

IF DETECT ICs

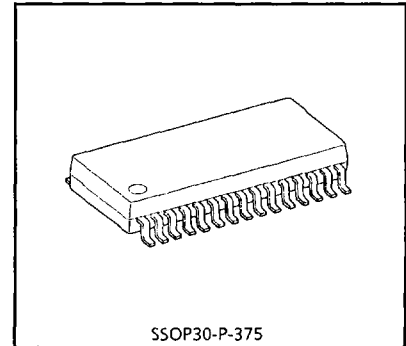
TENTATIVE DATA

IF AMP IC WITH AGC

IF AMP for digital cellular with wide operating range
AGC to demodulate QPSK.

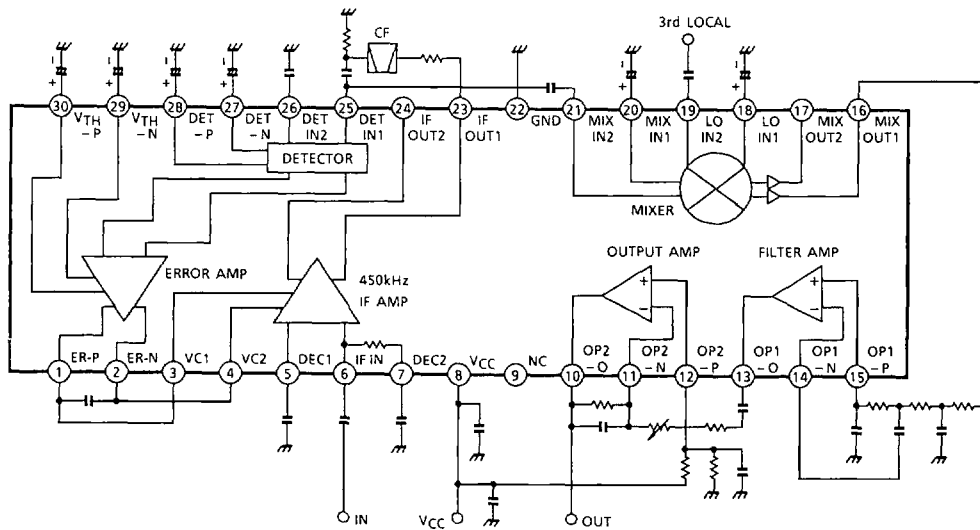
FEATURES

- IF AMP with AGC
 - AGC operating range: 100dB (Typ.)
 - Attack time : 0.30ms (Typ.)
 - Recovery time : 1.75ms (Typ.)
- Built-in 3rd MIX
- Built-in 3rd IF filter and OUTPUT AMP
- Current consumption : $I_{CC} = 7.0\text{mA}$ (Typ.)
- Operating power supply voltage : $V_{CC} = 4.0\sim 6.0\text{V}$
- Package : SSOP30pin



SSOP30-P-375
Weight : 0.17g (Typ.)

BLOCK DIAGRAM



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PIN FUNCTION (The values of resistor and capacitor are typical.)

PIN No.	PIN NAME	FUNCTION		INTERNAL EQUIVALENT CIRCUIT
1	ER-P	ERROR AMP output terminal P	Compare signal level to input level detection circuit with reference voltage and output voltage to control AGC circuit.	
2	ER-N	ERROR AMP output terminal N		
3	VC1	AGC control voltage input terminal 1 Connect ERROR AMP output terminal P (pin 1).		
4	VC2	AGC control voltage input terminal 2 Connect ERROR AMP output terminal N (pin 2).		
5	DEC1	NF terminal of IF AMP Connect GND through a capacitor.		
6	IF IN	Input terminal of IF AMP Connect a capacitor for coupling.		
7	DEC2	Connect a coupling capacitor for feedback loop of IF AMP.		
8	VCC	Power supply terminal		
9	NC	NC terminal		
10	OP2-O	Output terminal of OUTPUT AMP	The same internal construction as FILTER AMP	
11	OP2-N	Inverted input terminal of OUTPUT AMP		
12	OP2-P	Non-inverted input terminal of OUTPUT AMP		
13	OP1-O	Output terminal of FILTER AMP	The same internal construction as OUTPUT AMP	
14	OP1-N	Inverted input terminal of FILTER AMP		
15	OP1-P	Non-inverted input terminal of FILTER AMP		

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PIN No.	PIN NAME	FUNCTION		INTERNAL EQUIVALENT CIRCUIT
16	MIXOUT1	MIX output terminal 1		
17	MIXOUT2	MIX output terminal 2		
18	LOIN1	Local OSC input terminal 1		
19	LOIN2	Local OSC input terminal 2		
20	MIXIN1	MIX input terminal 1		
21	MIXIN2	MIX input terminal 2		
22	GND	GND terminal		
23	IFOUT1	IF AMP output terminal 1		
24	IFOUT2	IF AMP output terminal 2		
25	DETIN1	Level detection circuit input terminal 1	Input a output signal of IF filter that is removed useless noise band.	
26	DETIN2	Level detection circuit input terminal 2		

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PIN No.	PIN NAME	FUNCTION		INTERNAL EQUIVALENT CIRCUIT
27	DET-N	Capacitor for smooth connecting terminal N	Connect capacitor to smooth signal which is input to level detection circuit.	
28	DET-P	Capacitor for smooth connecting terminal P		
29	V _{TH} -N	Capacitor for smooth connecting terminal N	Connect capacitor for smoothing reference voltage of ERROR AMP	
30	V _{TH} -P	Capacitor for smooth connecting terminal P		

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	RATING	UNIT
Power Supply Voltage	V _{CC}	7	V
Power Dissipation	P _D	500	mW
Operating Temperature	T _{opr}	-30~85	°C
Storage Temperature	T _{stg}	-55~125	°C

ELECTRICAL CHARACTERISTICS

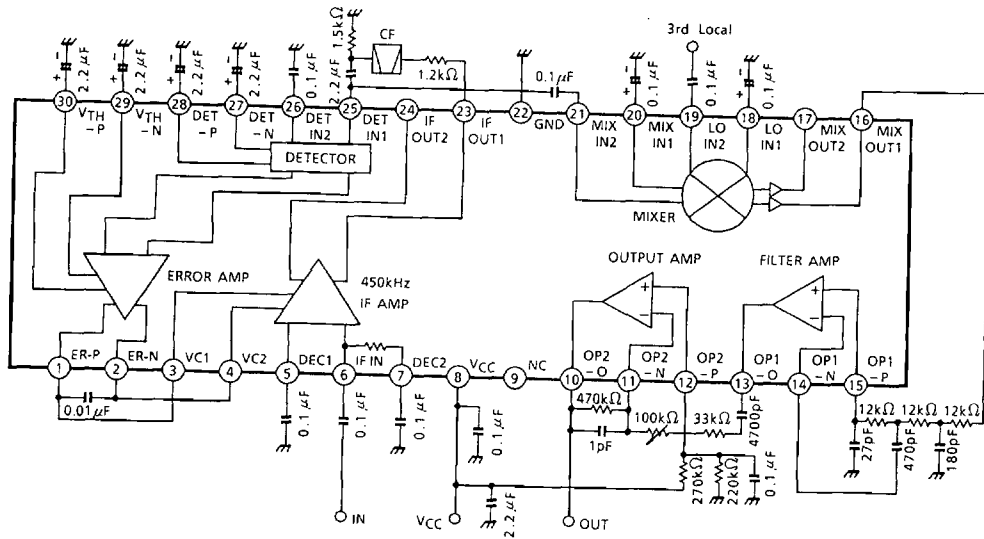
(Unless otherwise specified, Ta = 25°C, V_{CC} = 5V, f(IF) = 450kHz, f(OSC) = 390kHz)

CHARACTERISTICS	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I _{CCQ}			—	7		mA
IF Input Resistance	R(IF) IN				22		kΩ
Reference Output Level 1	V _{REF1}		V _{IN} (IF) = 80dBμV EMF V _{IN} (OSC) = -10.46dBV Test pin 10		-9		dBV
AGC Operating Maximum Input Level	V _{IN} (MAX)		V _{IN} (OSC) = -10.46dBV		130	—	dBμV EMF
AGC Operating Minimum Input Level	V _{IN} (MIN)		V _{IN} (OSC) = -10.46dBV	—	22		dBμV EMF
AGC Linearity Maximum Input Level 1	V _{IN} (LIN) 1		I _{FIN} (pin 6) Input level (I _{FOUT1} (pin 23)) THD = -30dB	—	108		dBμV EMF
AGC Linearity Maximum Input Level 2	V _{IN} (LIN) 2		I _{FIN} (pin 6) Input level (I _{FOUT2} (pin 24)) THD = -30dB	—	108		dBμV EMF
Reference Output Level 2	V _{REF2}		V _{IN} (IF) = 80dBμV EMF Test pin 25		-29.6		dBV
AGC Attack Time	τ _A			—	0.3	—	ms
AGC Recovery Time	τ _R			—	1.75	—	ms

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APPLICATION CIRCUIT



CF : Ceramic filter
CFAM450A1 (MURATA MFG. CO., LTD.)

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