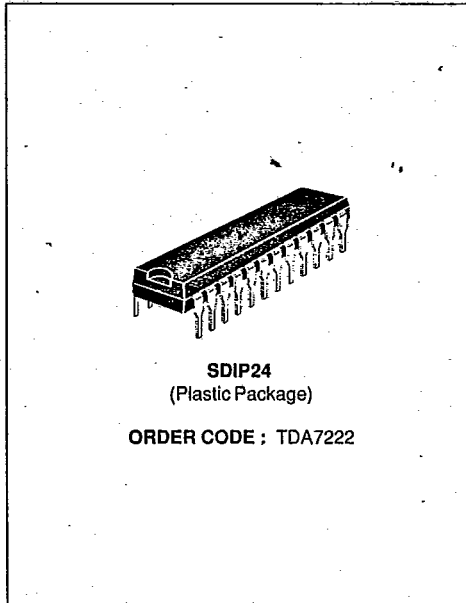


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3V AM/FM ONE-CHIP RADIO

ADVANCE DATA

- BUILT-IN FM F/E, AM/FM IF AND FM MPX
- AM DETECTOR COIL AND IF COUPLING CAPACITOR ARE NOT NEEDED
- COMPACT PACKAGE : 24-Pin Shrink
- OPERATING SUPPLY VOLTAGE RANGE
 $V_{CC (opr)} = 1.8 \text{ to } 7.0V$
- LED DRIVE CIRCUIT FOR TUNING INDICATION



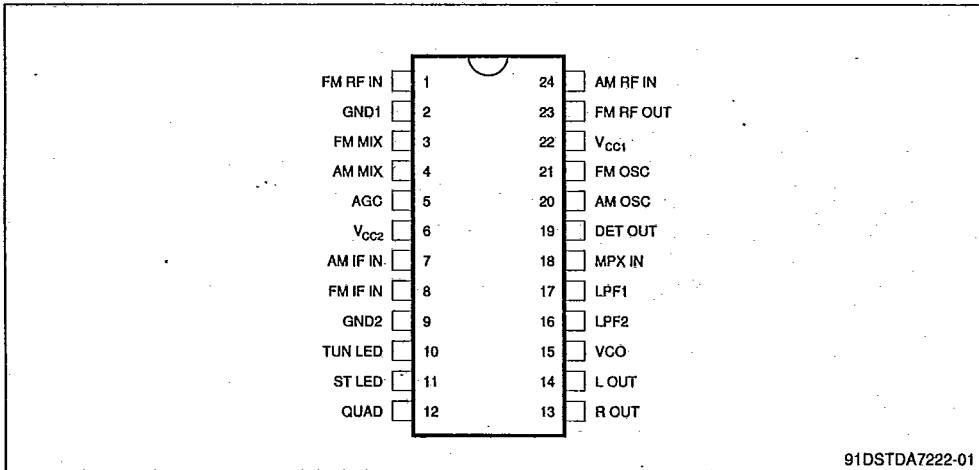
SDIP24
(Plastic Package)

ORDER CODE : TDA7222

DESCRIPTION

TDA7222 is AM/FM chip tuner ICs, which is designed for portable radios and 3V headphone radios.

PIN CONNECTIONS

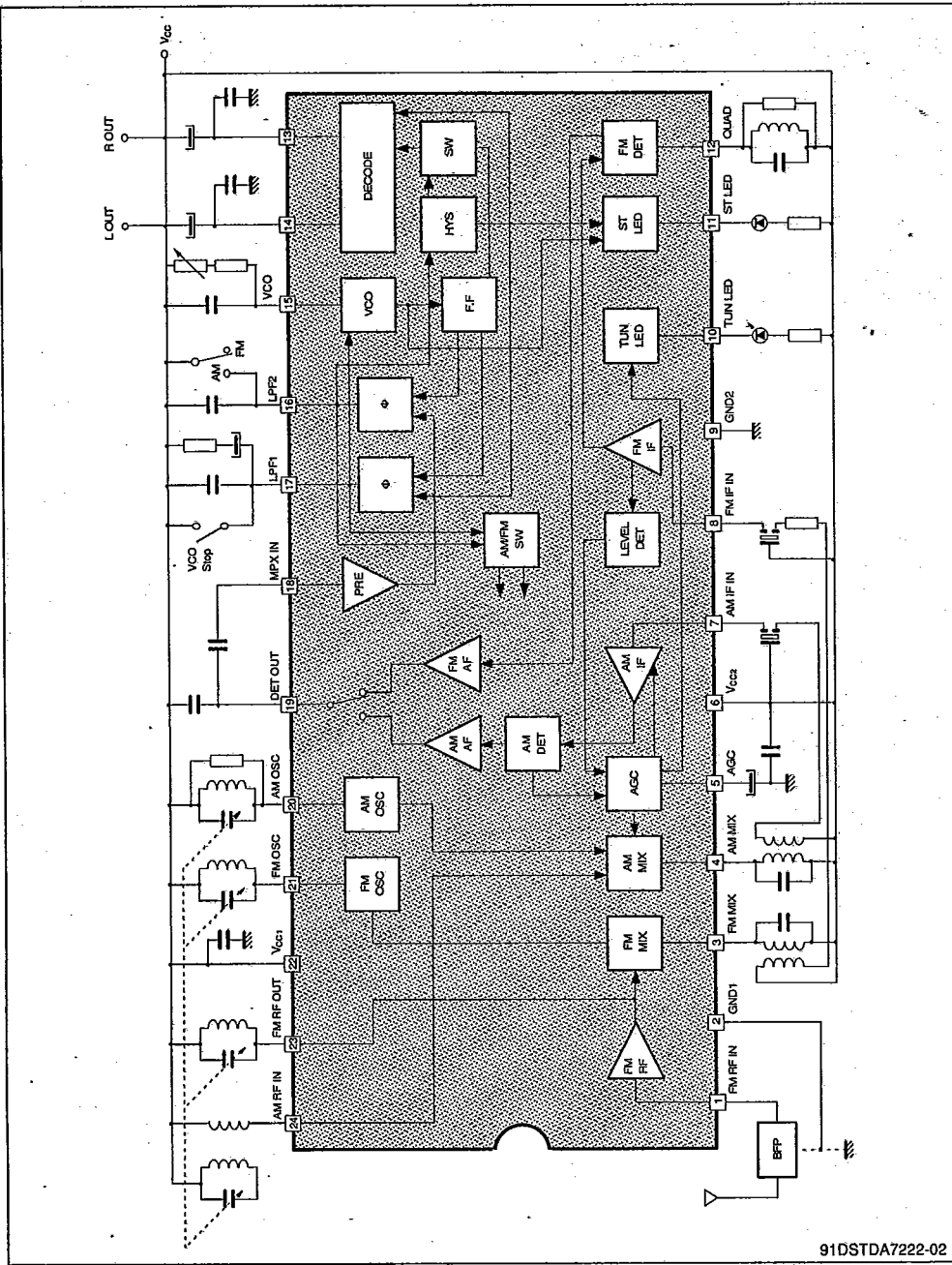


91DSTDA7222-01

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BLOCK DIAGRAM



91DSTDA7222-02

ELECTRICAL CHARACTERISTICS

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$T_A = 25^\circ\text{C}$, $V_{CC} = 3\text{V}$ F/E : $f = 83\text{MHz}$, $f_m = 1\text{kHz}$
 FM IF : $f = 10.7\text{MHz}$, $\Delta f = \pm 22.5\text{kHz}$, $f_m = 1\text{kHz}$
 AM : $f = 1\text{MHz}$, $\text{MOD} = 30\%$, $f_m = 1\text{kHz}$
 MPX : $f_m = 1\text{kHz}$

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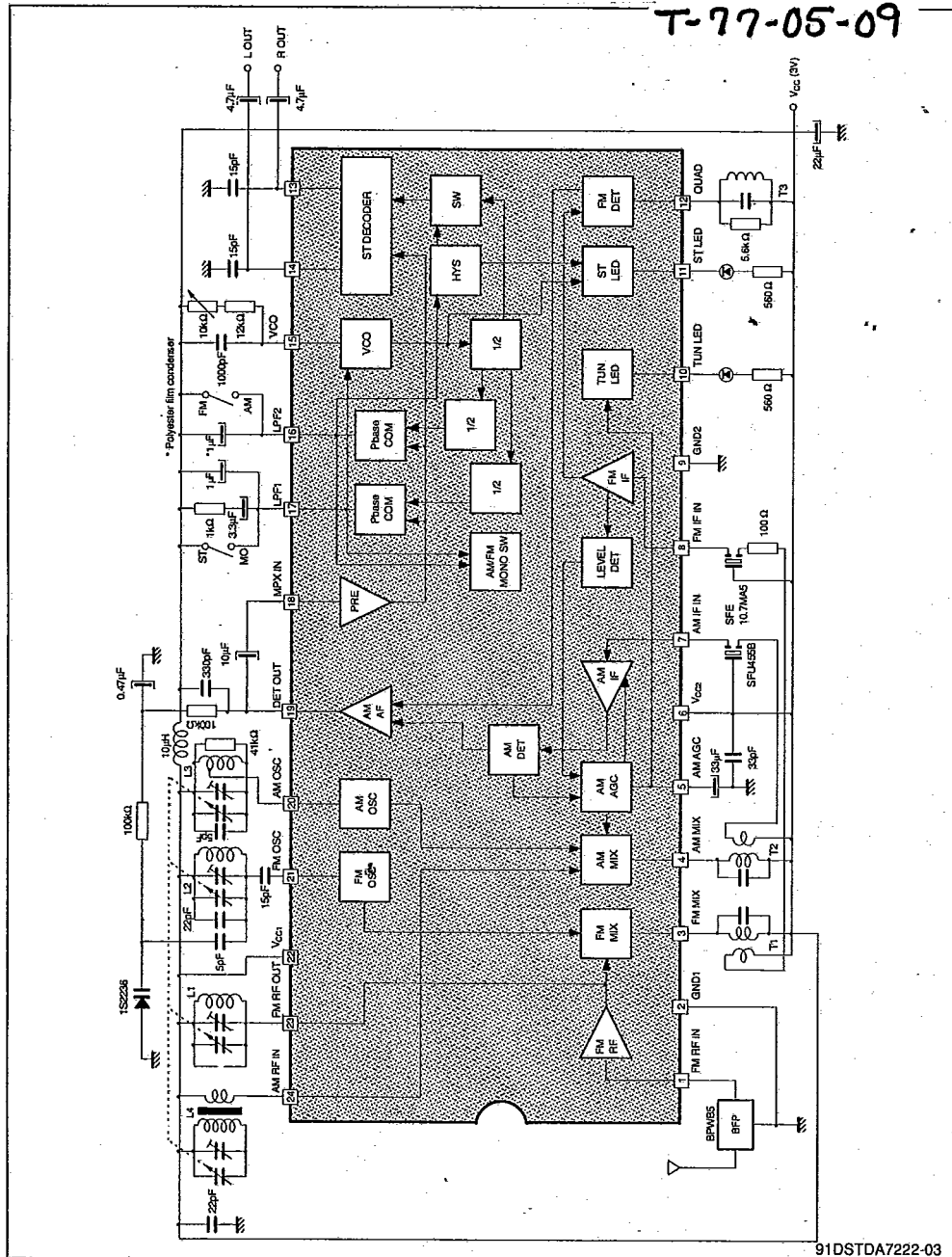
(unless otherwise specified)

Symbol	Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_{CC} (FM)	Supply Current		$V_{IN} = 0$, FM mode		13.2	20	mA
I_{CC} (AM)			$V_{IN} = 0$, AM mode		8.4	13.5	mA
V_{IN} (lim)	F/E	Input Limiting Voltage	-3dB limiting		10.0		dB μ
V_{OSC}		Local OSC Voltage	$f_{OSC} = 72.3\text{MHz}$		105		mV _{RMS}
V_{IN} (lim) IF	FM IF	Input Limiting Voltage	-3dB limiting	40	46	53	dB μ
VOD		Recovered Output Voltage	$V_{IN} = 80\text{dB}\mu$		100	130	mV _{RMS}
S/N		Signal to Noise Ratio	$V_{IN} = 80\text{dB}\mu$		70		dB
THD		Total Harmonic Distortion	$V_{IN} = 80\text{dB}\mu$		0.4		%
AMR		AM Rejection Ratio	$V_{IN} = 80\text{dB}\mu$		40		dB
V_L		Lamp ON Sensitivity	$I_L = 1\text{mA}$		51		dB μ
G_V		Gain	$V_{IN} = 26\text{dB}\mu$	40	70	110	mV _{RMS}
VOD	AM	Recovered Output Voltage	$V_{IN} = 60\text{dB}\mu$	55	80	110	mV _{RMS}
S/N		Signal to Noise Ratio	$V_{IN} = 60\text{dB}\mu$		42		dB
THD		Total Harmonic Distortion	$V_{IN} = 60\text{dB}\mu$		1.0		%
V_L		Lamp ON Sensitivity	$I_L = 1\text{mA}$		25		dB μ
R19	Pin 19 Output Resistance		FM mode AM mode		0.75 12.5		k Ω k Ω
R_{IN}	Input Resistance				24		k Ω
R_{OUT}	Output Resistance				5		k Ω
V_{IN} (Max.) Stereo	Max. Composite Signal Input Voltage		$L + R = 90\%$, $P = 10\%$ $f_m = 1\text{kHz}$, $\text{THD} = 3\%$		350		mV _{RMS}
Sep	Separation	$f_m = 100\text{Hz}$ $f_m = 1\text{kHz}$ $f_m = 10\text{kHz}$	$L + R = 135\text{mV}_{RMS}$ $P = 15\text{mV}_{RMS}$	20	42		dB
					35		dB
					42		dB
THD Monaural	MPX	Total Harmonic Distortion (monaural)			0.2		%
THD Stereo		Total Harmonic Distortion (stereo)			0.2		%
G_V (MPX)	Voltage Gain		$V_{IN} = 150\text{mV}_{RMS}$	-6	-4	-1	dB
C.B.	Channel Balance		$V_{IN} = 150\text{mV}_{RMS}$	-2	0	2	dB
V_L (ON)	Stereo Lamp (ON) Sensitivity		Pilot Input		8	16	mV _{RMS}
V_L (OFF)	Stereo Lamp (OFF) Sensitivity			2	6		mV _{RMS}
V_H	Stereo Lamp Hysteresis				2		mV _{RMS}
C.R.	Capture Range		$P = 15\text{mV}_{RMS}$		± 3		%
S/N	Signal to Noise Ratio				70		dB

APPLICATION CIRCUIT

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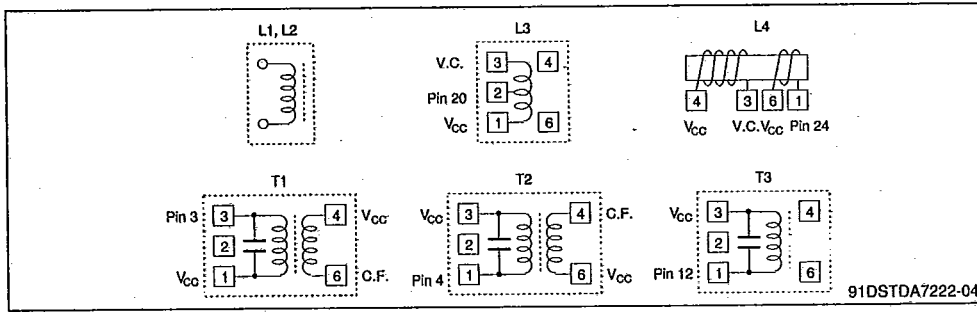
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COIL DATA

Coil N°		f (Hz)	L (μH)	C ₀ (pF)	Q ₀	Turns				Wire	Ref.*
						1-2	2-3	1-3	4-6		
L ₁	FM RF	100M	0.06		100			2 $\frac{1}{4}$		0.5Ø UEW	S - 0258-00-021
L ₂	FM OSC	100M	0.045		100			1 $\frac{3}{4}$		0.5Ø UEW	S - 0258-000-021
L ₃	MW OSC	796k	268		125	14	86			0.06Ø UEW	S - 2157-2239-213A
L ₄	MW ANT	796k	600		200					0.07Ø x 3 USTC	S - CORE 10Ø x 80mm
T ₁	FM MIX	10.7M		75	100			13	2	0.1Ø UEW	S - 2153-414-041
T ₂	AM MIX	455k		330	115			132	9	0.06Ø UEW	S - 2150-2162-057
T ₃	FM DET	10.7M		47	165			16		0.1Ø MUEW	S - 2153-4095-122

* S : Sumida Electric CO, LTD.



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