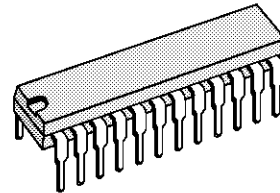


3V AM/FM ONE-CHIP RADIO

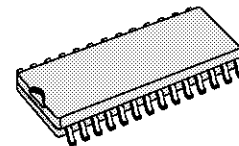
ADVANCE DATA

- 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
 $V_{CC(opr)} = 1.8 \text{ to } 7.0\text{V}$ ($T_A = 25^\circ\text{C}$)
- LED DRIVE CIRCUIT FOR TUNING INDICATION



SHRINK DIP24
(Plastic Package)

ORDER CODE : TDA7222A



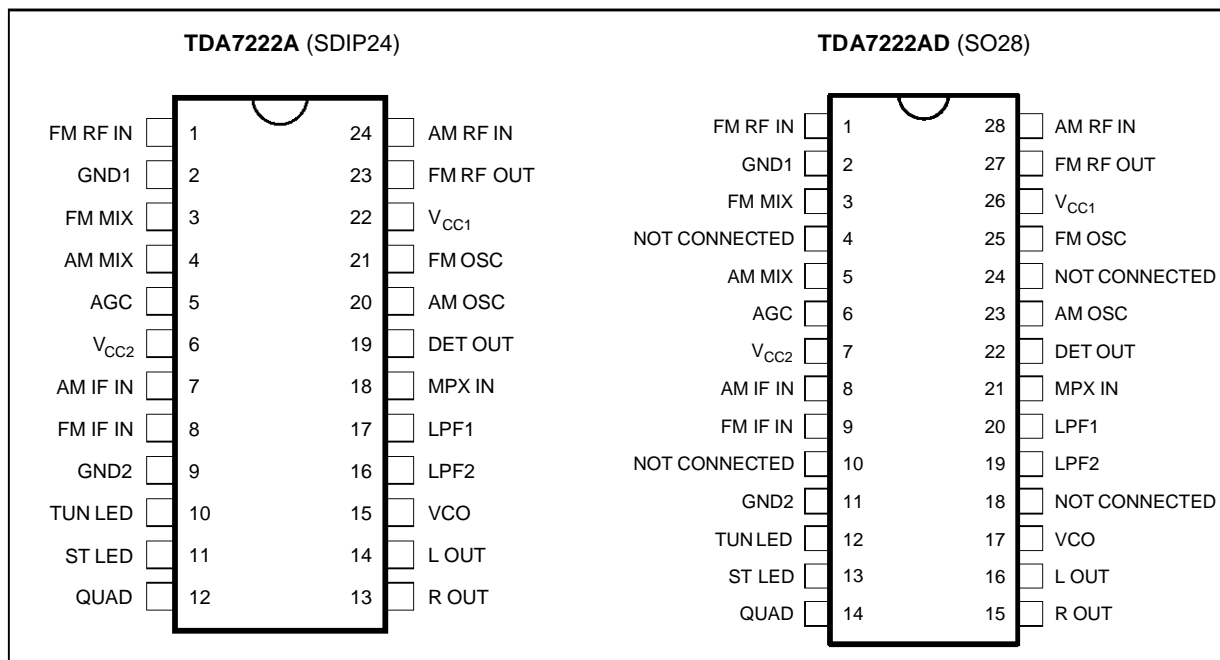
SO28
(Plastic Micropackage)

ORDER CODE : TDA7222AD

DESCRIPTION

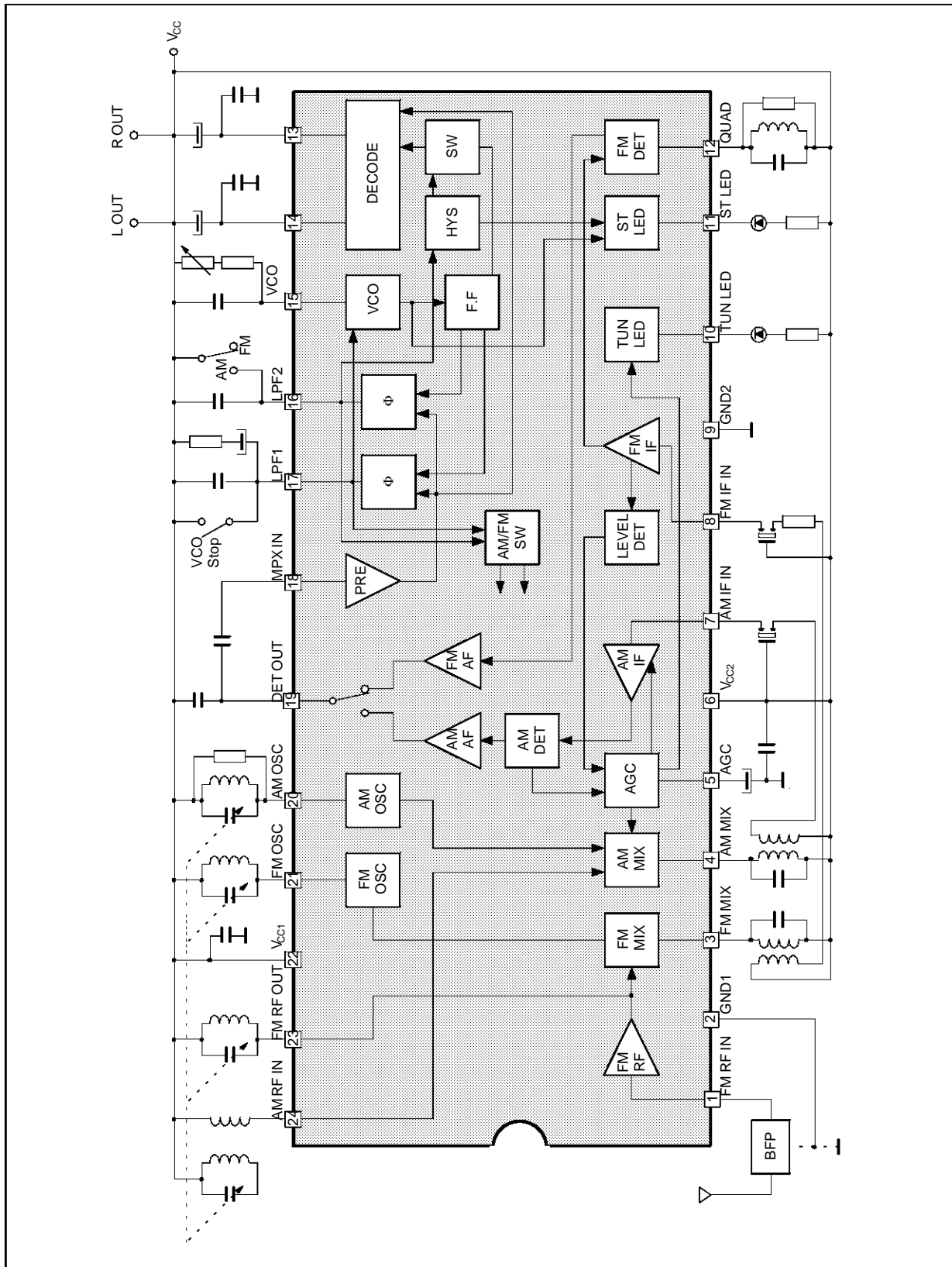
TDA7222A and TDA7222AD are AM/FM chip tuner ICs, which are designed for portable radios and 3V headphone radios.

PIN CONNECTIONS



7222A-01.EPS / 7222AD01.EPS

BLOCK DIAGRAM



7222A-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _S	Supply Voltage	9	V
I _{LED}	LED Current	10	mA
V _{LED}	LED Voltage	10	V
T _{oper}	Operating Temperature	-20, +70	°C
T _{stg}	Storage Temperature	-55, +150	°C

7222A-01.TBL

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V _S	Supply Voltage	1.8 to 7	V
T _{oper}	Operating Temperature	0, +70	°C

7222A-02.TBL

ELECTRICAL CHARACTERISTICS (unless otherwise specified)

T_A = 25°C, V_{CC} = 3V F/E : f = 83MHz, f_m = 1kHz
 FM IF : f = 10.7MHz, Δf = ± 22.5kHz, f_m = 1kHz
 AM : f = 1MHz, MOD = 30%, f_m = 1kHz
 MPX : f_m = 1kHz

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		dBμ	
V _{OSC}		Local OSC Voltage	f _{OSC} = 72.3MHz		105		mV _{RMS}	
V _{IN} (lim) IF	FM IF	Input Limiting Voltage	- 3dB limiting	40	46	53	dBμ	
V _{OD}		Recovered Output Voltage	V _{IN} = 80dBμ	55	80	110	mV _{RMS}	
S/N		Signal to Noise Ratio	V _{IN} = 80dBμ		70		dB	
THD		Total Harmonic Distortion	V _{IN} = 80dBμ		0.4		%	
AMR		AM Rejection Ratio	V _{IN} = 80dBμ		32		dB	
V _L		Lamp ON Sensitivity	I _L = 1mA	45	51	56	dBμ	
G _V		AM	Gain	V _{IN} = 26dBμ	40	70	110	mV _{RMS}
V _{OD}	Recovered Output Voltage		V _{IN} = 60dBμ	55	80	110	mV _{RMS}	
S/N	Signal to Noise Ratio		V _{IN} = 60dBμ		42		dB	
THD	Total Harmonic Distortion		V _{IN} = 60dBμ		1.0		%	
V _L	Lamp ON Sensitivity		I _L = 1mA	20	25	30	dBμ	
R19	Pin 19 Output Resistance		FM mode AM mode		0.75 12.75		kΩ kΩ	
R _{IN}		Input Resistance			24		kΩ	
R _{OUT}		Output Resistance			5		kΩ	
V _{IN} (Max.) Stereo	MPX	Max. Composite Signal Input Voltage		L + R = 90%, P = 10% f _m = 1kHz, THD = 3%		350	mV _{RMS}	
Sep		Separation	f _m = 100Hz f _m = 1kHz f _m = 10kHz	L + R = 135mV _{RMS} P = 15mV _{RMS}	25	32 32 32	dB dB dB	
THD Monaural		Total Harmonic Distortion (monaural)		V _{IN} = 150mV _{RMS}		0.2		%
THD Stereo		Total Harmonic Distortion (stereo)		L + R = 135mV _{RMS} P = 15mV _{RMS}		0.2		%
G _V (MPX)		Voltage Gain		V _{IN} = 150mV _{RMS}	-5	-3	-1	dB
C.B.		Channel Balance		V _{IN} = 150mV _{RMS}	-2	0	2	dB

7222A-03.TBL

TDA7222A - TDA7222AD

ELECTRICAL CHARACTERISTICS (unless otherwise specified) (continued)

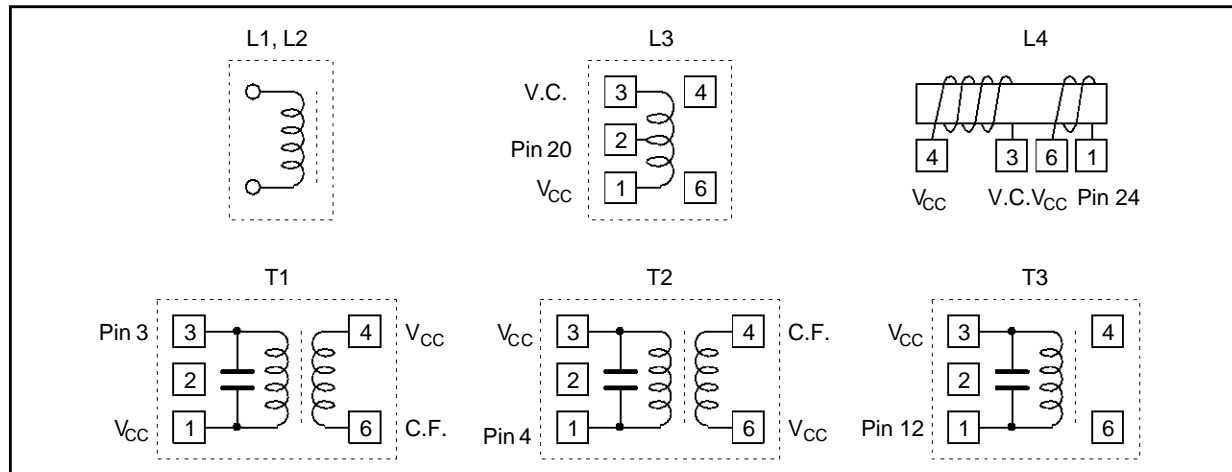
$T_A = 25^\circ\text{C}$, $V_{CC} = 3\text{V}$ F/E : $f = 83\text{MHz}$, $f_m = 1\text{kHz}$
 FM IF : $f = 10.7\text{MHz}$, $\Delta f = \pm 22.5\text{kHz}$, $f_m = 1\text{kHz}$
 AM : $f = 1\text{MHz}$, $\text{MOD} = 30\%$, $f_m = 1\text{kHz}$
 MPX : $f_m = 1\text{kHz}$

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_L (ON)	MPX	Pilot Input	2	6		mV _{RMS}
V_L (OFF)				2		mV _{RMS}
V_H				3		mV _{RMS}
C.R.		P = 15mV _{RMS}		± 3		%
S/N					70	

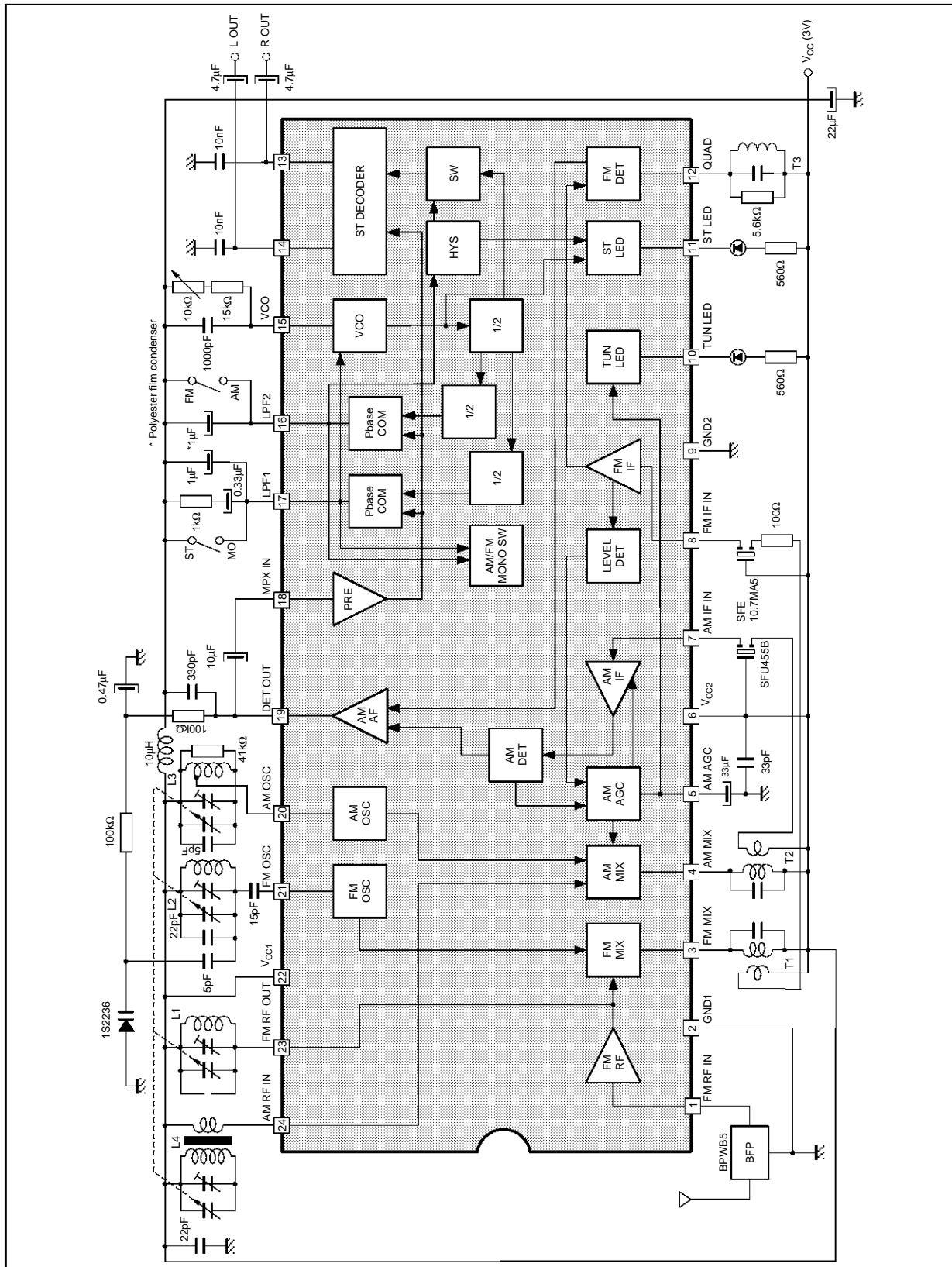
COIL DATA

Coil N°		f (Hz)	L (μH)	C _o (pF)	Q _o	Turns					Wire	Ref. *
						1-2	2-3	1-3	1-4	4-6		
L ₁	FM RF	100M			100				2 $\frac{1}{2}$		0.5Ø UEW	S-53T-037-202
L ₂	FM OSC	100M			100			2 $\frac{3}{4}$			0.5Ø UEW	S-0258-24
L ₃	AM OSC	796k	238		115	13	73				0.08Ø UEW	S-4147-1356-038
T ₁	FM MIX	10.7M		75	100			13		2	0.1Ø UEW	S-2153-414-041
T ₂	AM MIX	455k		180	120			180		15	0.08Ø UEW	S-2150-2162-165
T ₃	FM DET	10.7M		47	165			16			0.09Ø MUEW	S-2153-4095-122

* S : Sumida Electric CO, LTD.



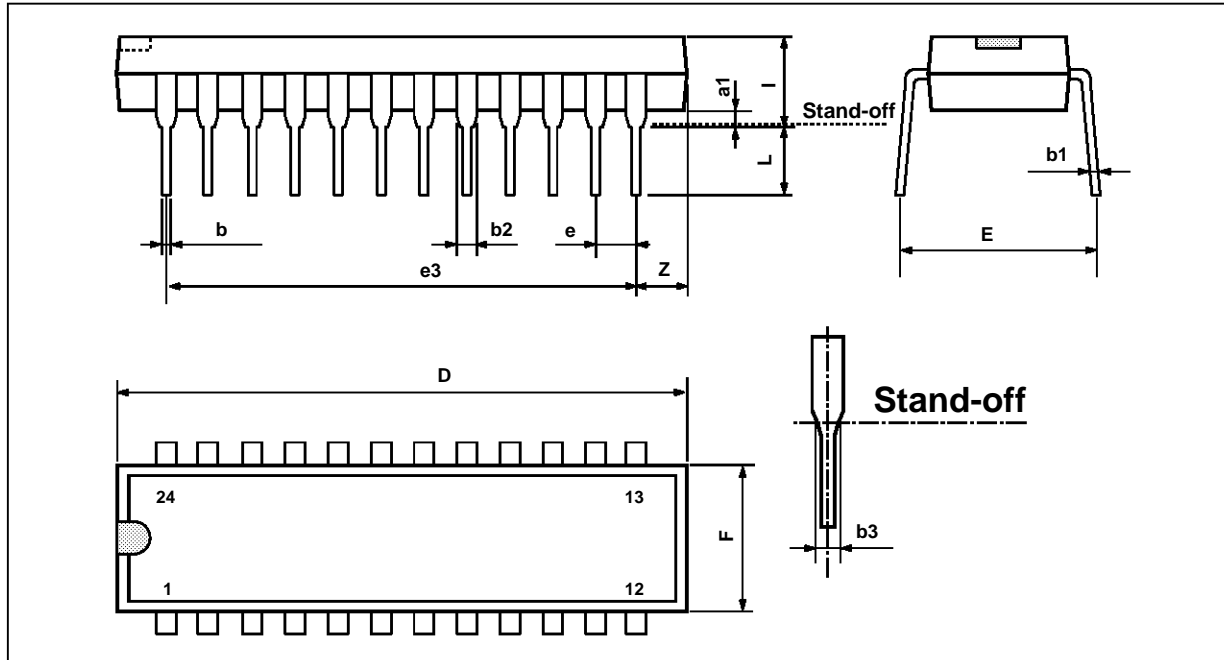
APPLICATION CIRCUIT



7222A-04.EPS

TDA7222A - TDA7222AD

PACKAGE MECHANICAL DATA (TDA7222A) 24 PINS - PLASTIC SHRINK DIP

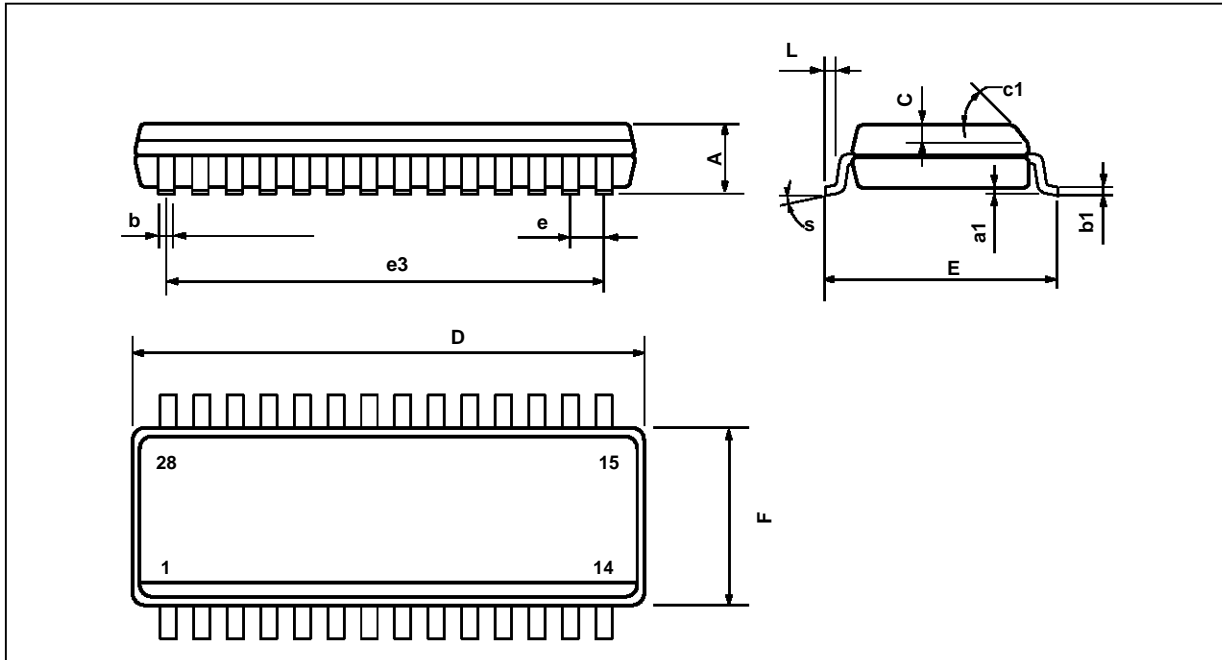


PMSDIP24.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.3			0.130	
a1	0.51			0.020		
b	0.35		0.59	0.014		0.023
b1	0.2		0.36	0.008		0.014
b2	0.75		1.42	0.030		0.056
b3	0.75			0.030		
D			23.11			0.910
E	7.95		9.73	0.313		0.383
e		1.778			0.070	
e3		19.558			0.770	
e4		7.62			0.300	
F			6.86			0.270
i			5.08			0.200
L	2.54			0.100		

SDIP24.TBL

PACKAGE MECHANICAL DATA (TDA7222AD)
 28 PINS - PLASTIC MICROPACKAGE (SO)



PM-SO28EFS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.3	0.004		0.012
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (typ.)					
D	17.7		18.1	0.697		0.713
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		16.51			0.65	
F	7.4		7.6	0.291		0.299
L	0.4		1.27	0.016		0.050
S	8° (max.)					

SO28.TBL

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