

TOSHIBA

INTEGRATED CIRCUIT

TECHNICAL DATA

TA 31142 F / FN

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT
SILICON MONOLITHIC

FM IF DETECTION IC FOR PAGER.
(Built-in 2nd MIXER)

TENTATIVE

- Built-in 2nd MIXER for Duple Conversion methode.
Mixer Operating Frequency : 10~50MHZ.

- Built-in low-pass filter and waveform shaping circuit enable the extraction of FSK signals from voice signal.

- High transmit rate (1200bps)

- Built-in battery-saving function can reduce the load upon the battery which is functioning as power supply.

- Alarm function (ALM)
Alarm sensitivity : VALM=1.1V (TYP.)

- Constant voltage power supply can be fabricated through externally adding a transistor.
: VREG=1.0V (TYP.)

- Extremely low consumption current
: Iccg=1.1mA (TYP.)

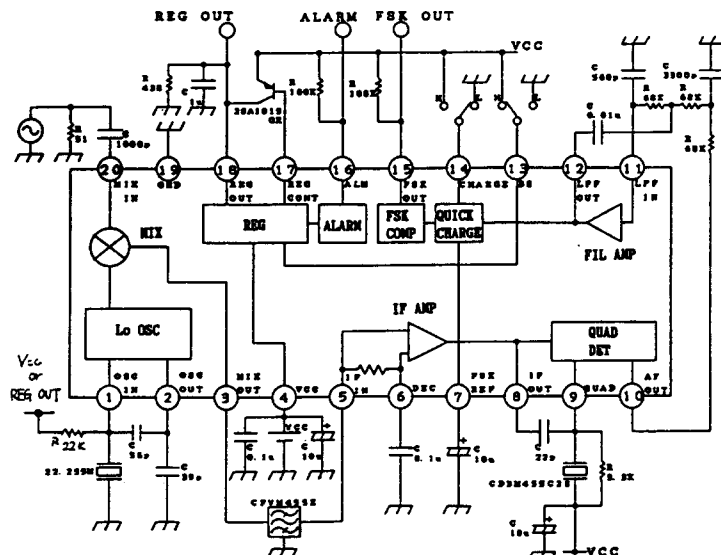
- Power supply voltage : VCC=1.1~3.5V

- Small package : SSOP20PIN (1.00mm)
SSOP20PIN (0.65mm)

TA31142F

TA31142FN

BLOCK DIAGRAM



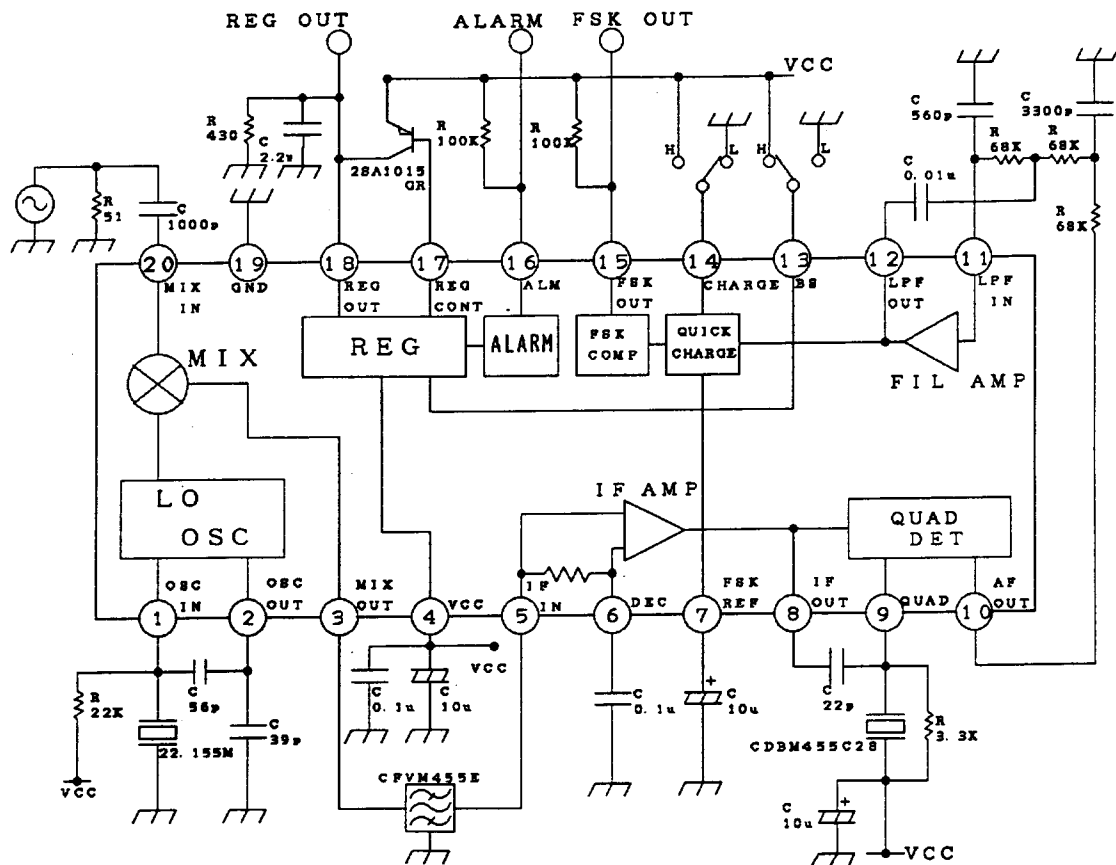
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TOSHIBA CORPORATION

TEST CIRCUIT



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	Vcc	4	V
Power Dissipation	PD	F	mW
		FN	
Operating Temperature	Topr	0~45	°C
Storage temperature	Tstg	-55~150	°C

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Vcc=1.4V, Fin(MIX)=21.7MHz, Fin(IF)=455KHz, Fdev=±4KHz, Fm=600Hz, Ta=25°C)

CHARACTERISTICS	SYMBOL	TEST	TEST CONDITION	MIN	TYP	MAX	UNIT
Quiescent Current	Iccq			-	1.1	1.6	mA
Supply Current at Battery Saving	Icco			-	0	5	μA
MIXER Conversion Gain	GMV		FILTER LOSS=-1dB		11		dB
MIXER 3rd Interseptpoint	IP			-	-10	-	dBm
MIXER Input Resistance	Rmin			-	5	-	KΩ
IF Amp Input Resistance	RIF1			-	2	-	KΩ
Signal to Noise Ratio 1	S/N1		MIX IN, VIN(MIX)=60dBuEMF	-	55	-	dB
Signal to Noise Ratio 2	S/N2		IF IN, VIN(IF)=60dBuEMF	-		-	dB
Signal to Noise Ratio 3	S/N3		IF IN, VIN(IF)=20dBuEMF	-		-	dB
-3dB Limiting Sensitivity 1	VI(LIM)1		MIX INPUT	-	14	-	dB μEMF
-3dB Limiting Sensitivity 2	VI(LIM)2		IF INPUT	-	22		dB μEMF
Detected Output Level	VOD		VIN(IF)=60dBuEMF		45		mVrms
AM Rejection Ratio	AMR		VIN(IF)=60dBuEMF, AM=30%	-	40	-	dB
FSK OUT Duty Ratio	DR		VIN(IF)=60dBuEMF		50		%
Alarm detected Voltage	VALM			1.05	1.1	1.15	V
"L" Level Output Voltage (ALM)	VALML		I=100 μA	-	-	0.4	V
"H" Level Output Current (ALM)	IALMH			-	-	2	μA
"L" Level Output Voltage (FSK)	VFSKL		I=100 μA	-	-	0.4	V
"H" Level Output Current (FSK)	IFSKH			-	-	2	μA
Constant voltage Output	VREG			0.95	1.0	1.05	V
Quick charge discharge Current	Io		V7=0V,		70		μA