

UTC TA8127 LINEAR INTEGRATED CIRCUIT

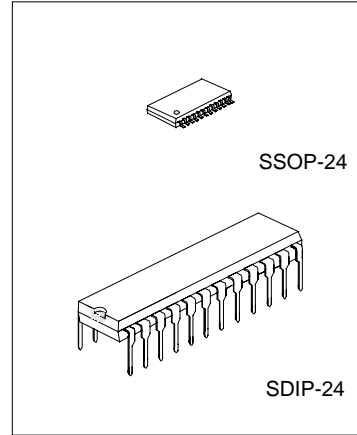
3V AM / FM 1 CHIP TUNER IC

DESCRIPTION

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

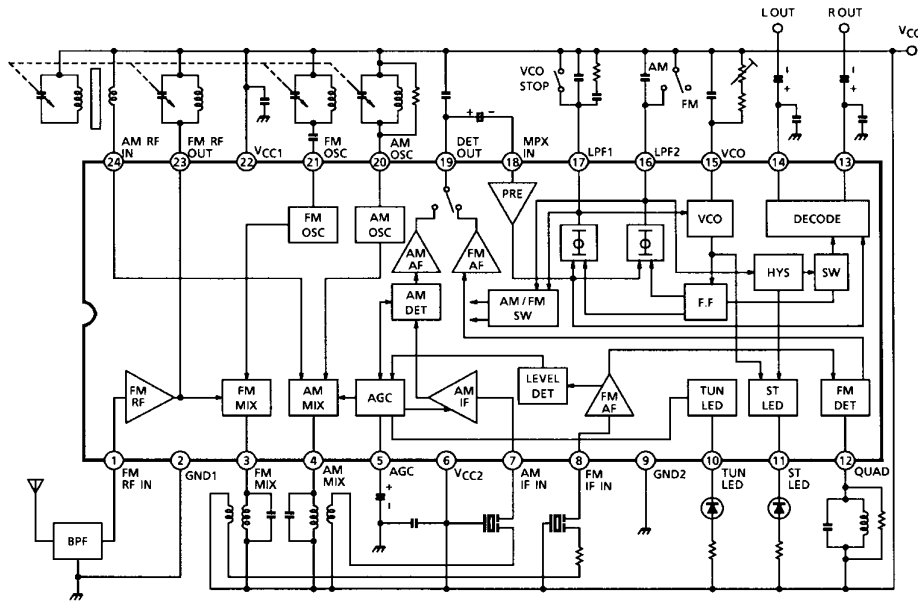
FEATURES

- *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
Vcc=1.8~7.0V (Ta=25°C)



*Pb-free plating product number: TA8127L

BLOCK DIAGRAM



UTC UNISONIC TECHNOLOGIES CO., LTD. 1

QW-R110-017,A

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ABSOLUTE MAXIMUM RATINGS (TA=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	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, Vcc=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.)	-3dB Limiting		10.0		dBμV EMF
	Local OSC Voltage	V _{osc}	f _{osc} =72.3MHz		105		mVrms
FM IF	Input Limiting Voltage	V _{in} (lim.) IF	-3dB Limiting	40	46	53	dBμV EMF
	Recovered Output Voltage	V _{op}	V _{in} =80dBμV EMF	55	80	110	mVrms
	Signal to Noise Ratio	S/N	V _{in} =80dBμV EMF		70		dB
	Total Harmonic Distortion	THD	V _{in} =80dBμV EMF		0.4		%
	AM Rejection Ratio	AMR	V _{in} =80dBμV EMF		32		dB
	Lamp ON Sensitivity	V _L	I _L =1mA		45	51	56
AM	Gain	G _v	V _{in} =26dBμV EMF	40	70	110	mVrms
	Recovered Output Voltage	V _{OD}	V _{in} =60dBμV EMF	55	80	110	mVrms
	Signal to Noise Ratio	S/N	V _{in} =60dBμV EMF		42		dB
	Total Harmonic Distortion	THD	V _{in} =60dBμV EMF		1.0		%
	Lamp ON Sensitivity	V _L	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

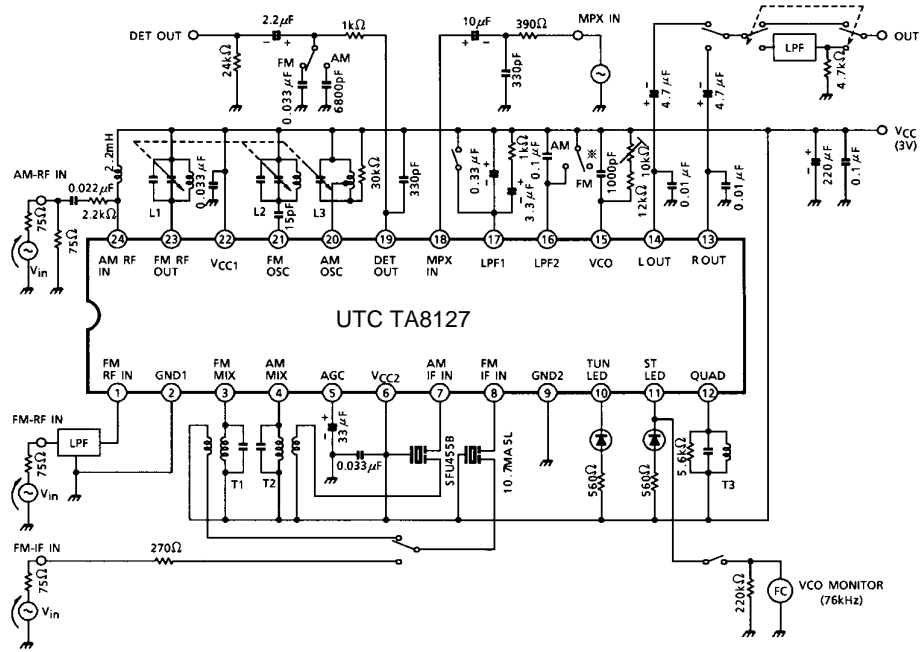
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PARAMETER		SYMBOL	*	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
MPX	Input Resistance	RIN	-			24		k Ω	
	Output resistance	ROUT	-			5		k Ω	
	Max. Composite Signal Input Voltage	Vin(max.) STEREO	1	L+R=90%, P=10%, fm=1kHz, THD=3%		350		mVrms	
	Separation	Sep	1	L+R=135mVrm,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

*TEST CIRCUIT

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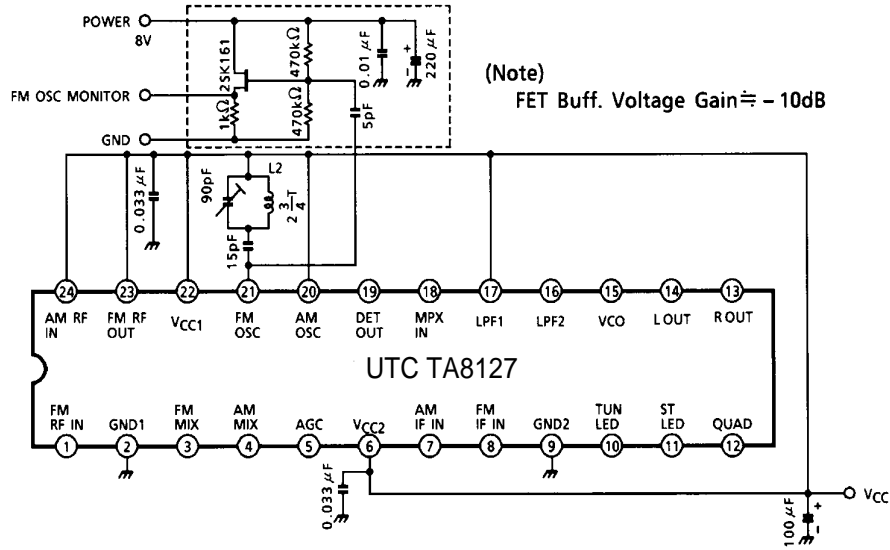
TEST CIRCUIT 1



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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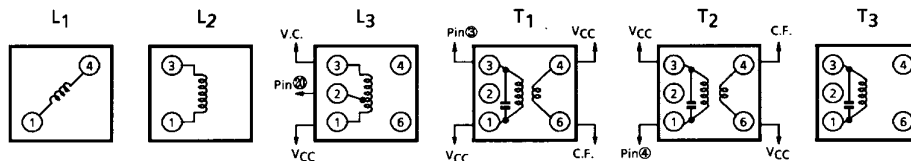
TEST CIRCUIT 2



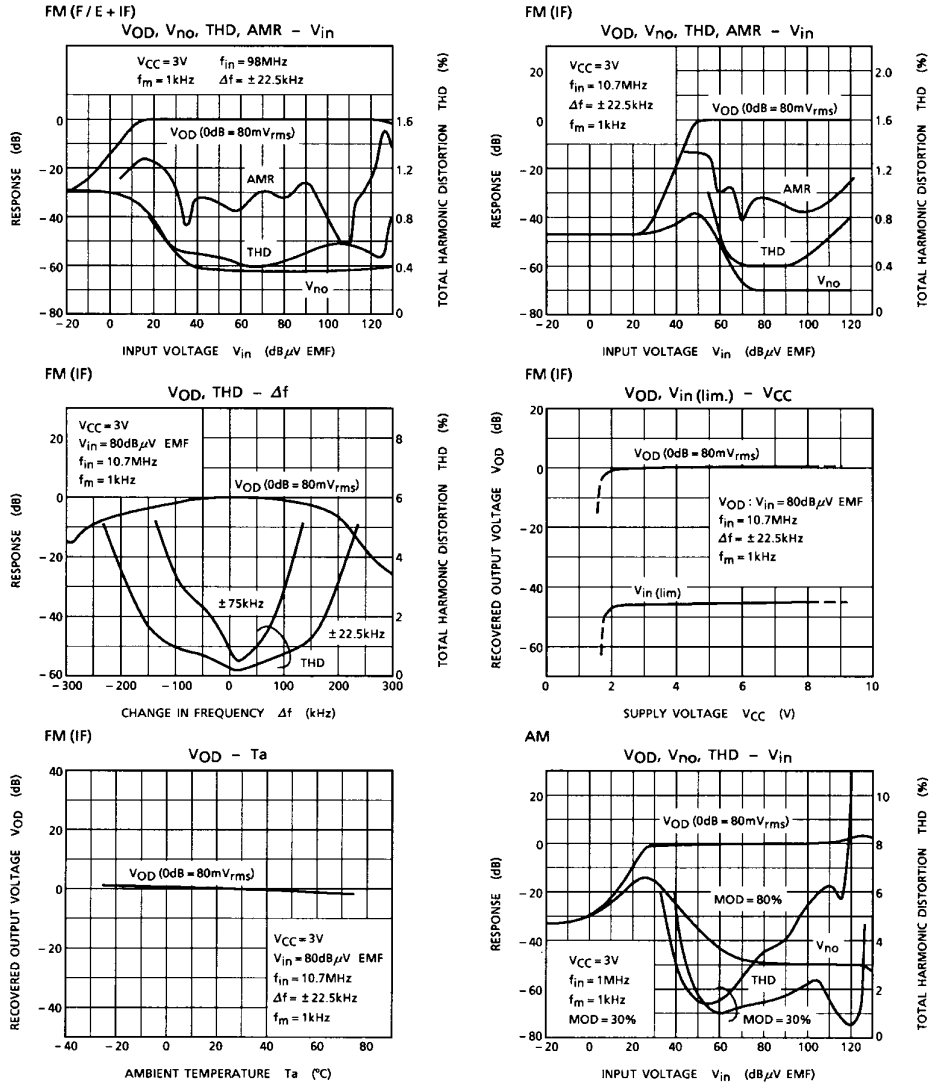
COIL DATA

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	Ⓒ53T-037-202
L2 FM OSC	100M			100			2.75			0.5UEW	Ⓒ0258-244
L3 AM OSC	796K	288		115	13	73				0.08UEW	Ⓒ4147-1356-038
T1 FM MIX	10.7M		75	100			13		2	0.1UEW	Ⓒ2153-414-041
T2 AM MIX	455k		180	120			180		15	0.08UEW	Ⓒ2150-2162-165
T3 FM DET	10.7M		47	165			16			0.09UEW	Ⓒ2153-4095-122

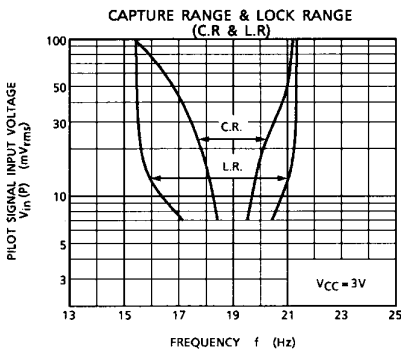
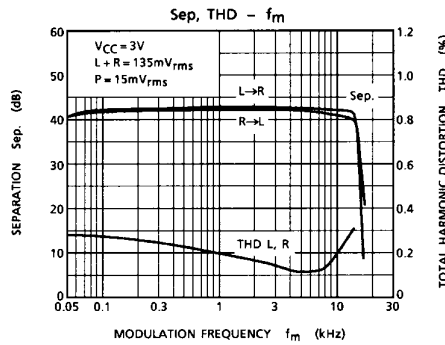
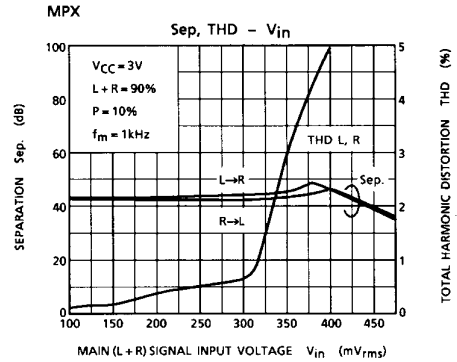
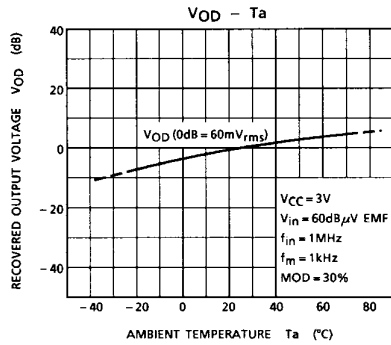
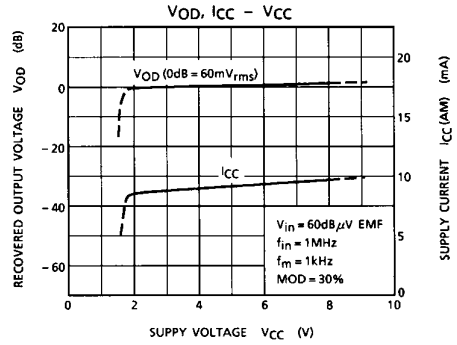
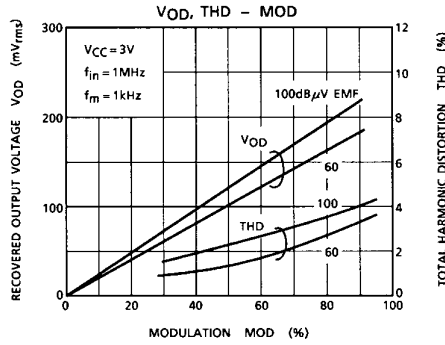
Ⓒ: SUMIDA ELECTRIC CO., LTD



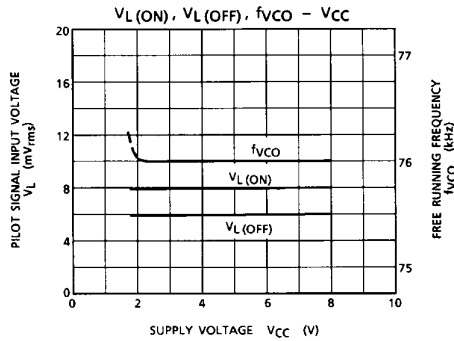
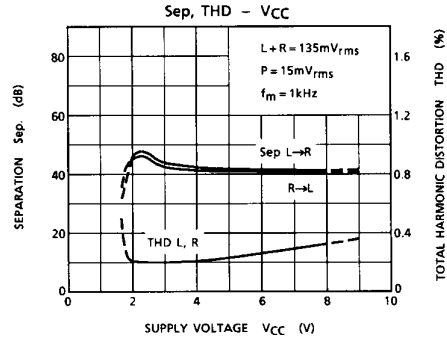
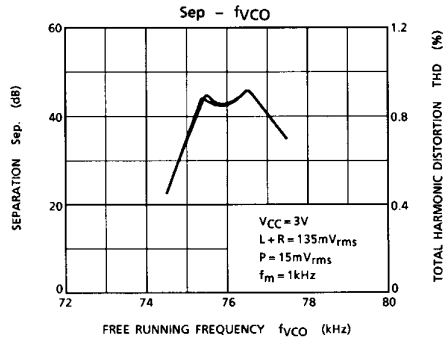
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