandpass Filters
- Clock Recovery and Carrier Detect Facilities
- Pin Selected Xtal/Clock Inputs
1.008MHz or 4.032MHz

Applications:

- .. Data Over Radio
- .. PMR and Cellular Radio Signalling
- .. Portable Data Terminals
- .. Personal/Cordless Telephone
- .. Industrial Control Signalling



Packages	
FX469DW	D3
FX469P6	

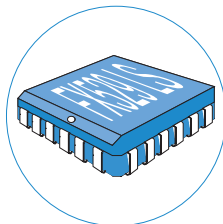
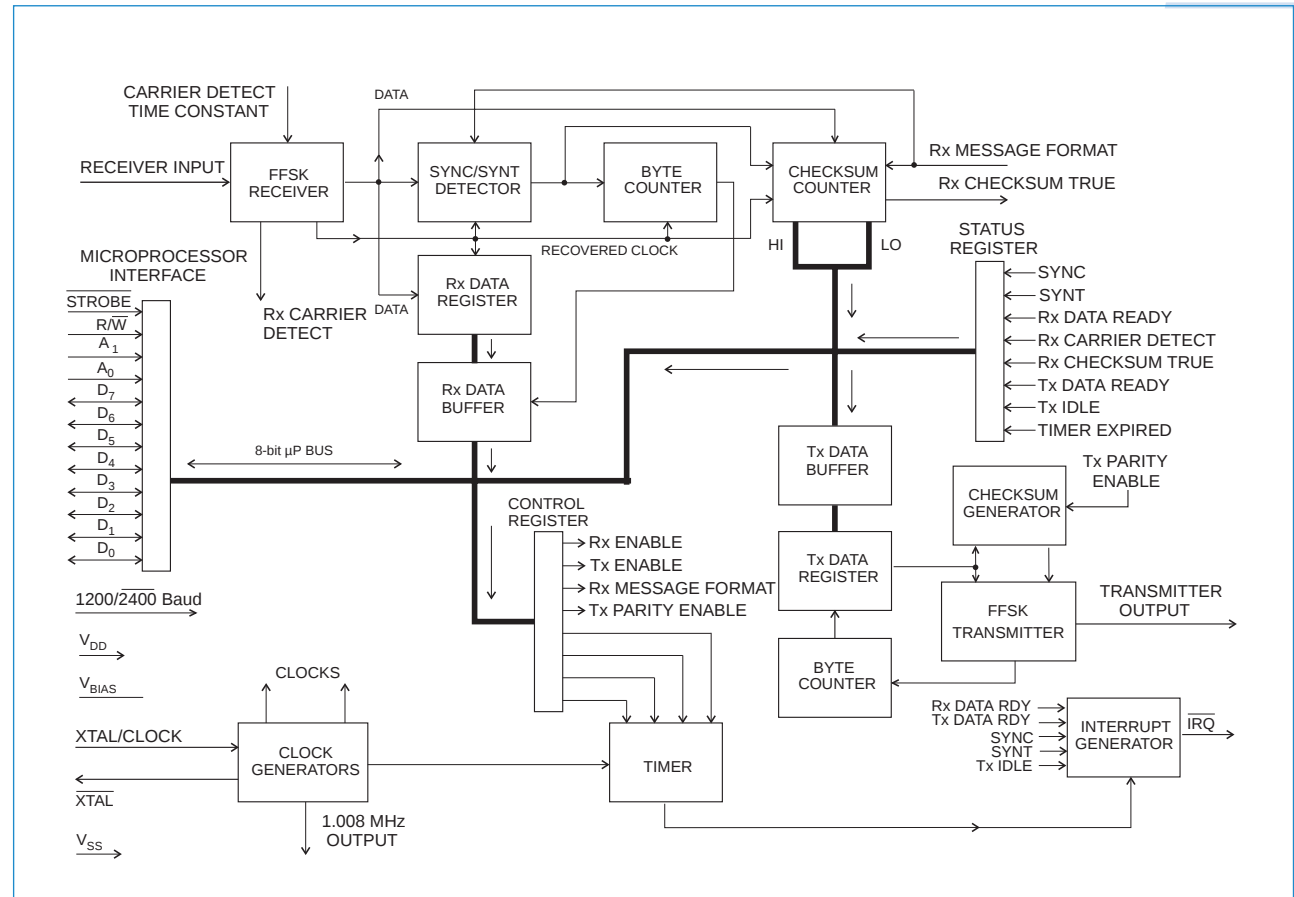
FX529 FFSK Modem

Features:

- ❑ Full Duplex 1200 Baud Operation
- ❑ High Intelligence
- ❑ Error-Check Word Generation and Checking
- ❑ Frame SYNC and SYNT Detection
- ❑ Preamble Generation
- ❑ μ Processor Compatible Parallel Interface
- ❑ Low Power Consumption
- ❑ General Purpose Timer

Applications:

- PAA 1382 and General Purpose Trunked Radio Applications
- Meets ETSI I-ETS 300 230 Binary Signalling Specification
- Data Based Selective Calling
- Radio Packet Data



Packages	
FX529J	J4
FX529LG	L1
FX529LS	L2

FX589 Low Voltage/High Speed GMSK Modem

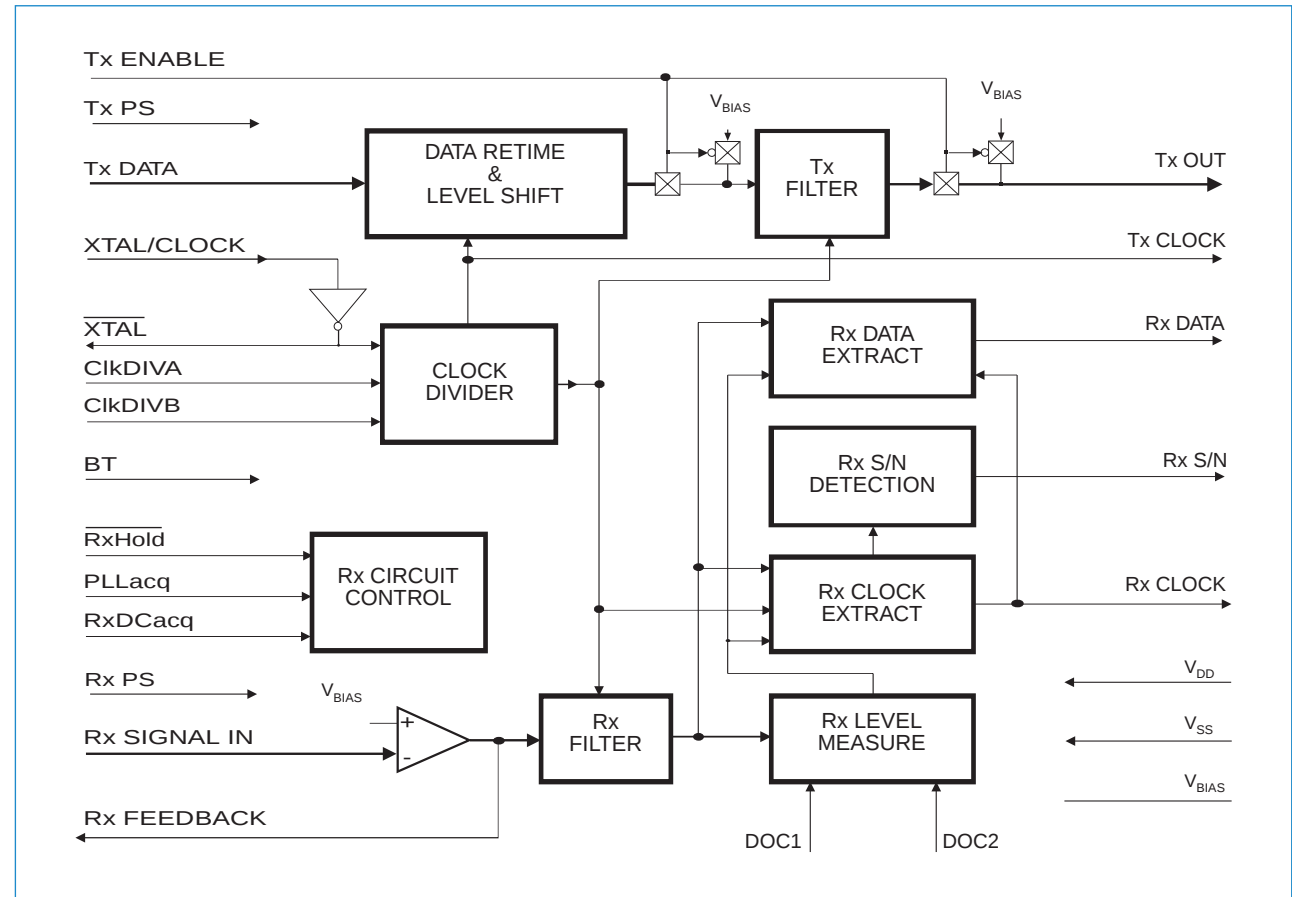
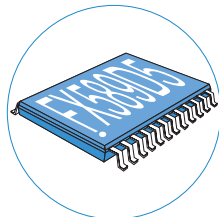
Wireless
Data

Features:

- Full Duplex Gaussian Minimum Shift Keying (GMSK)
- Data Rates: 4kb/s to 80kb/s
- Selectable BT: 0.3 or 0.5

Applications:

- “ Low Current Analogue Non-DSP Solution
- “ Meets RCR STD-18
- “ Wireless LAN/Modems
- “ Handy Data Terminals
- “ Low Power Wireless Data Links for PCs, Laptops and Printers
- “ Point-Of-Sale Terminals
- “ Wireless Bar-Code Readers and Stock Controllers
- “ Wireless Local Loop
- “ Amateur Packet Radio
- “ Wireless ISDN



Packages	
FX589DW	D2
FX589D5	
FX589P	P4

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX909A GMSK Packet Data Modem

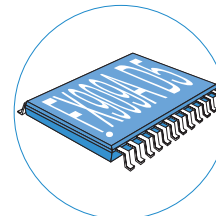
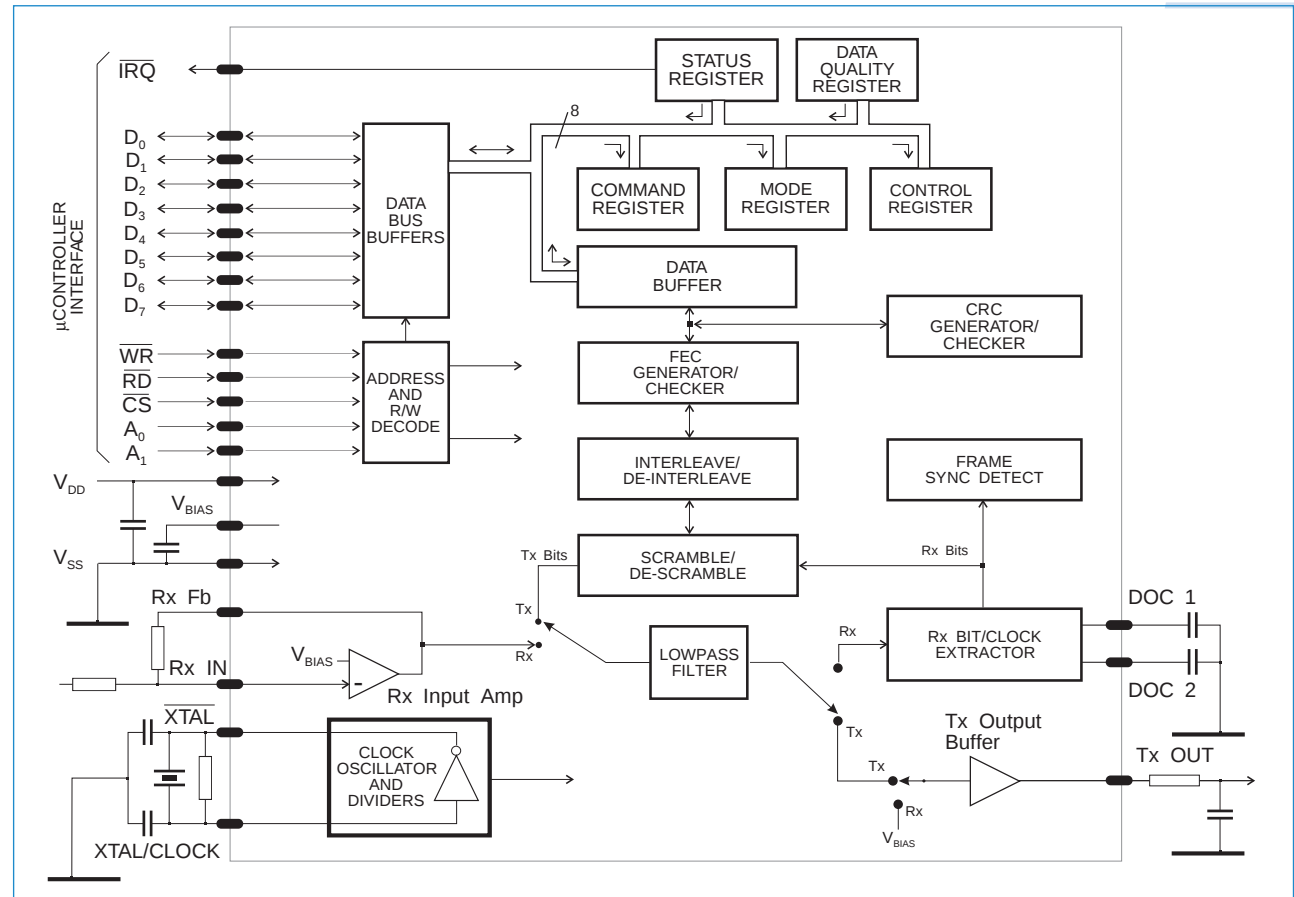
Wireless
Data

Features:

- GMSK Modulation
- Checksum Generation and Checking
- Rx and Tx Modes up to 19.2kb/s
- Full Data Packet Framing
- 'Mobitex' Compatible
- Flexible Operating Modes
- Host Processor Interface

Applications:

- .. 'Mobitex' Terminals
- .. Wireless Telemetry
- .. Licence-Free Radio Data
- .. I S M-Band Radio



Packages
FX909A D2
FX909A D5

FX919B 4-Level FSK Packet Data Modem

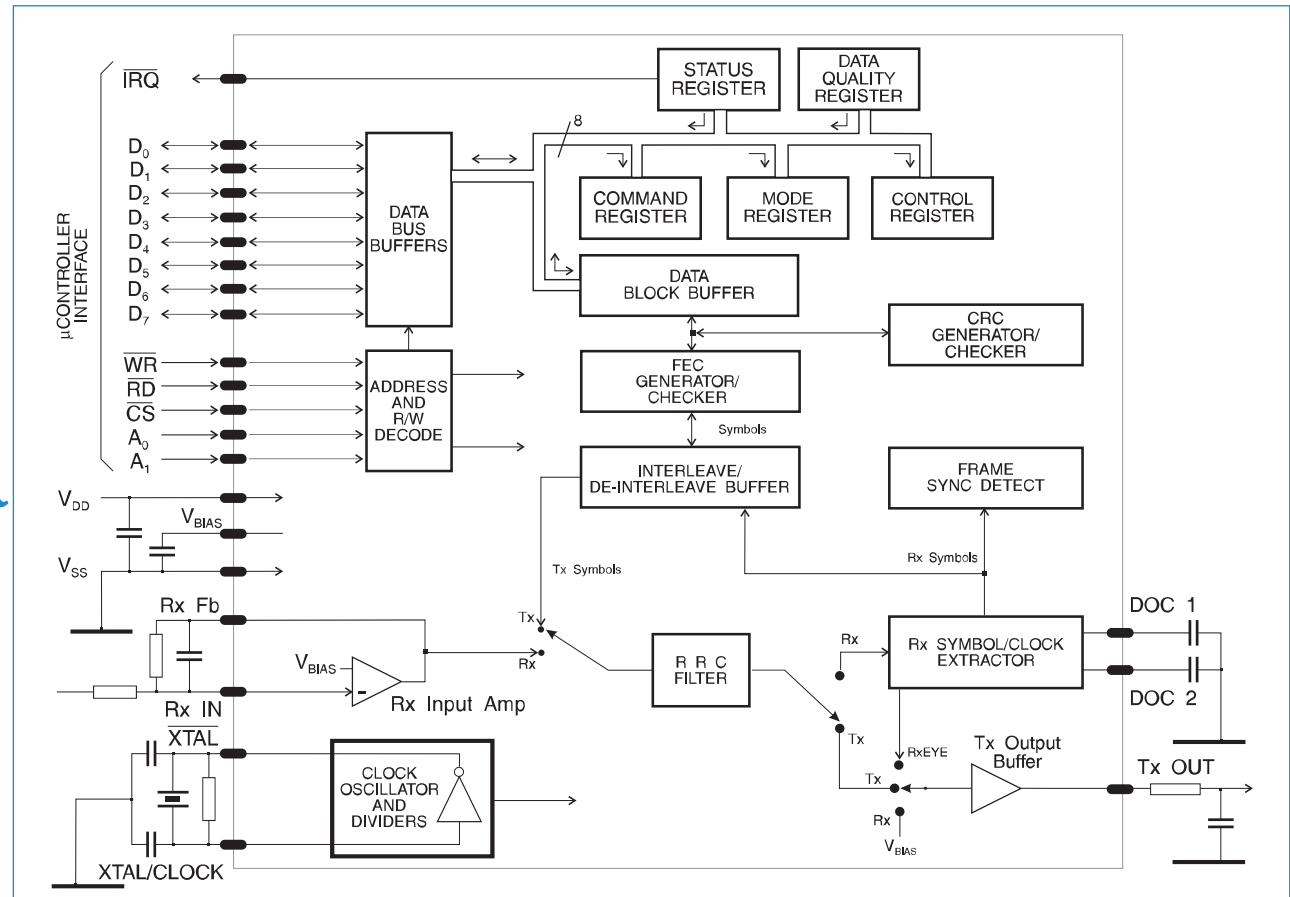
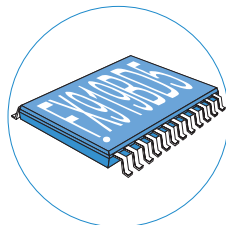
Wireless
Data

Features:

- 4-Level FSK Modulation
- Half Duplex, 4.8kb/s to 19.2kb/s Operation
- Full Data Packet Framing
- Flexible Operating Modes
- Host Processor Interface

Applications:

- .. High-Speed Packet Data
- .. Wireless Bar Code Readers
- .. Point-Of-Sale Terminals



Packages

FX919BD2
FX919BD5

FX929B 4-Level FSK Packet Data Modem

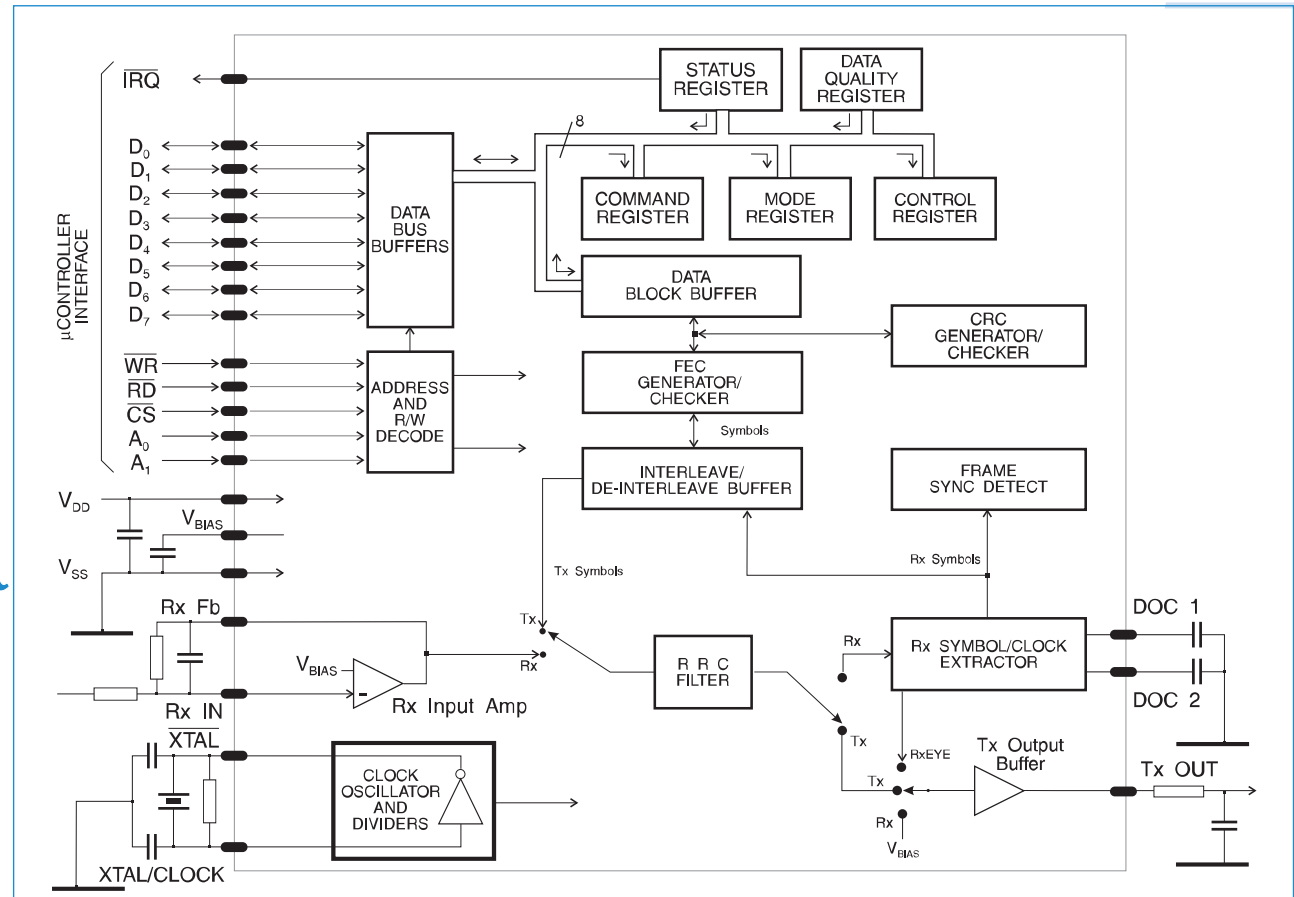
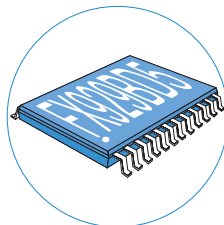
Wireless
Data

Features:

- 4-Level FSK Modulation
- Half Duplex, 4.8kb/s to 19.2kb/s Operation
- Full Data Packet Data Framing
- RD-LAP Compatible
- Flexible Operating Modes
- Host Processor Interface
- S-DSM Controlled Systems

Applications:

- .. RD-LAP Systems
- .. Data-Tac Terminals
- .. Japanese Data-Tac System



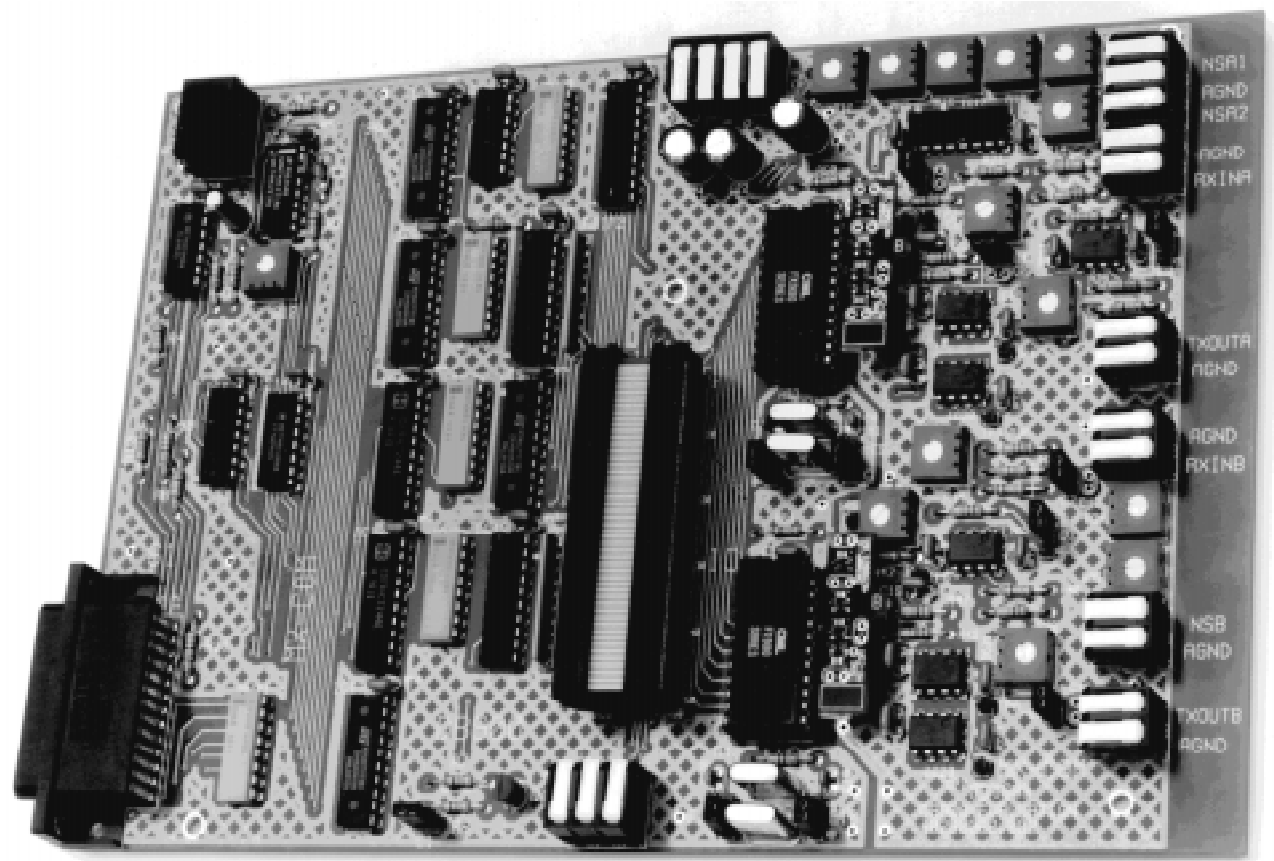
Packages

FX929BD2
FX929BD5

... .. Experimentation with the EV9000 Evaluation Kit

Features:

- ☐ Evaluation and Experimentation with FX909A, FX919B and FX929B Modem ICs
- ☐ Two Complete Modem Channels
- ☐ Exposed Hardware Interface
- ☐ PCB under Windows (PC) Environment Control
- ☐ Windows Based Software
- ☐ Parallel Port PC Interface
- ☐ Software Controlled Test Sequences with Result Logging
- ☐ Plug-In Extension Boards
- ☐ Software Selection of On-Board Signal Biases and Input Noise Sources
- ☐ User-Selectable Data rates and Choice of Clock Xtal
- ☐ Access to ALL Modem Pins
- ☐ Modem IC Internal State Display
- ☐ Independent Modem IC Operating Voltage
- ☐ Modem IC Amplitude Adjustment
- ☐ Custom Tx Packet Configuration
- ☐ PTT Output and Carrier Sense Input Capabilities
- ☐ Hardware Interrupt
- ☐ Bit Error Rate and Data Quality Checking
- ☐ Software and Firmware Available:
Upgrades via <http://www.cmlmicro.co.uk/>



FX949 Formatted CDPD Modem

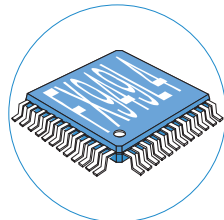
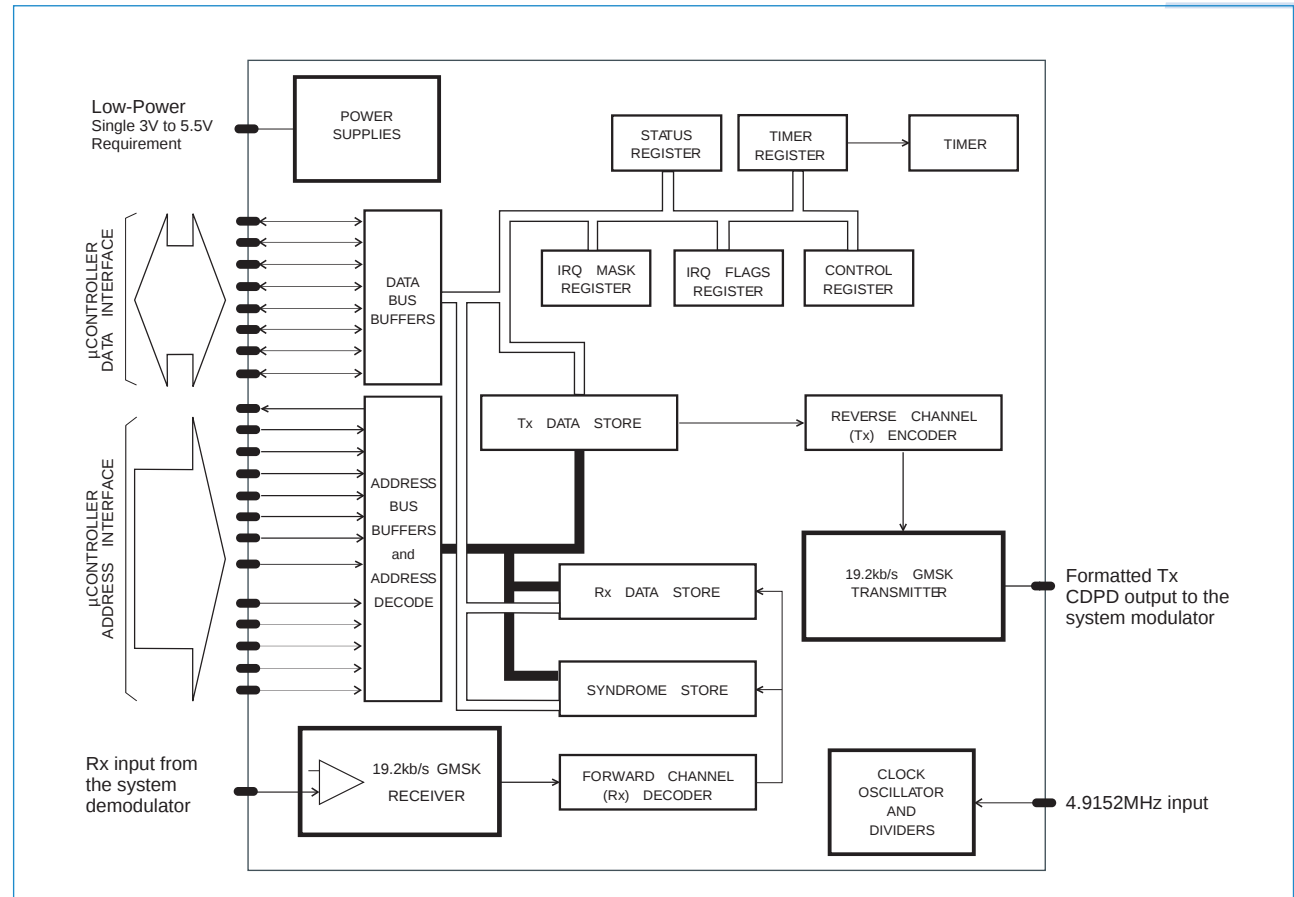
Wireless
Data

Features:

- ❑ MES Full Duplex Operation
- ❑ Forward Channel Decoding
- ❑ Reverse Channel Decoding
- ❑ Error Detection and Syndrome Output
- ❑ 19.2kb/s GMSK Modulation
- ❑ Sleep Timer Included

Applications:

- .. CDPD Mobile End Stations (MES)



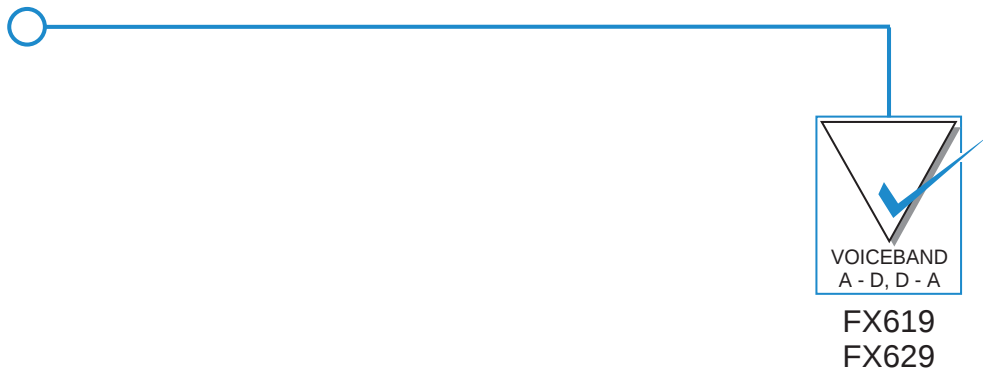
Packages

FX949L4

FX949L6

PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.



FX619 'Eurocom' Delta Codec

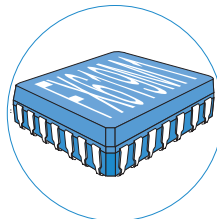
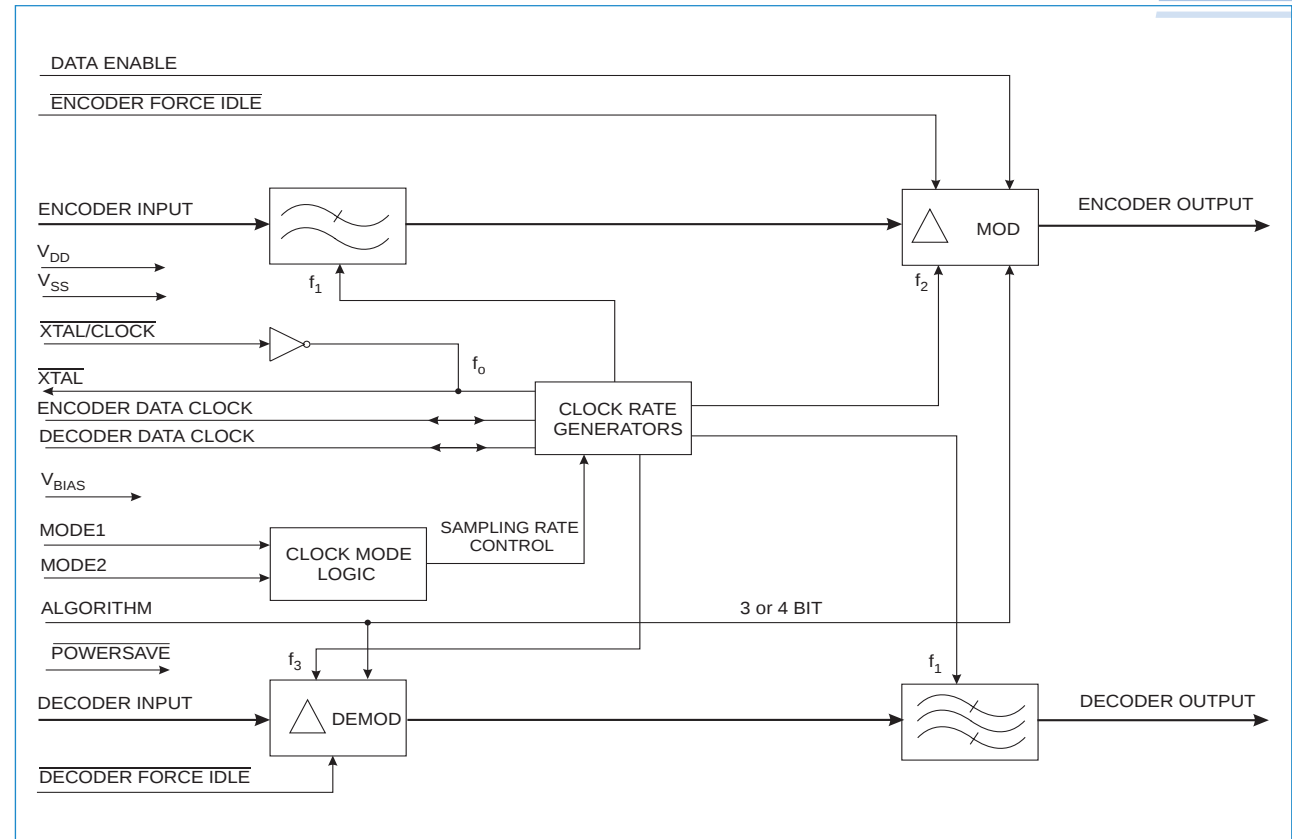
Military
Comms

Features:

- ❑ Single Chip Full Duplex CVSD Codec
- ❑ On-Chip Input and Output Filters
- ❑ Programmable Sampling Clocks
- ❑ 3 or 4-Bit Compand Algorithm
- ❑ Force-Idle and Powersave Facilities
- ❑ Fully Meets 'Eurocom D1-IA8'

Applications:

- .. Military Communications
- .. Field Exchange and Telephone Systems
- .. Delta Multiplex, Switch and Phone



Packages	
FX619J	J3
FX619M1	
FX619P6	

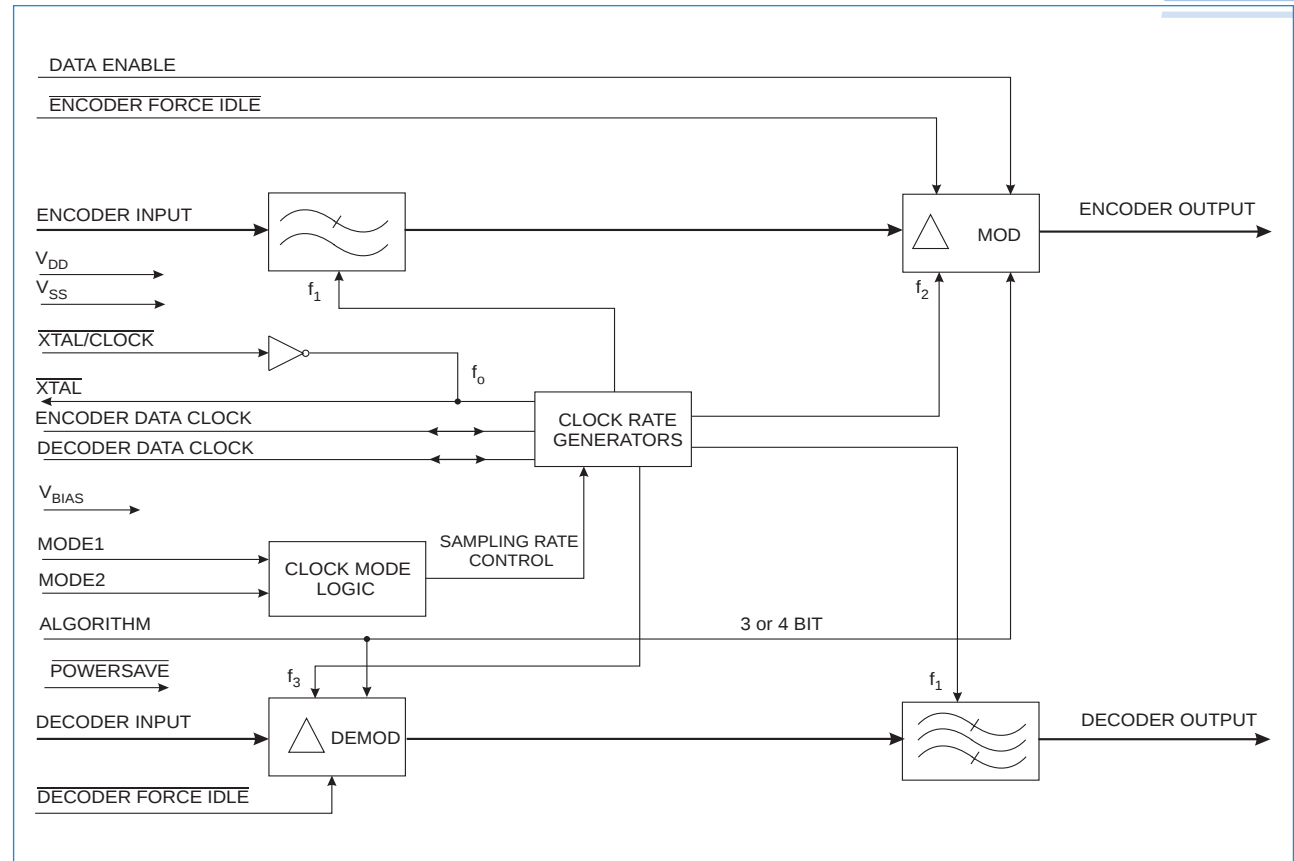
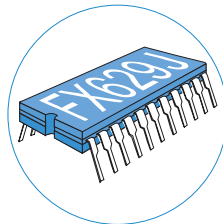
FX629 'Military' Delta Modulation Codec

Features:

- ❑ Single Chip Full Duplex CVSD Codec
- ❑ On-Chip Input and Output Filters
- ❑ Programmable Sampling Clocks
- ❑ 3 or 4-Bit Compand Algorithm
- ❑ Force-Idle and Powersave Facilities
- ❑ Fully Meets 'Mil-Std-188-113'

Applications:

- .. Military Communications
- .. Field Exchange and Telephone Systems
- .. Delta Multiplex, Switch and Phone

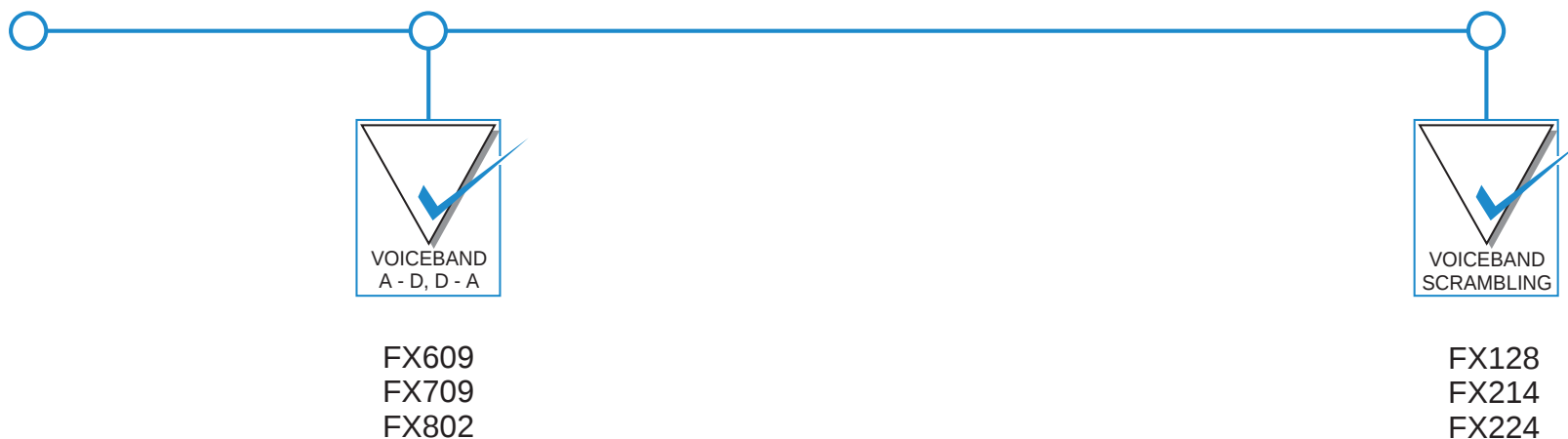


Packages	
FX629J	J3

PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.

Voice
Security



FX128 Cordless Telephone Scrambler

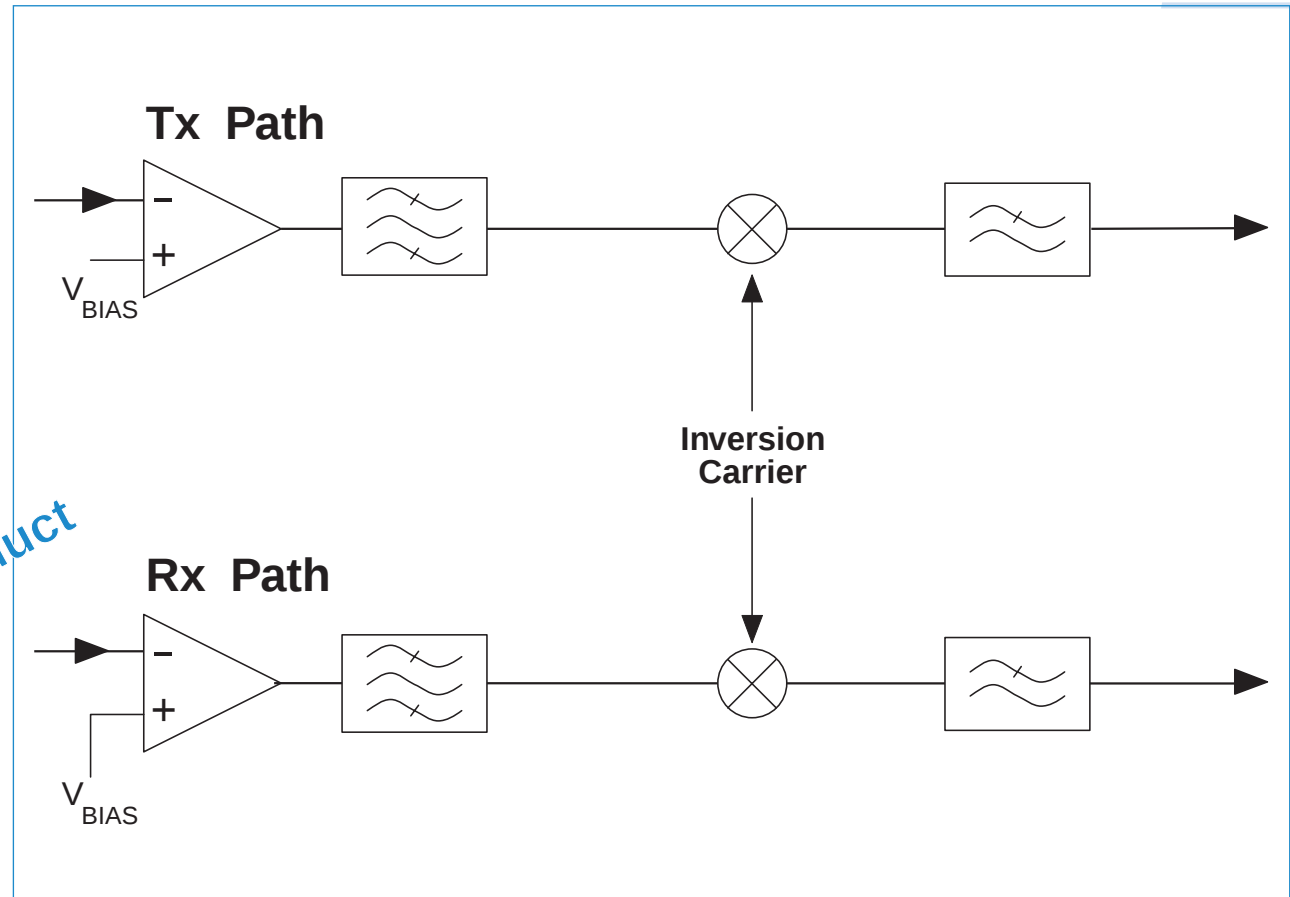
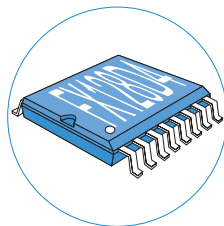
Voice
Security

Features:

- Full Duplex Frequency Inversion Scrambling
- On-Chip Bandpass and Lowpass Audio Filters
- High Quality Audio Output
- Carrier Rejection >55dB
- Selectable Xtal/Clock Frequency
10.24MHz or 3.58/3.6864MHz
- Low Power 3.0 to 5.0 Supply Requirement

Applications:

- Cordless Telephones
- Wireless PABX
- Base and Portable Systems



Packages
FX128D4
FX128P3

FX214/FX224 VSB Scrambler

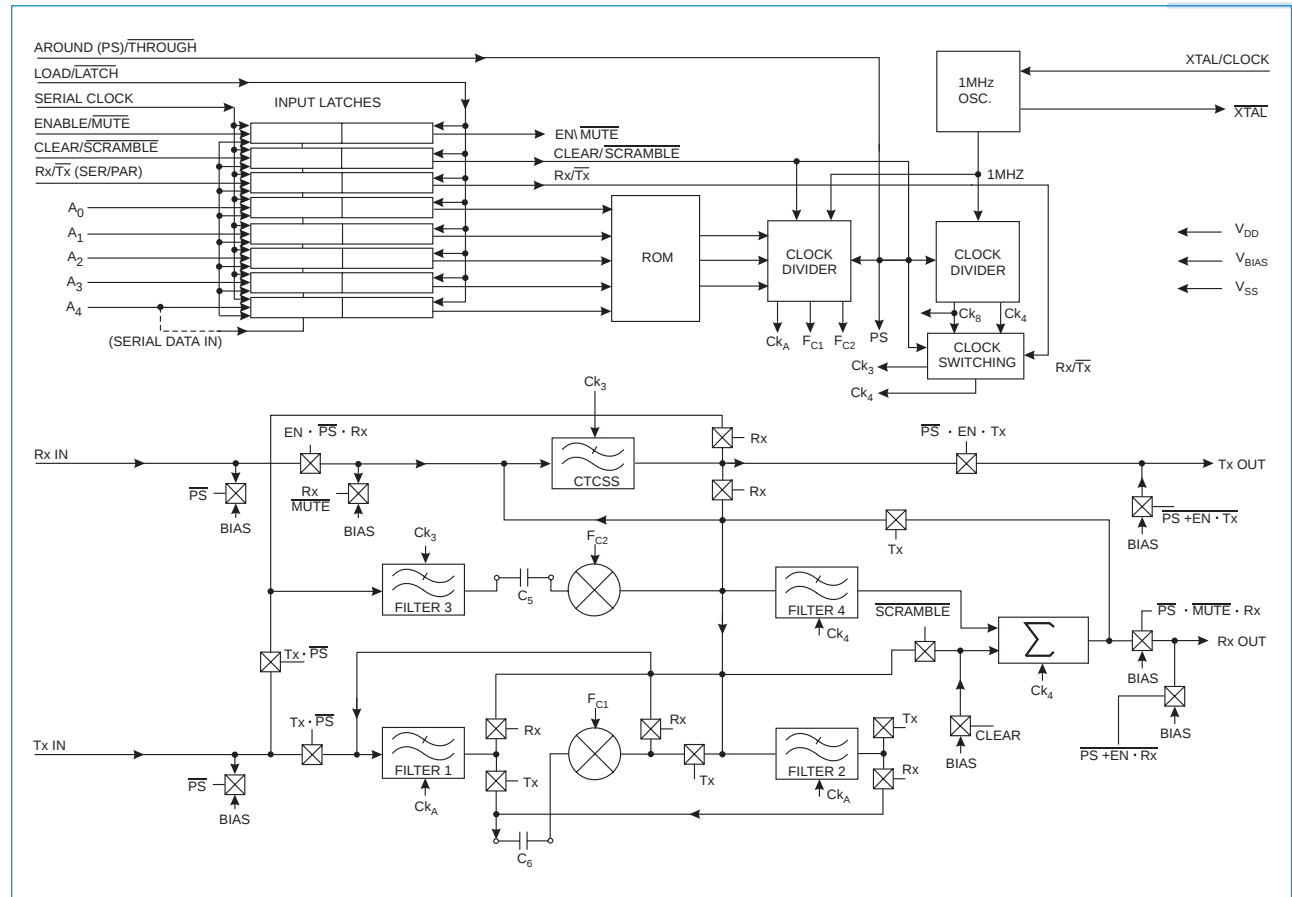
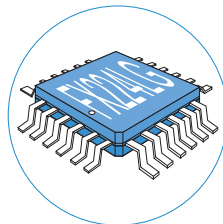
Voice
Security

Features:

- ❑ Variable Split-Band Frequency Inversion Scrambler
- ❑ 32 Programmed Split Frequencies
- ❑ CTCSS High Pass Filter
- ❑ Half Duplex Operation
- ❑ High Recovered Audio Quality
- ❑ Powersave Facility
- ❑ Serial/Parallel Load Options:
FX214 (Serial), FX224 (Parallel)
- ❑ CTCSS Compatible

Applications:

- .. Mobile Radio
- .. Fixed Code Voice Scramblers
- .. Rolling Code Voice Scramblers



Packages	
FX214J	J3
FX214LG	L1
FX214L2	
FX224J	J4
FX224LG	L1
FX224LS	L2

FX609 CVSD Codec

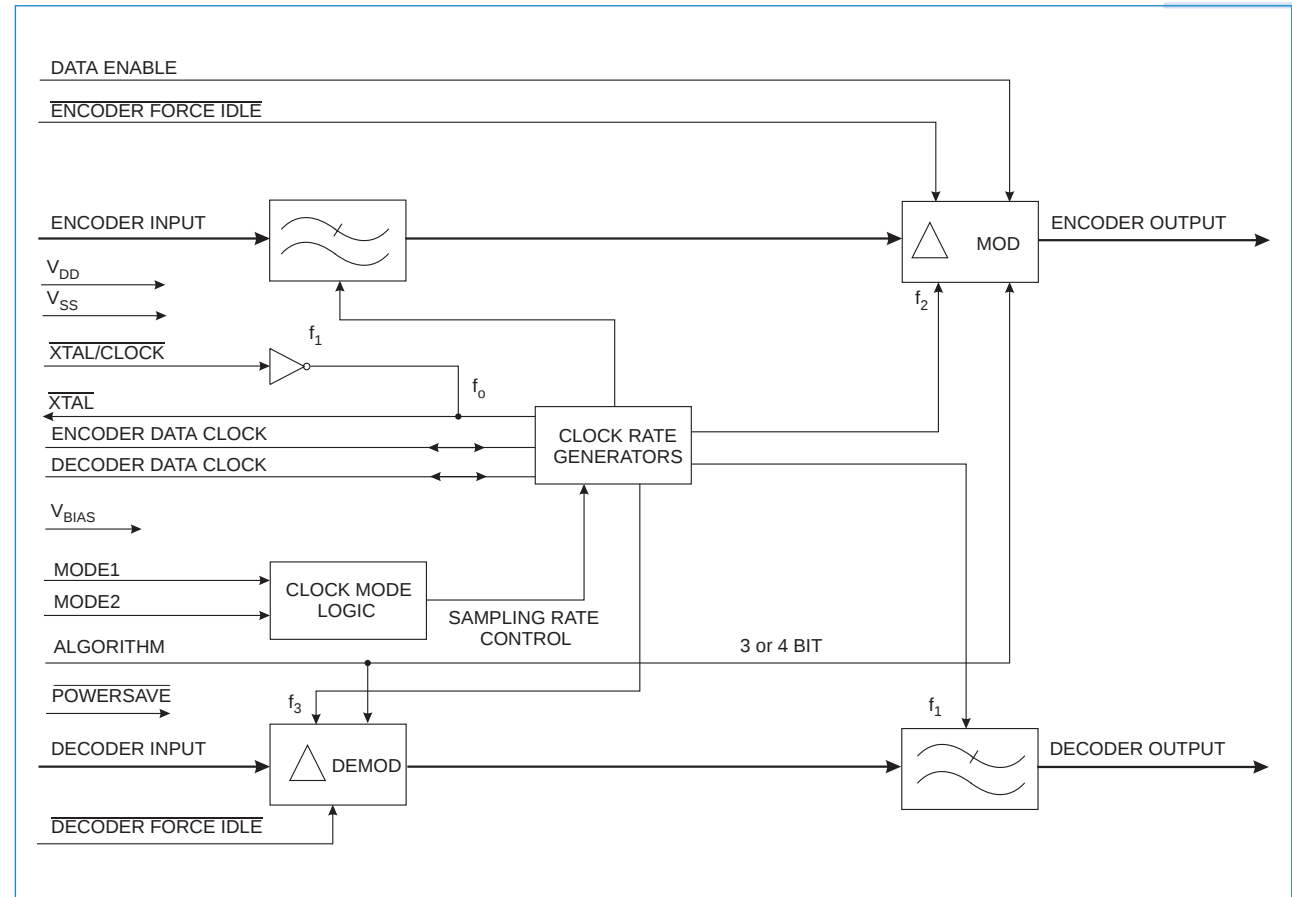
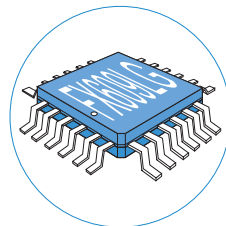
Voice
Security

Features:

- ❑ Full Duplex CVSD Codec
- ❑ On Chip Input and Output Filters
- ❑ Selectable 3 or 4-Bit Compand Algorithm
- ❑ Force Idle and Powersave Facilities

Applications:

- .. Digital Speech Communications
- .. Time Domain Scrambling
- .. Voice Storage and Retrieval
- .. Digital Delay Lines
- .. Speech Analysis
- .. Spread Spectrum Communications
- .. Vehicle Location Systems (Speech Path)



Packages	
FX609LG	L1
FX609L2	
FX609P6	

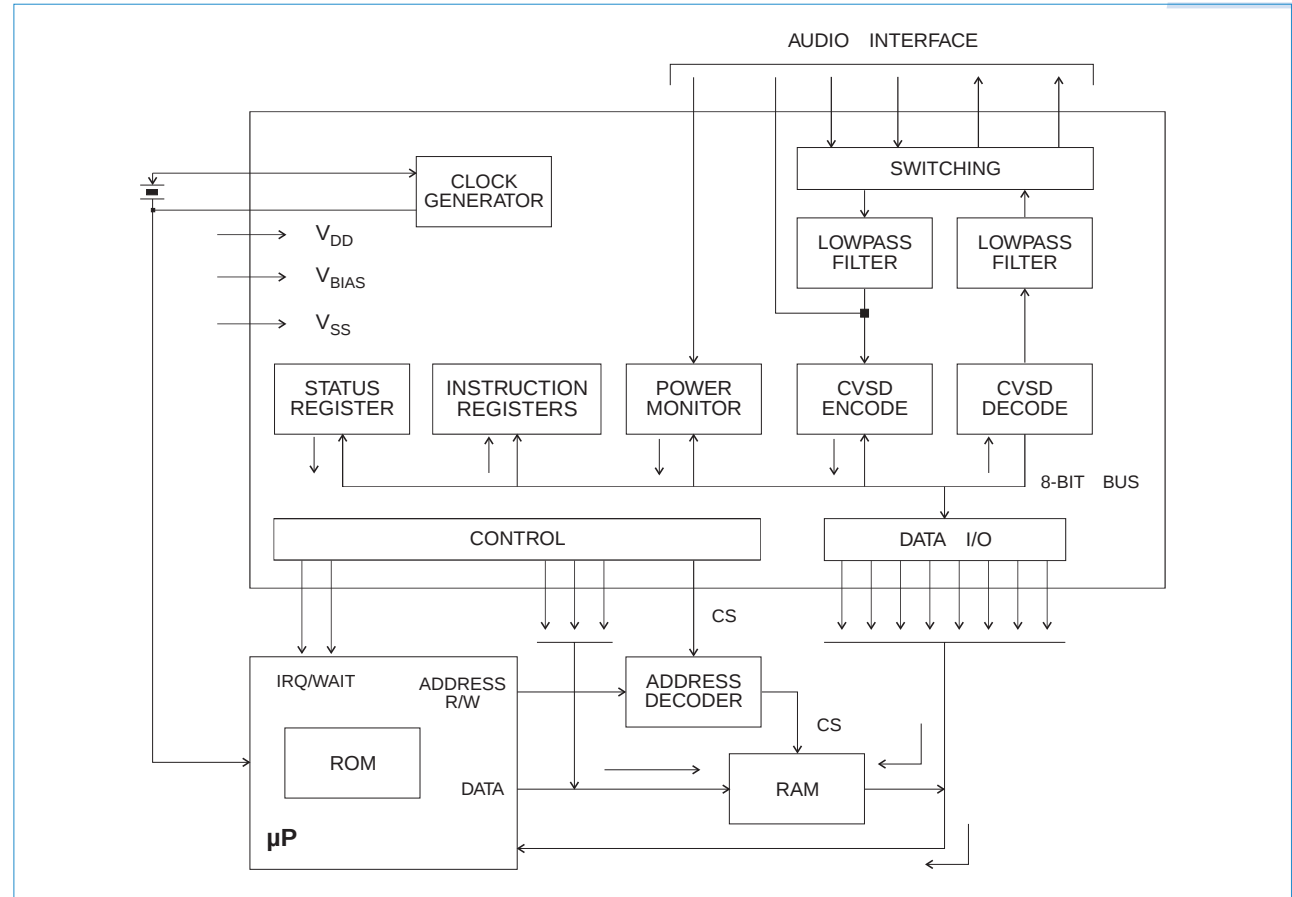
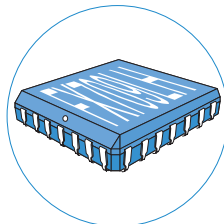
FX709 Voice Store and Retrieve (VSR) Codec

Features:

- CVSD Encode and Decode
- Programmable Clock Rate
- Programmable Voice Filters
- Voice-Power Output Indication
- Voice-Spectrum Monitor
- 8-Bit (I/O) Memory/Instruction Interface

Applications:

- .. Voice Message Mailbox
- .. Status Annunciators
- .. Retry/Message Forward
- .. Voice Security Scrambling
- .. Voice Data Communications
- .. Time/Frequency Companding
- .. Audio Delay Functions



Packages	
FX709J	J5
FX709LH	L3

FX802 DVSR Codec

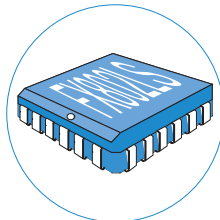
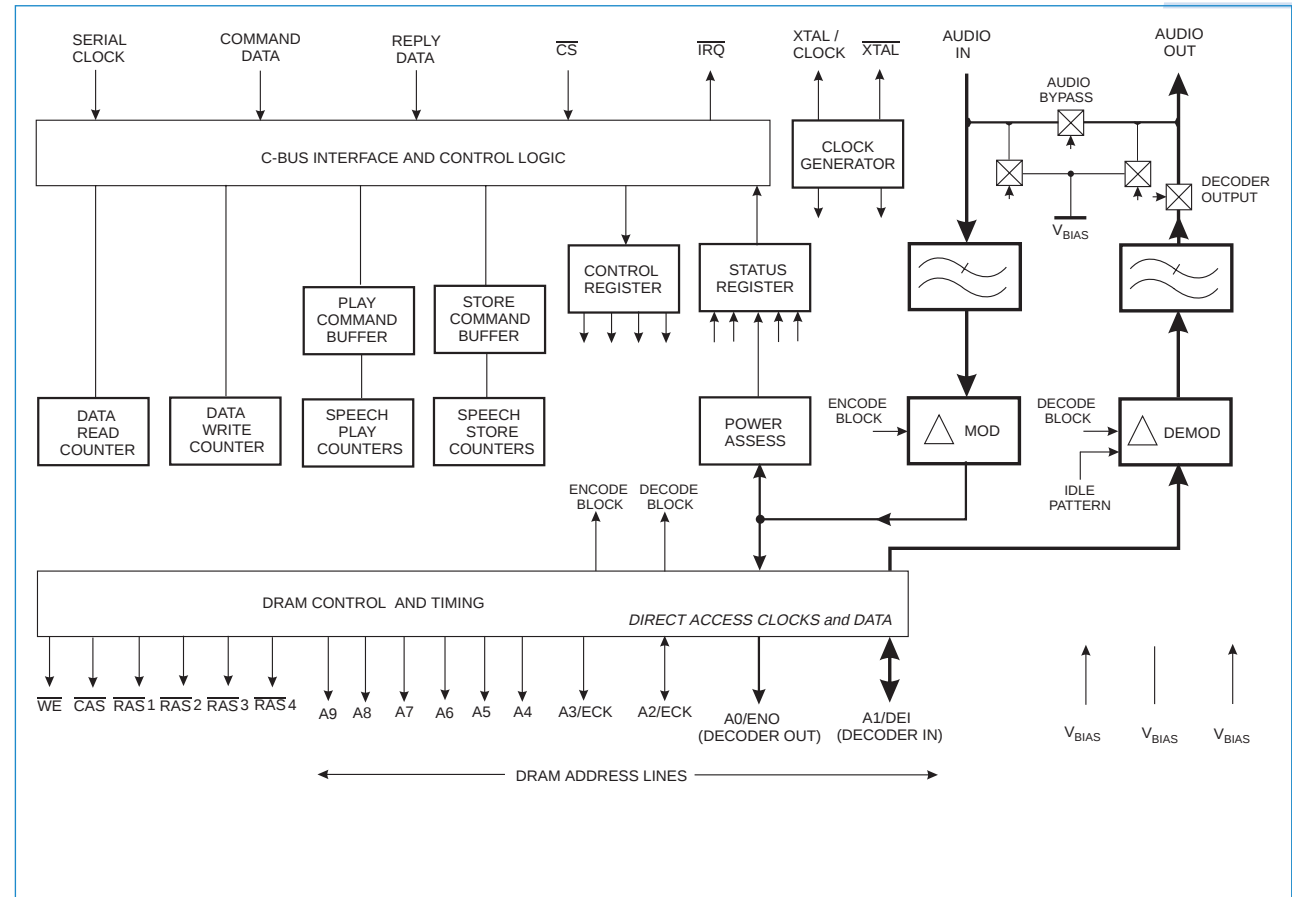
Voice
Security

Features:

- Speech Digitization
- Speech (Data) Decoding
- Data Storage
- Data Recovery
- On-Chip DRAM Control and Timing
- "C-BUS" Serial Command/Data Interface

Applications:

- Radio-to-Telephone Interface Delay
- Answering Machine
- Voice Annunciator
- Time Domain Scramblers
- Data Terminals with Voice Storage and Transmission

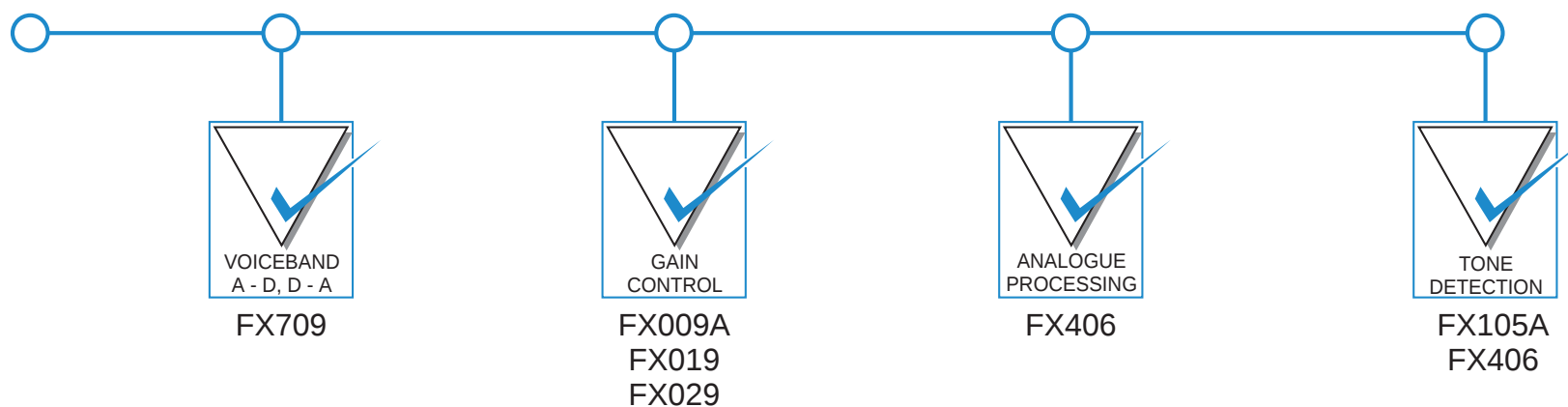


Packages	
FX802J	J5
FX802LG	L1
FX802LS	L2

PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [Block Diagram](#). You may scroll to the product pages from here.

*General
Purpose*



FX009A Digitally Controlled Amp Array

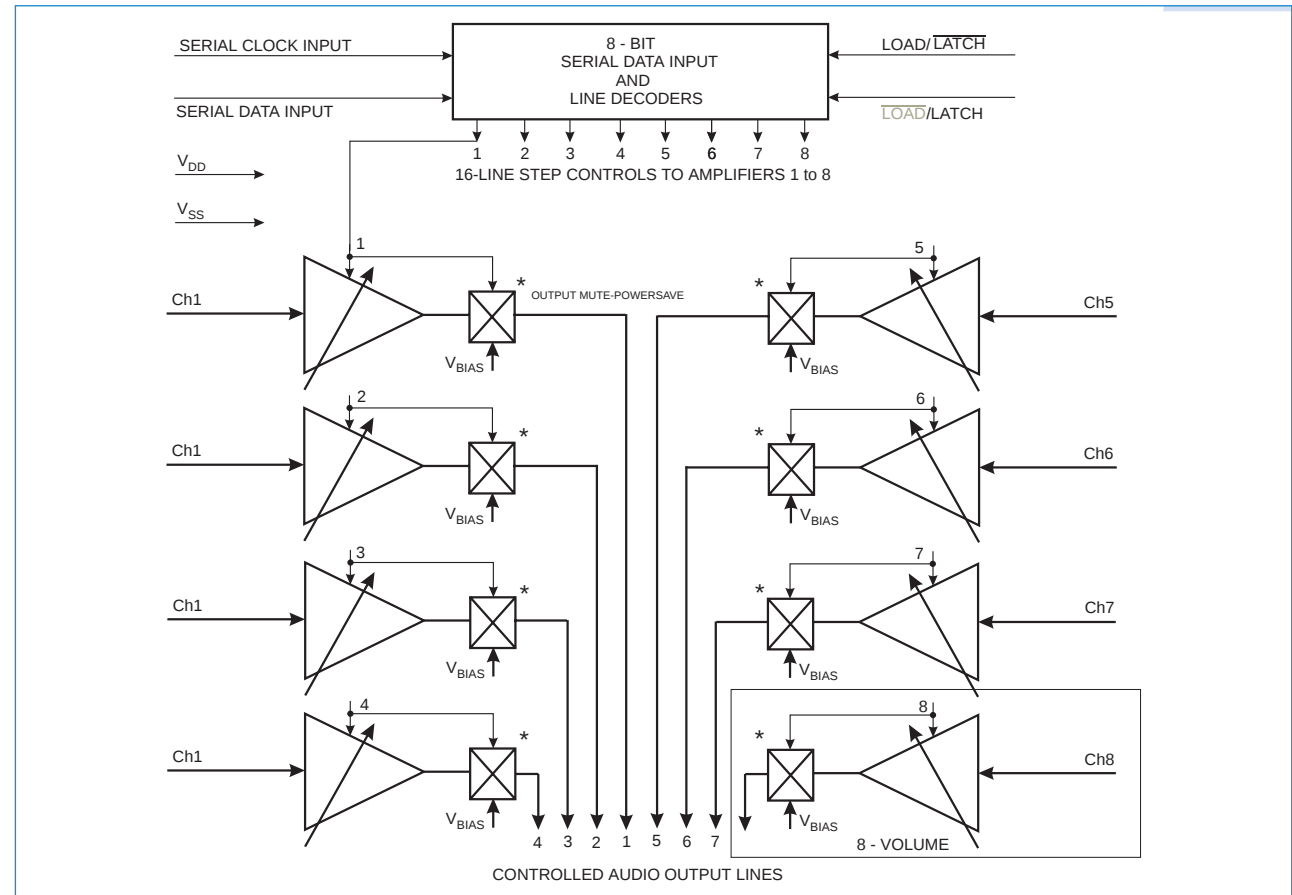
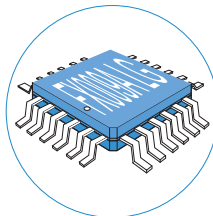
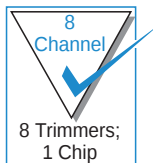
General
Purpose

Features:

- ❑ 8 Digitally Controlled Low-Noise Amplifiers
- ❑ 15 Gain/Attenuation Steps
- ❑ 7 Trimmers, each with a $\pm 3\text{dB}$ Range in 0.43dB Steps
- ❑ 1 'Volume' Trimmer with a $\pm 14\text{dB}$ Range in 2.0dB Steps
- ❑ 8-Bit Serial Data Control
- ❑ Output Mute/Powersave Function

Applications:

- .. PMR and Cellular Communications Systems
- .. Automatic and Manual Test Equipment
- .. Remote Gain Adjustment
- .. Telephone Audio Settings
- .. Medical Equipment
- .. Audio and Data Gain Setting



Packages	
FX009A J	J4
FX009A LG	L1
FX009A LS	L2

FX019 Digitally Controlled Quad Amp Array

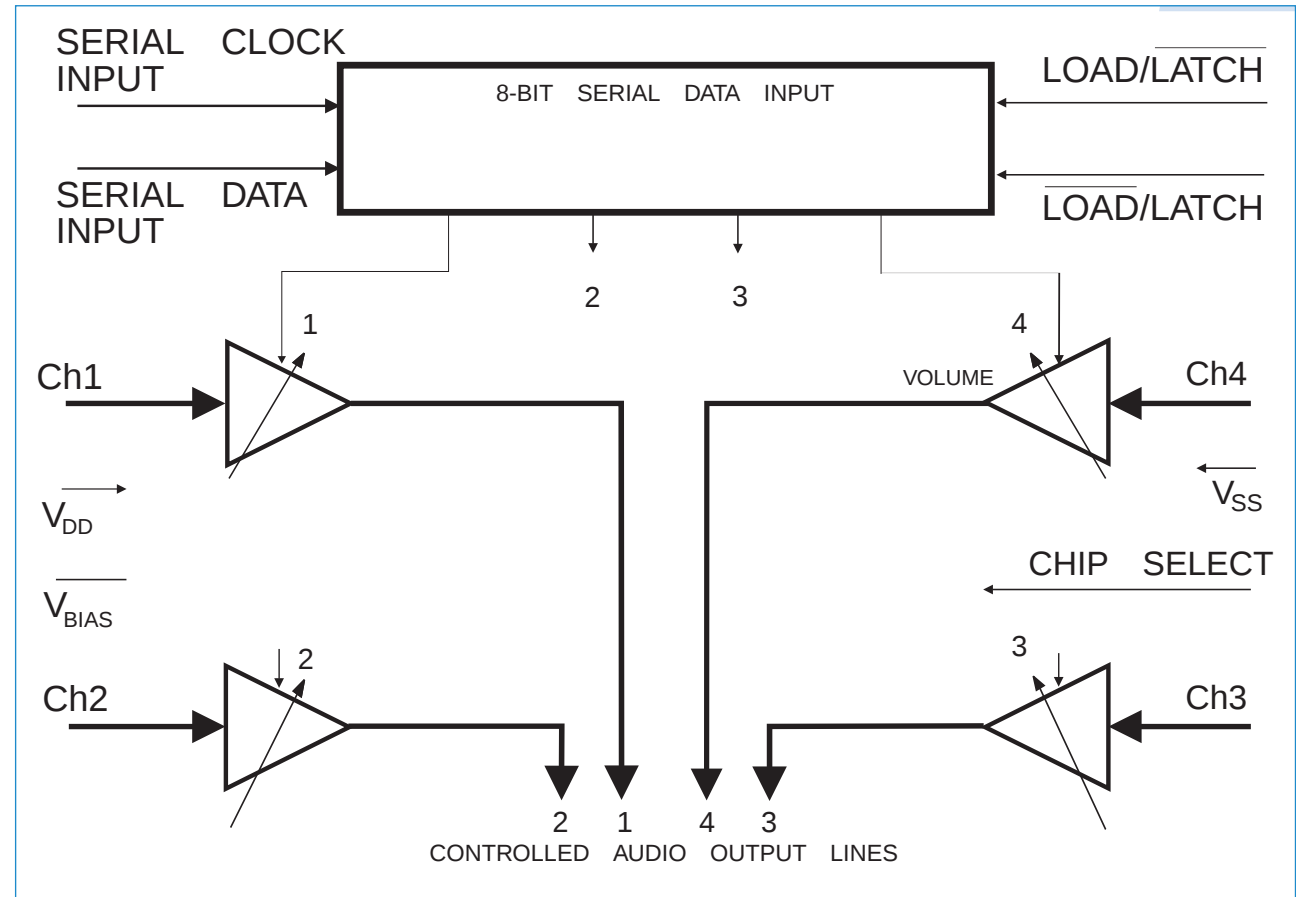
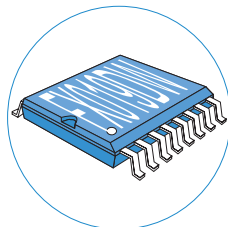
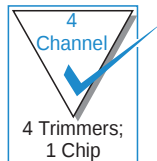
General
Purpose

Features:

- 4 Digitally Controlled Low-Noise Amplifiers
- 15 Gain/Attenuation Steps
- 3 Trimmers, each with a $\pm 3\text{dB}$ Range in 0.43dB Steps
- 1 'Volume' Trimmer with a $\pm 14\text{dB}$ Range in 2.0dB Steps
- 8-Bit Serial Data Control
- Output Mute Function

Applications:

- PMR and Cellular Communications Systems
- Automatic and Manual Test Equipment
- Remote Gain Adjustment
- Telephone Audio Settings
- Medical Equipment
- Audio and Data Gain Setting



Packages	
FX019DW	D4
FX019P	P3

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX029 Dual Digitally Controlled Amp Array

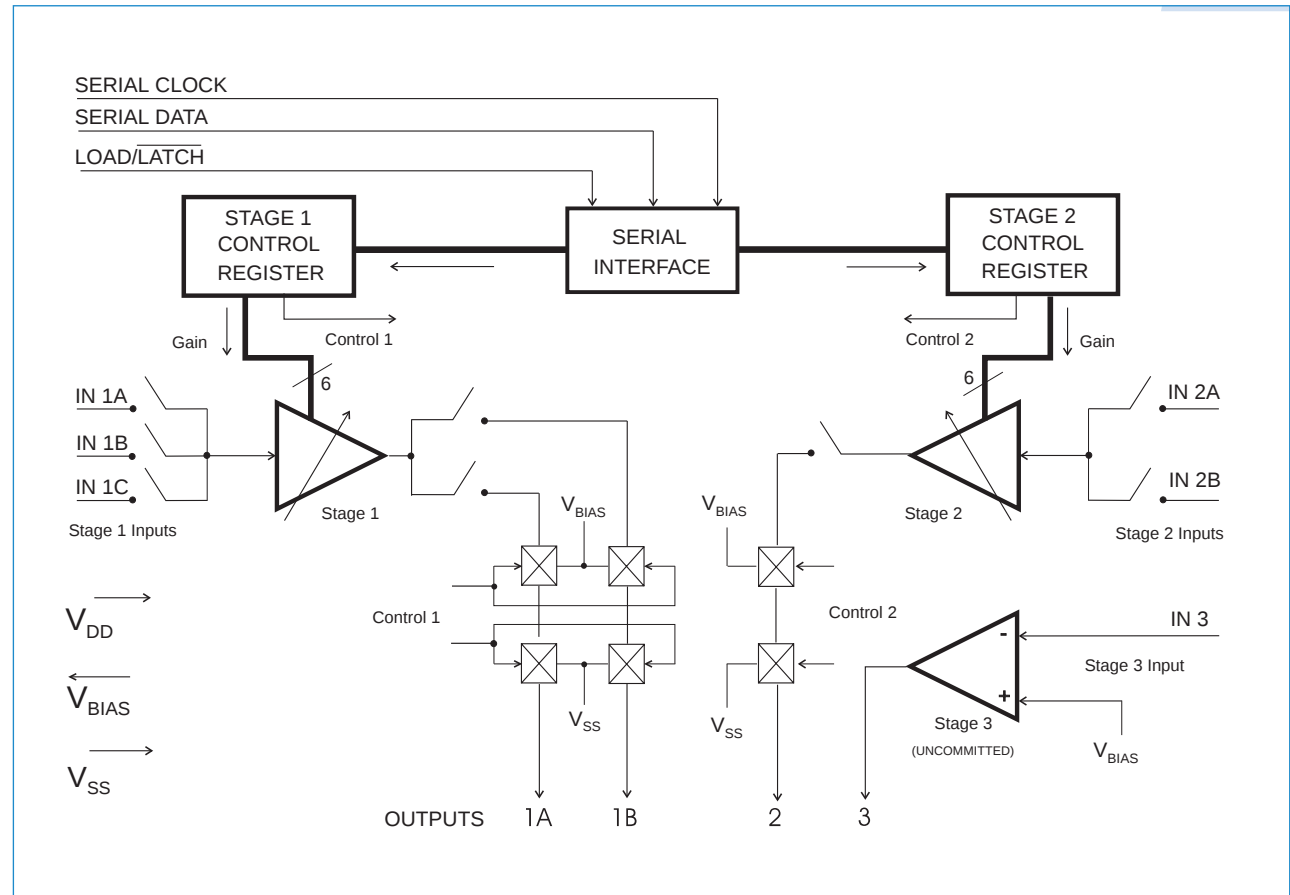
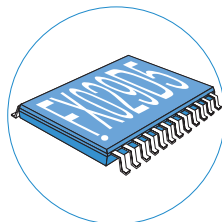
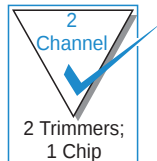
General Purpose

Features:

- 2 Digitally Controlled Low-Noise Amplifiers
- Gain/Attenuation Range of $\pm 48\text{dB}$ (plus Output Mute) in 2dB Steps
- Gain/Attenuation Levels set by Serial Interface
- Separate Fixed-Gain Uncommitted Amplifier

Applications:

- PMR and Cellular Communications Systems
- Automatic and Manual Test Equipment
- Remote Gain Adjustment
- Telephone Audio Settings
- Medical Equipment
- Audio and Data Gain Setting



Packages	
FX029D5	
FX029DW	D4
FX029P3	

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX105A Tone Detector

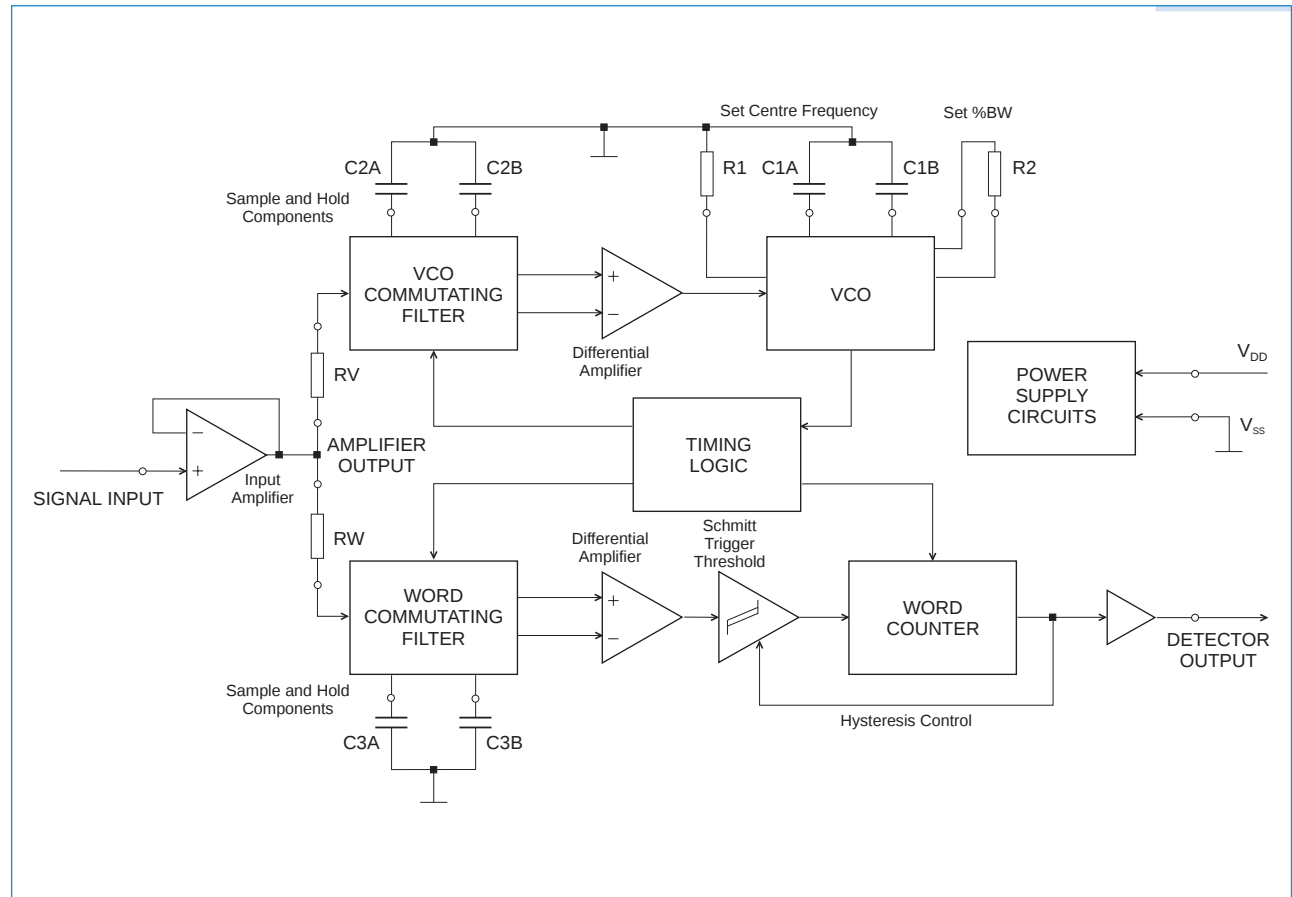
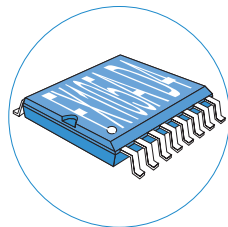
General
Purpose

Features:

- Operates in High Noise Conditions
- Signal Input Range Better-Than 36dB
- High Sensitivity
- Wide Supply-Voltage Range
- Adjustable Input Bandwidth
- Adjustable Input Frequency
- Single and Multitone System Applications

Applications:

- .. Tone Signalling in Mobile and Cellular Radio
- .. Fax Switching
- .. Telecom Tone Detection
- .. SPM and Call Progress



Packages
FX105A D4
FX105A P3

- also available in an E2 'TSSOP' package.
Contact CML or your distributor for information

FX406 'Unilfil®' Universal Analogue Processor

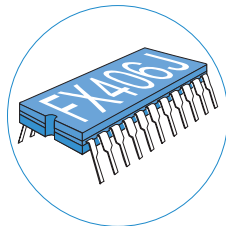
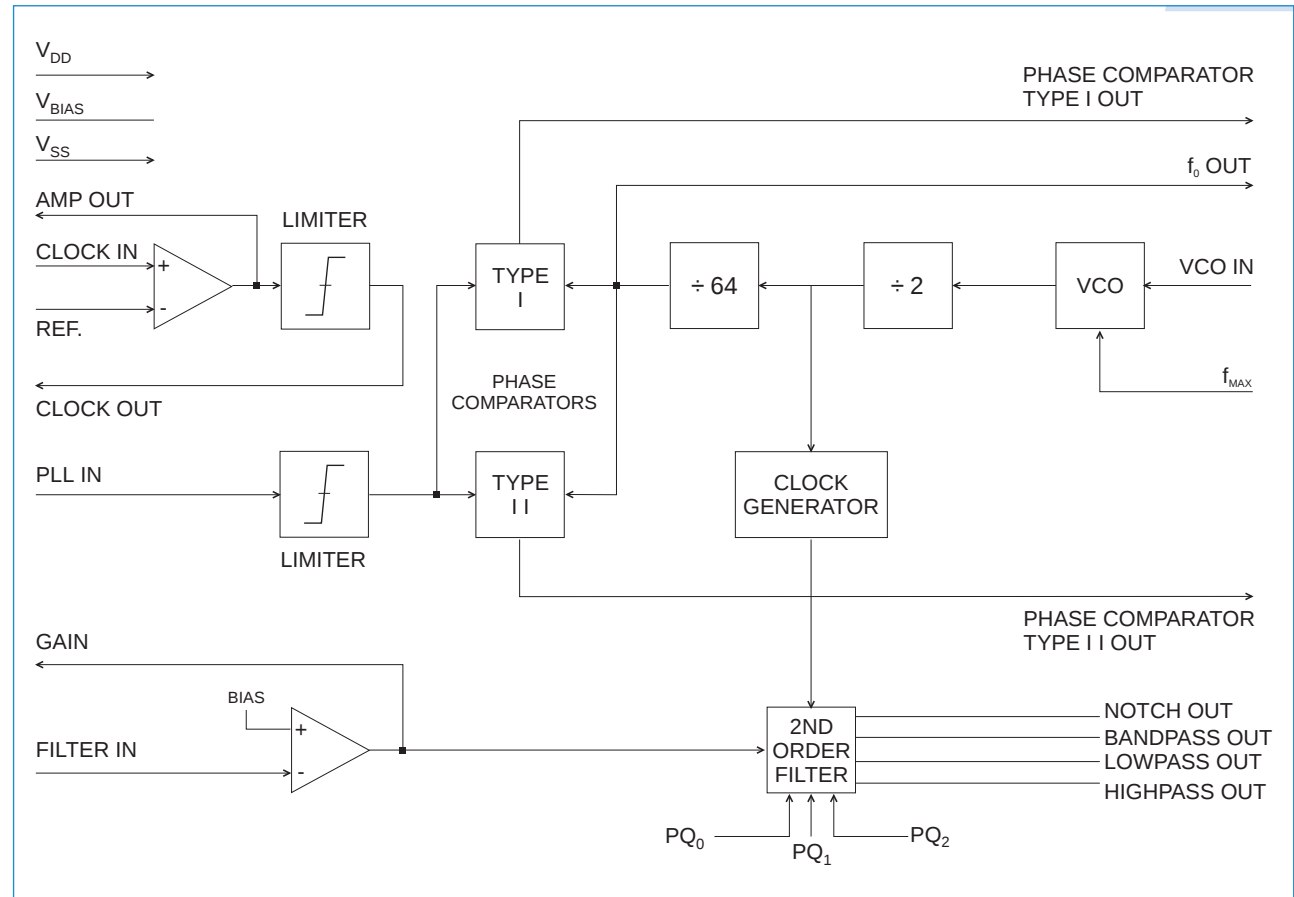
General
Purpose

Features:

- 2nd Order Multiple Filters
- PLL Clock Generator
- Programmable 'Q' Factor
- Fc Setting by RC or External Clock
- Gain Adjustment on Inputs

Applications:

- Programmable Filters
- Voltage-Controlled Filters
- Sinewave Oscillators
- Tracking Filters/Oscillators
- FSK and PSK Modems
- Square-Sine, Pulse-Sine Converters



Packages	
FX406J	J3
FX406LG	L1

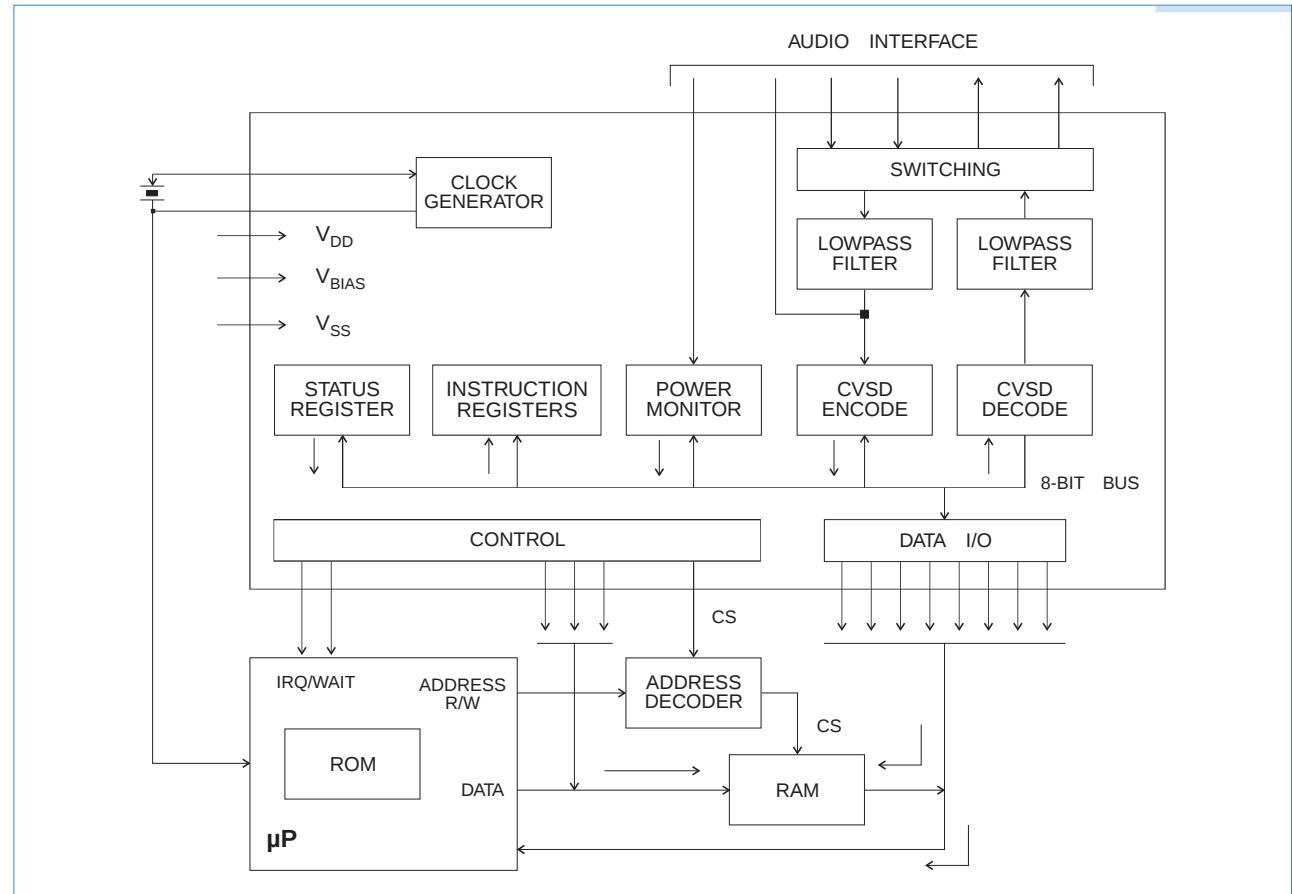
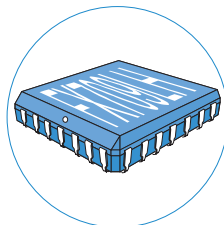
FX709 Voice Store and Retrieve (VSR) Codec

Features:

- CVSD Encode and Decode
- Programmable Clock Rate
- Programmable Voice Filters
- Voice-Power Output Indication
- Voice-Spectrum Monitor
- 8-Bit (I/O) Memory/Instruction Interface

Applications:

- .. Voice Message Mailbox
- .. Status Annunciators
- .. Retry/Message Forward
- .. Voice Security Scrambling
- .. Voice Data Communications
- .. Time/Frequency Companding
- .. Audio Delay Functions



Packages	
FX709J	J5
FX709LH	L3

PRODUCT SELECTOR

To use this [Product Selector](#), choose your required product from the chart below; click on that product number. If you require to download a data sheet, click anywhere on the [descriptive text](#). You may scroll to the product pages from here.



Mobile Radio

- **EV8000** For FX818, FX828 and FX829 Evaluation

Wireless Modems

- **EV9000** For FX909A, FX919B and FX929B Evaluation

Wireline Telecoms

- **EV6000** For FX602, FX604 and FX614 Evaluation
- **EV6020** For FX602 Evaluation
- **EV6021** For CMX602A Evaluation
- **EV6040** For FX604 and FX614 Evaluation

SELECTOR

PRODUCT

To use this [Product Selector](#), choose your required Application Note from the list; click on that entry to download or view a document.
You may scroll to the product pages from here.

**Application
Notes**

Mobile Radio

- **FX980 in TETRA Digital Mobile Radio** (*A Presentation*)
- **Hexadecimal Sequential Signalling Code using CML Products**

Wireline Telecoms

- **FX602 - CMX602A:**
(*The Operational Differences*)
- **Calling Line Delivery on Call Waiting**
- **Security and Telephone SPM Detector**
- **FX631xxX Clocking Information**
- **FX613 Sensitivity Threshold Adjustment**

Voice Security

- **Inversion Security**
- **FX224 VSB Scrambler**

Continue

Wireless Modems

- **FX919B and FX929B Fade Management;
and 'A' Version Compatibility**
- **Increasing Data Throughput in Radio Telemetry Systems**
- **Using an FX469 Synchronous Modem with an Asynchronous
Data I/O**
- **Cellular Digital Packet Data (CDPD)
*(FX589, FX839 and FX949)***
- **The FX589 in GMSK**
- **FX909A Signal Acquisition Principles**

General Purpose

- **CML On-Chip Xtal/Clock Oscillators**
- **Continuously Variable Slope Delta Modulation (CVSD) - A Tutorial**

General Information

- **CML - MX-COM Product Cross References**

SELECTOR

Products that are in production by CML but not detailed in the current Data Book.

Non-Preferred
Products

PRODUCT

FX009	Digitally Controlled Amplifier Array	FX429	Band III FFSK Modem for Trunked Radio
FX118	Duplex Frequency Inverter	FX439	FFSK Modem
FX102	QTC Tone Processor	FX579	Half Duplex GMSK Modem
FX203	Selcall Tone Codec	FX602	Calling Line Identifier
FX304	'C-NET' Audio Processor	FX611	Subscriber Private Metering Detector
FX306	Audio Filter Array	FX621	Low Power SPM Detector
FX309	CVSD Modulation Codec	FX623	Call Progress Tone Decoder
FX316	NMT Audio Filter Array	FX643	Call Progress Tone Detector
FX326	Audio Bandpass Filter	FX701	Frequency Sensitive Switch
FX335	CTCSS Encoder/Decoder	FX806	Audio Processor
FX336	R2000 Filter Array	FX826	AMPS/TACS System Audio Processor
FX346	AMPS, TACS, NMT Audio Processing Array	FX836	R2000 System Audio Processor
FX365	CTCSS Encoder/Decoder	FX909	GMSK 'Packet Data' Modem
FX365A	CTCSS Encoder/Decoder		
FX366	AMPS/TACS Quad Filter Array		
FX419	1200 Baud FFSK Modem		

SELECTOR

PRODUCT

Products that are no longer in production by CML.

- This data is supplied for information only -

**Obsolete
Products**

FX003 QTC Tone Decoder

FX013 HSC Tone Decoder For Pagers

FX101L Frequency Sensitive Switch

FX103 QTC Address Decoder

FX105P Tone Detector

FX107/FX207/FX307

Selective Signalling Device

FX1103 Selcall Decoder Hybrid

FX202 QTC Tone Processor

FX2030 Selcall Encoder/Decoder Hybrid

FX204 VSB Frequency Inverter

FX205/FX205P

Tone Encoder

FX209 Adaptive Delta Modulation Decoder

FX301L/FX401

Frequency Sensitive Switch

FX313/FX323

QTC Data Store/Display Driver

FX403 QTC Address and Data
Encoder/Decoder

FX3090 Delta Modulation Encoder/Decoder
Hybrid

FX407A/FX507A/407S/507S/607N
5-Tone Sequential Code
Transceiver

FX4070A/FX5070A/FX4071A/5071A
5-Tone Encoder/Decoder

FX409 FFSK Modem

FX489 GMSK Modem

FX501/FX601

Tone Operated Bistable and
Monostable Switches

FX503 Programmable Tone Generator

FX503A QTC Tone Encoder

601A Tone Operated Monostable Timer

FX707 Code Selector and Automatic
Repeat Encoder

FX816 NMT System Audio Processor