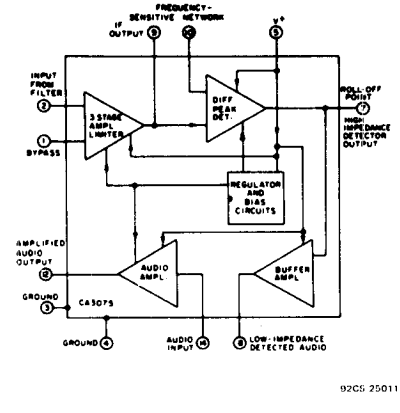
IF Subsystems

IF SUBSYSTEMS FOR FM RECEIVERS					
Features	Type Numbers				
	CA2111A	CA3089E	CA3075	CA3043	CA3013 CA3014
No. of Limiter-Amplifier Stages	3	4 Push-Pull	3	4	3
Type of FM Detector	Quadrature Det.	Quadrature Prod. Det.	Differential Peak Det.	Ratio Det.	Ratio Det.
Audio Amplifier	Emitter Follower	Squelch Controlled Output	21 db Voltage Gain	Darlington Output	Darlington Output
AFT Output	Buffered from Det.	Separate Output Bal. Capability	Buffered From Det.	From Det.	From Det.
Squelch or Mute	No	Yes	No	No	No
Meter Circuit	No	Yes—log summing	No	No	No
Recovered Audio	500 mV	425 mV	1500 mV	110 mV	110 mV
10.7-MHz Limiting Knee	400 μV	12 μV	250 μV	50 μV	500 μV
Package	14-Lead Dip & Quip	16-Lead Dip	14-Lead Quip	12-Lead TO-5	10-Lead TO-5

FM IF Amplifier-Limiter/Detector/Audio Preamplifier

CA3075



Package	Suffix	T_A (°C)
14-Lead QUIP	None	−40 to 85

File No. 429*

Applications and Features

Internal Zener-diode regulation for if amplifier section
Low total harmonic distortion (THD)
Differential peak detection: permits simplified single-coil tuning
Minimum number of external parts required

Typical Electrical Characteristics at $T_A = 25^\circ C$

Audio Preamplifier Voltage Gain	21	dB typ.
Input Limiting Voltage at 10.7 MHz	250	μV max.
Recovered AF Voltage (Term. 12)	1.5	V typ.
AM Rejection at 10.7 MHz	55	dB typ.

FM IF Amplifier-Limiter/Quadrature Detector

CA2111A

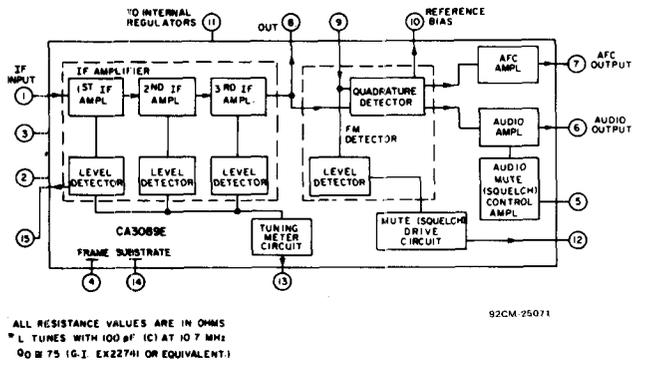
For data, see TV IF Sound Systems, Page 51

*Refer to indicated File No. for data bulletin and where given to indicated ICAN No. for application note.

FM IF System

Includes -- IF Amplifier, Quadrature Detector, AF Preamplifier, and Specific Circuits for AGC, AFC, Muting (Squelch), and Tuning Meter

CA3089



Package	Suffix	T_A (°C)
16-Lead DIP	E	–40 to 85

File No. 561*

Applications and Features

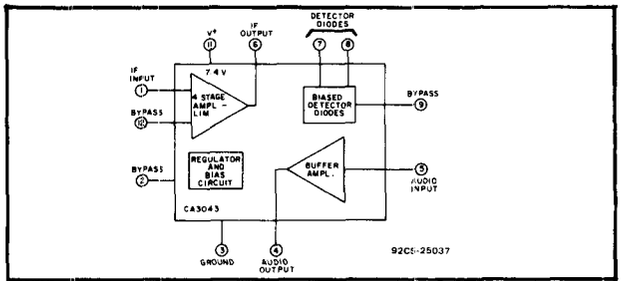
- For FM if amplifier in high-fidelity automotive, and communications receivers
- Exceptional limiting sensitivity: 12 μV typ. at –3dB point
- Low distortion: 0.1% typ. (with double-tuned coil)
- Single-coil tuning capability
- High recovered audio: 425 mV typ.
- Provides specific signal for control of interchannel muting (squelch)
- Provides specific signal for direct drive of a tuning meter
- Provides delayed agc voltage for rf amplifier
- Provides a specific circuit for flexible afc
- Internal supply-voltage regulators

Typical Electrical Characteristics

Input Limiting Voltage (–3dB point)	12	μV
AM Rejection	43	dB
Recovered AF Voltage	425	mV
Total Harmonic Distortion:		
Single Tuned	0.5	%
Double Tuned	0.1	%
Signal plus Noise to Noise Ratio	67	dB

FM IF Amplifier/Limiter/FM Detector/AF Preamplifier/Driver

CA3043



Package	Suffix	T_A (°C)
12-Lead TO-5	None	–55 to 125

File No. 331*

Applications and Features

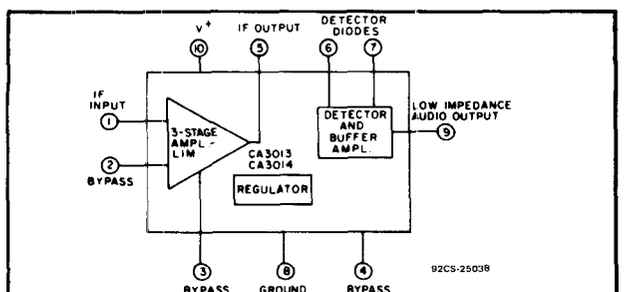
- For FM if amplifier applications in communications receivers and high-fidelity FM receivers up to 20MHz
- Inherent high stability, internally shielded
- Internal Zener-diode regulated voltage supply
- Low total harmonic distortion (THD)
- Wide frequency range: < 100kHz to > 20MHz

Typical Electrical Characteristics at T_A = 25°C

Voltage Gain	80	dB
Input Limiting Voltage (knee)	50	μV rms
Recovered AF Voltage	110	mV rms
AM Rejection	58	dB typ.

Wide-Band Amplifier/Limiter/FM Detectors

CA3013
CA3014



Package	Suffix	T_A (°C)
10-Lead TO-5	None	–55 to 125

File No. 129*
ICAN-5269, 5380*

Applications and Features

- For FM and sound if applications
- Wide frequency capability: 100kHz to >20MHz
- The CA3013 is like the CA3014 except for Max. DC Supply Voltage: CA3013, 7.5V; CA3014, 10V

Typical Electrical Characteristics at T_A = 25°C

Voltage Gain:		
At 1MHz	71	dB
At 4.5MHz	67	dB
At 10.7MHz	60	dB
Input Limiting Voltage (Knee) at 4.5MHz	300	μV
Recovered AF Voltage at 4.5MHz	188	mV
AM Rejection at 4.5MHz	50	dB

*Refer to indicated File No. for data bulletin and where given to indicated ICAN No. for application note.