

UTC TA8127 LINEAR INTEGRATED CIRCUIT

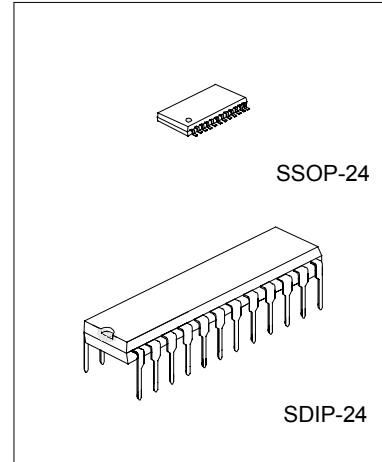
3V AM / FM 1 CHIP TUNER IC

DESCRIPTION

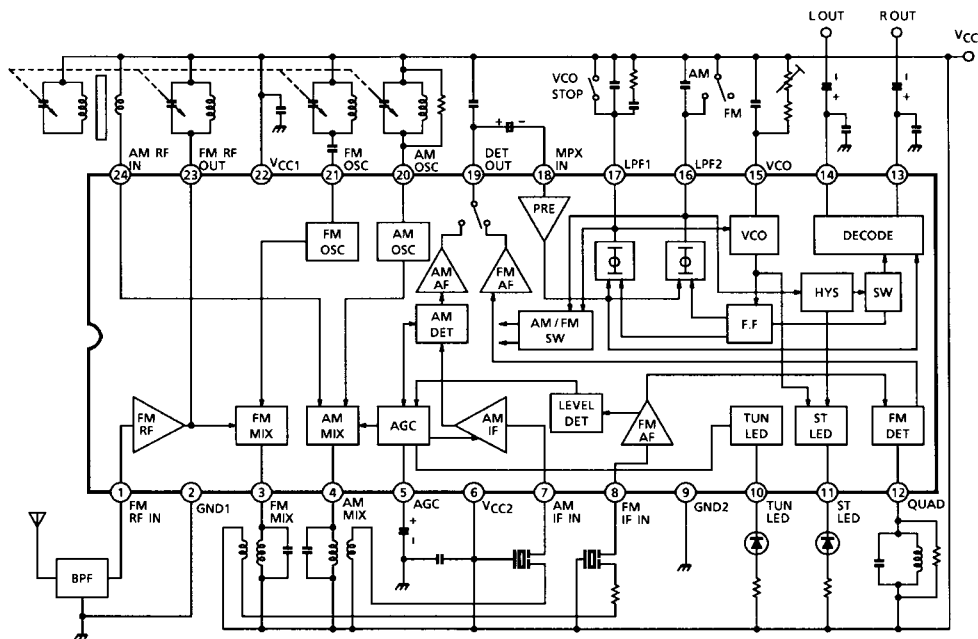
The UTC TA8127 is the AM / FM 1 chip tuner IC, which is designed for Portable Radios and 3V Headphone Radios.

FEATURES

- *Built-in FM F/E, AM / FM IF and FM MPX
- *AM Detector Coil and IF Coupling Condenser are not needed.
- *Operating Supply Voltage Range
 $V_{CC}=1.8\sim7.0V$ ($T_a=25^{\circ}C$)



BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (TA=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{CC}	8	V
LED Current	I _{LED}	10	mA
LED Voltage	V _{LED}	8	V
Power Dissipation	P _D (note)		mW
SSOP		400	
SDIP		1200	
Operating Temperature	T _{OPR}	-25 to +75	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Note: Derated above 25°C in the proportion of 9.6mW/°C for SDIP and of 3.2mW/°C for SSOP.

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Ta=25°C, V_{CC}=3V, F/E: f=83MHz, fm=1kHz

FM IF : f=10.7MHz, Δf=±22.5kHz, fm=1kHz

AM : f=1MHz, MOD=30%, fm=1kHz

MPX : fm=1kHz)

PARAMETER		SYMBOL	*	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current		I _{CC} (FM)	1	V _{in} =0, FM Mode		13.2	20.0	mA
		I _{CC} (AM)	1	V _{in} =0, AM Mode		8.4	13.5	mA
F / E	Input Limiting Voltage	V _{in} (lim.)	1	-3dB Limiting		10.0		dBμV EMF
	Local OSC Voltage	V _{OSC}	2	f _{OSC} =72.3MHz		105		mVrms
FM IF	Input Limiting Voltage	V _{in} (lim.) IF	1	-3dB Limiting	40	46	53	dBμV EMF
	Recovered Output Voltage	V _{OD}	1	V _{in} =80dBμV EMF	55	80	110	mVrms
	Signal to Noise Ratio	S/N	1	V _{in} =80dBμV EMF		70		dB
	Total Harmonic Distortion	THD	1	V _{in} =80dBμV EMF		0.4		%
	AM Rejection Ratio	AMR	1	V _{in} =80dBμV EMF		32		dB
	Lamp ON Sensitivity	V _L	1	I _L =1mA	45	51	56	dBμV EMF
AM	Gain	G _v	1	V _{in} =26dBμV EMF	40	70	110	mVrms
	Recovered Output Voltage	V _{OD}	1	V _{in} =60dBμV EMF	55	80	110	mVrms
	Signal to Noise Ratio	S/N	1	V _{in} =60dBμV EMF		42		dB
	Total Harmonic Distortion	THD	1	V _{in} =60dBμV EMF		1.0		%
	Lamp on Sensitivity	V _L	1	I _L =1mA	20	25	30	dBμV EMF
Pin 19 Output Resistance		R ₁₉	1	FM Mode AM Mode		0.75 12.5		kΩ

*TEST CIRCUIT

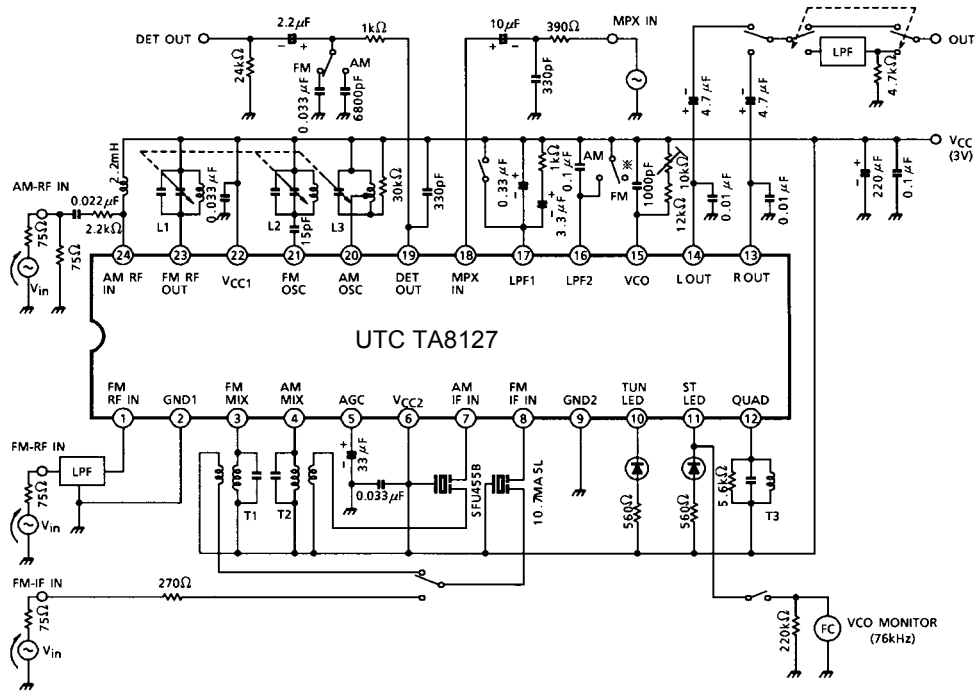
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PARAMETER		SYMBOL	*	TEST CONDITIONS	MIN	TYP	MAX	UNIT
MPX	Input Resistance	RIN	-			24		k Ω
	Output resistance	ROUT	-			5		k Ω
	Max. Composite Signal Input Voltage	Vin(max.) STEREO	1	L+R=90%, P=10%, fm=1kHz, THD=3%		350		mVrms
	Separation	Sep	1	L+R=135mVrm, P=15mVrms	fm=100Hz	42		dB
					fm=1kHz	35	42	
					fm=10kHz		42	
	Total Harmonic Distortion	Monaural	1	Vin=150mVrms		0.2		%
		Stereo				0.2		
		THD (MONAURAL)						
		THD (STEREO)						
	Voltage Gain		1	Vin=150 mVrms	-5	-3	-1	dB
	Channel Balance		1	Vin=150 mVrms	-2	0	2	dB
	Stereo Lamp Sensitivity	ON	1	Pilot Input		8	16	mVrms
		OFF				2	6	
	Stereo Lamp Hysteresis		1	To LED turn off from LED turn on		2		mVrms
	Capture Range		1	P=15mVrms		± 3		%
	Signal to Noise Ratio		1	Vin=150mVrms		70		dB

*TEST CIRCUIT

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TEST CIRCUIT 1

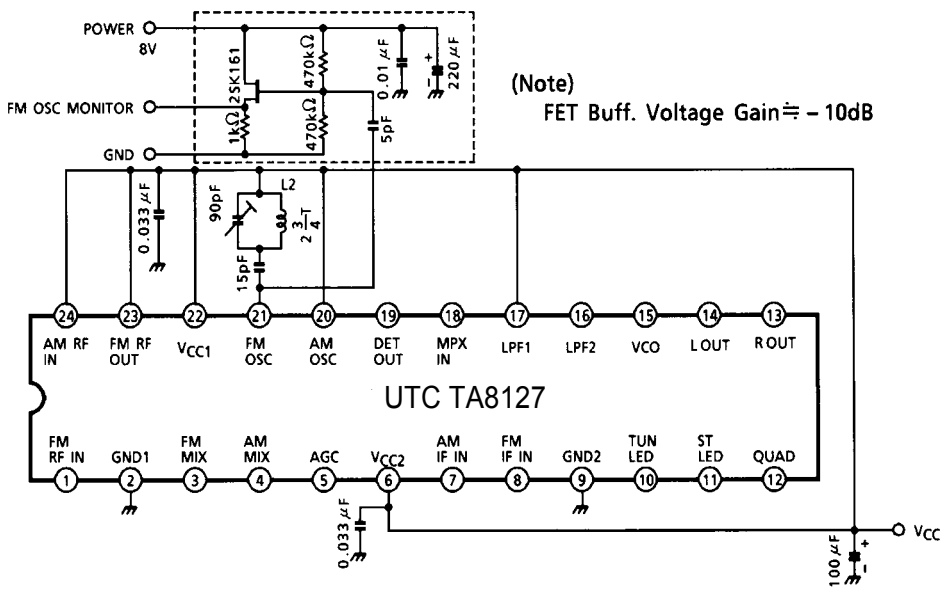


NOTE: POLYESTER FILM CONDENSER

Using other types of condensers, there are some cases that the MPX does not do normal stereo action at high temperature or low temperature.

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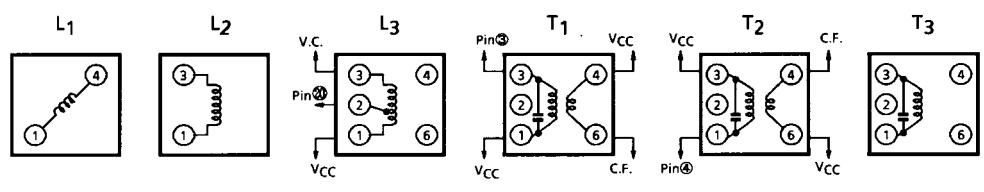
TEST CIRCUIT 2



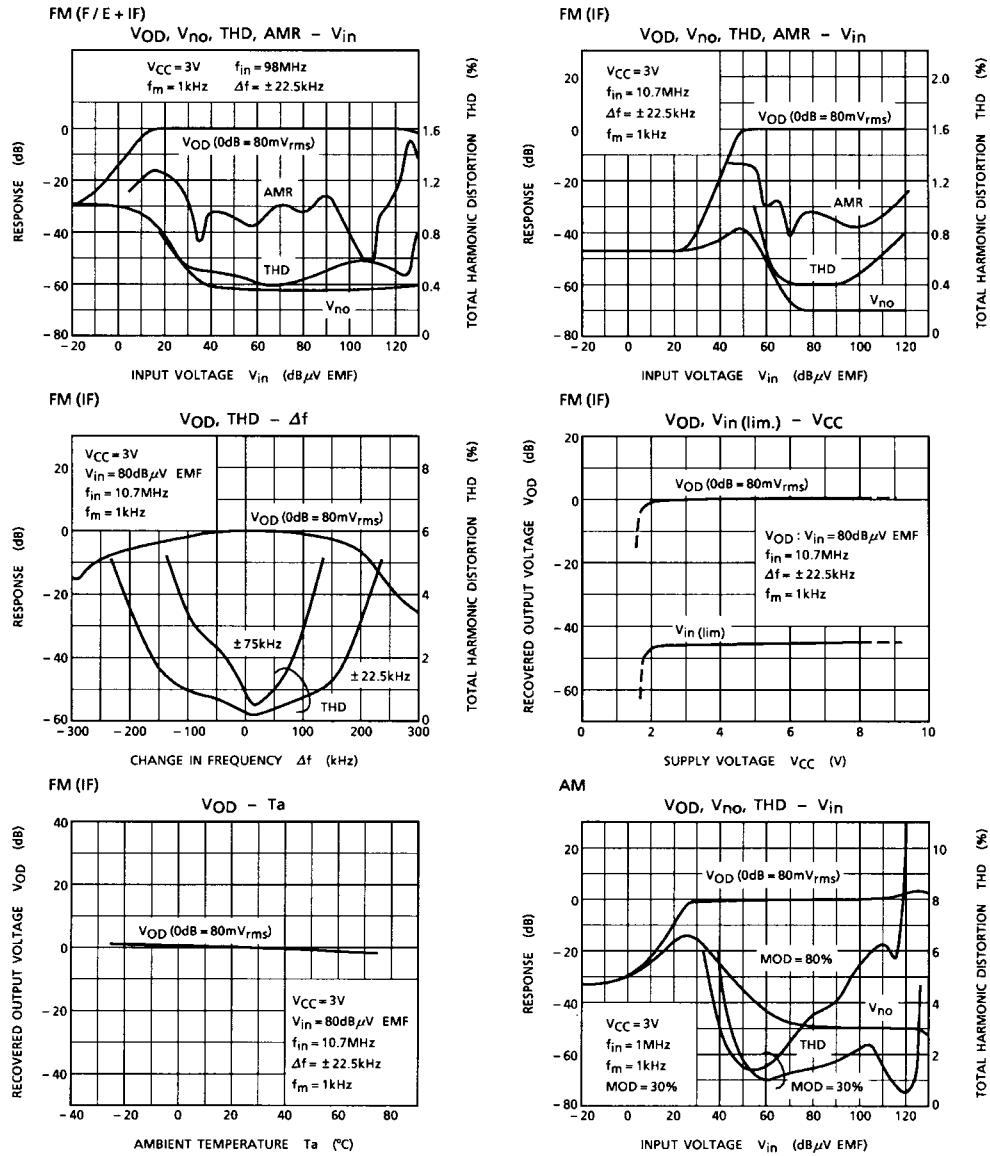
COIL DATA

COIL NO.	TEST FREQ. (Hz)	L (μH)	Co (pF)	Qo	TURNS					WIRE (mmΦ)	REFERENCE
					1-2	2-3	1-3	1-4	4-6		
L1 FM RF	100M			100				2.5		0.5UEW	⑤ 53T-037-202
L2 FM OSC	100M			100				2.75		0.5UEW	⑤ 0258-244
L3 AM OSC	796K	288		115	13	73				0.08UEW	⑤ 4147-1356-038
T1 FM MIX	10.7M		75	100			13		2	0.1UEW	⑤ 2153-414-041
T2 AM MIX	455k		180	120			180		15	0.08UEW	⑤ 2150-2162-165
T3 FM DET	10.7M		47	165			16			0.09UEW	⑤ 2153-4095-122

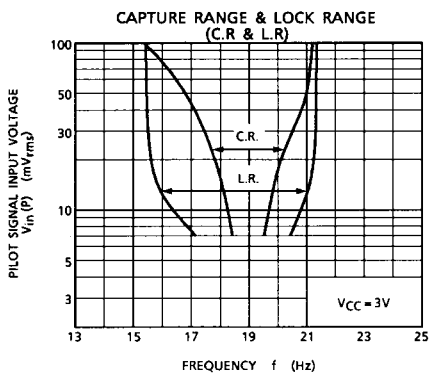
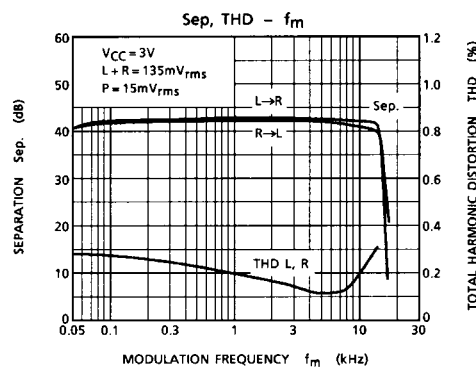
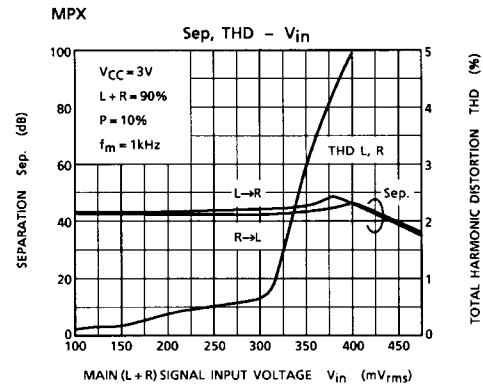
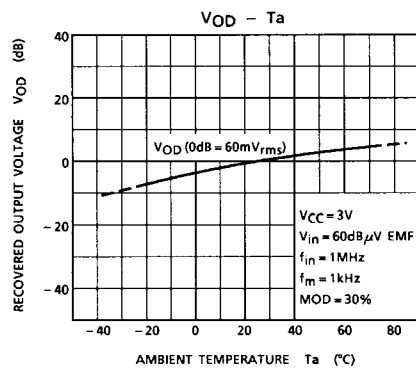
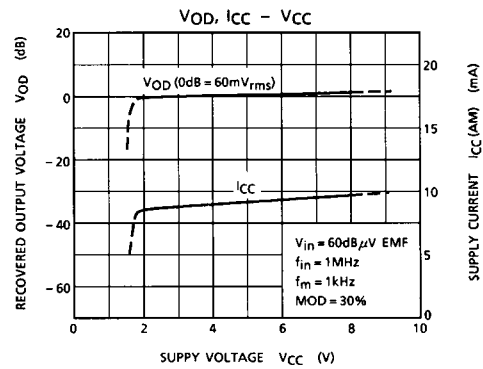
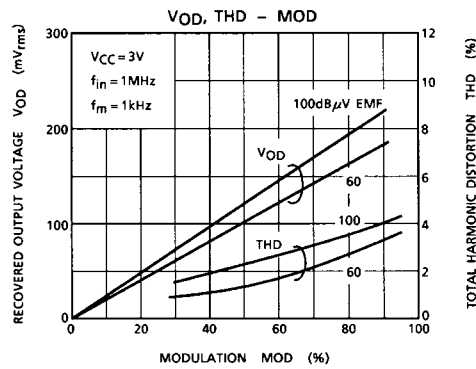
⑤: SUMIDA ELECTRIC CO., LTD



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