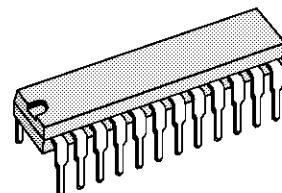


3V AM/FM ONE-CHIP RADIO

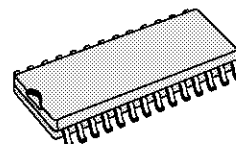
ADVANCE DATA

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



SHRINK DIP24
(Plastic Package)

ORDER CODE : TDA7222A



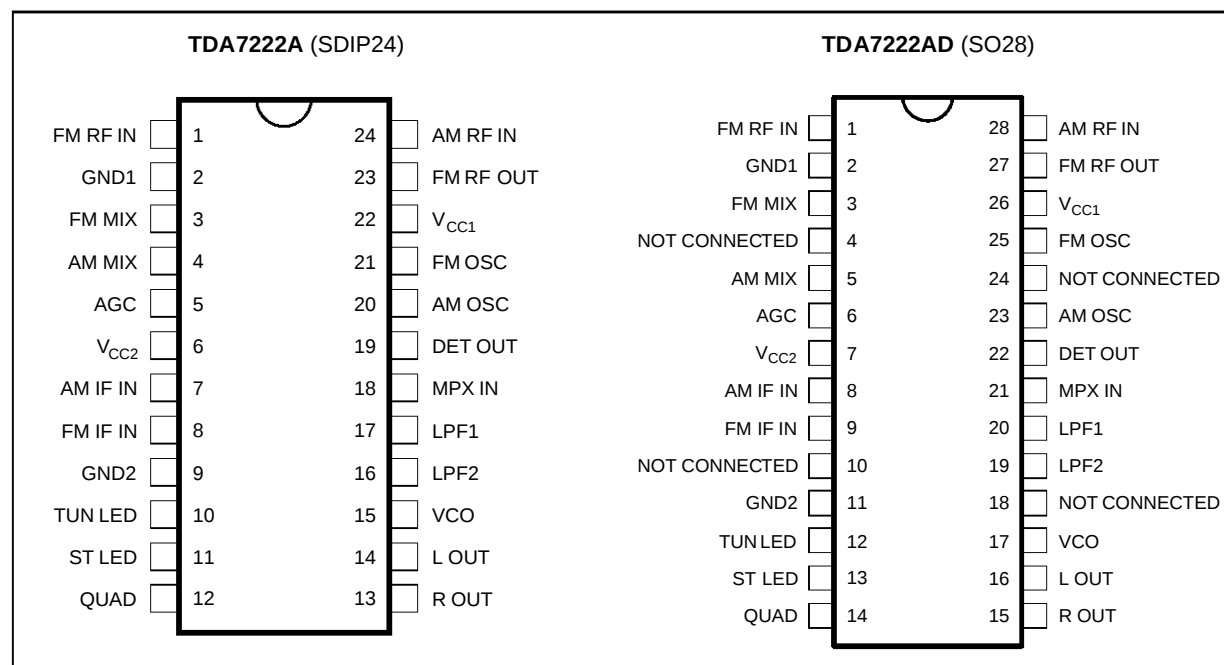
SO28
(Plastic Micropackage)

ORDER CODE : TDA7222AD

DESCRIPTION

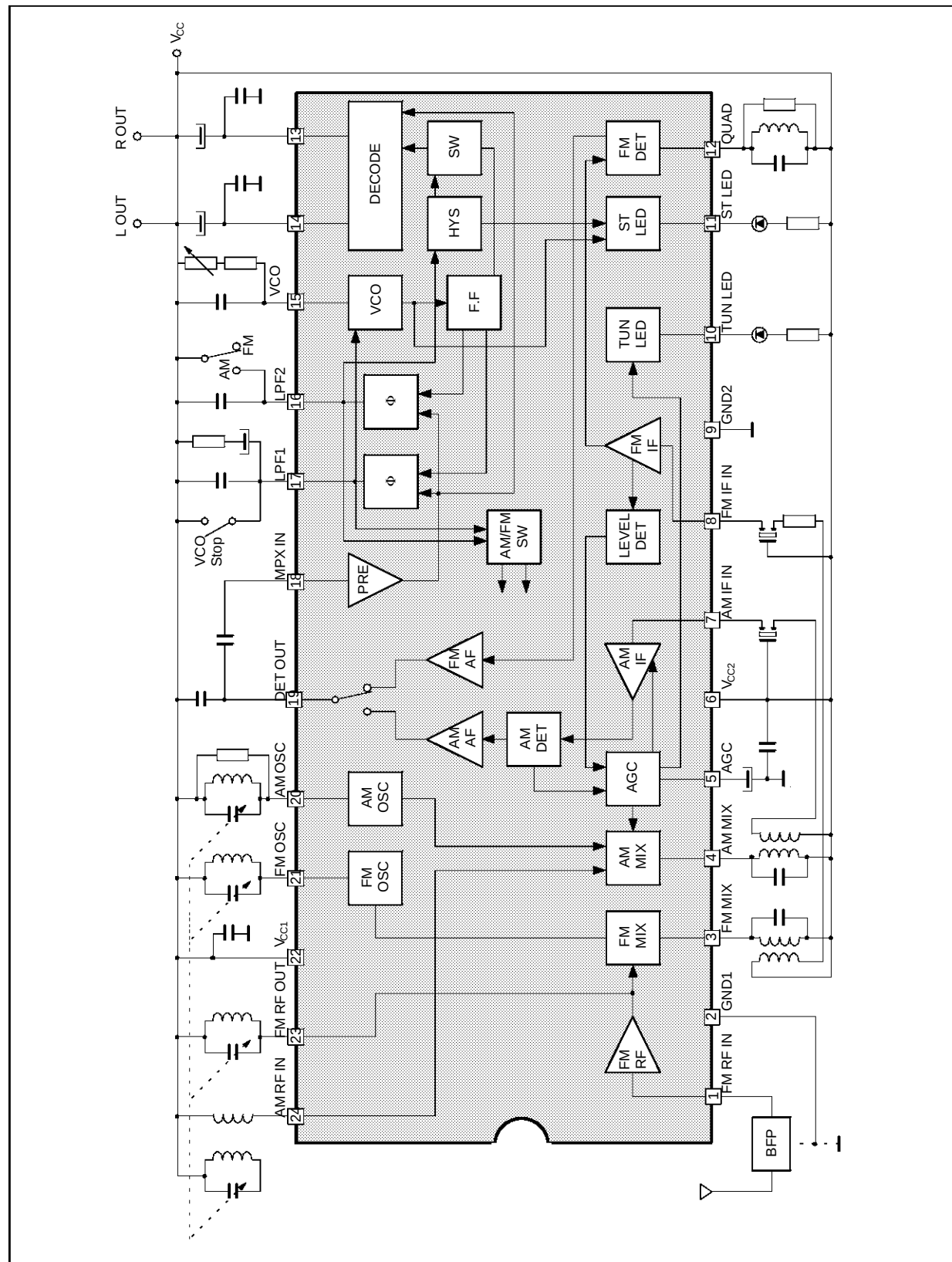
TDA7222A and TDA7222AD are AM/FM chip tuner ICs, which are designed for portable radios and 3V headphone radios.

PIN CONNECTIONS



7222A-01.EPS / 7222AD-01.EPS

BLOCK DIAGRAM



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)

$T_A = 25^\circ\text{C}$, $V_{CC} = 3\text{V}$ 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
$I_{CC}(\text{FM})$	Supply Current		$V_{IN} = 0$, FM mode		13.2	20	mA
$I_{CC}(\text{AM})$			$V_{IN} = 0$, AM mode		8.4	13.5	mA
$V_{IN}(\text{lim})$	F/E	Input Limiting Voltage	- 3dB limiting		10.0		dB μ
V_{OSC}		Local OSC Voltage	$f_{OSC} = 72.3\text{MHz}$		105		mV $_{RMS}$
$V_{IN}(\text{lim}) \text{ IF}$	FM IF	Input Limiting Voltage	- 3dB limiting	40	46	53	dB μ
VOD		Recovered Output Voltage	$V_{IN} = 80\text{dB}\mu$	55	80	110	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	$V_{IN} = 80\text{dB}\mu$		32		dB
V_L	AM	Lamp ON Sensitivity	$I_L = 1\text{mA}$	45	51	56	dB μ
G_V		Gain	$V_{IN} = 26\text{dB}\mu$	40	70	110	mV $_{RMS}$
VOD		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	$I_L = 1\text{mA}$	20	25	30	dB μ
R19	Pin 19 Output Resistance		FM mode AM mode		0.75 12.75		k Ω k Ω
R_{IN}	MPX	Input Resistance			24		k Ω
R_{OUT}		Output Resistance			5		k Ω
$V_{IN}(\text{Max.})$ Stereo		Max. Composite Signal Input Voltage	$L + R = 90\%$, $P = 10\%$ $f_m = 1\text{kHz}$, $\text{THD} = 3\%$		350		mV $_{RMS}$
Sep		Separation $f_m = 100\text{Hz}$ $f_m = 1\text{kHz}$ $f_m = 10\text{kHz}$	$L + R = 135\text{mV}_{RMS}$ $P = 15\text{mV}_{RMS}$	25	32 32 32		dB dB dB
THD Monaural		Total Harmonic Distortion (monaural)	$V_{IN} = 150\text{mV}_{RMS}$		0.2		%
THD Stereo		Total Harmonic Distortion (stereo)	$L + R = 135\text{mV}_{RMS}$ $P = 15\text{mV}_{RMS}$		0.2		%
$G_V(\text{MPX})$		Voltage Gain	$V_{IN} = 150\text{mV}_{RMS}$	-5	-3	-1	dB
C.B.		Channel Balance	$V_{IN} = 150\text{mV}_{RMS}$	-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	Stereo Lamp (ON) Sensitivity	Pilot Input	2	6		mV _{RMS}
V_L (OFF)		Stereo Lamp (OFF) Sensitivity			2		mV _{RMS}
V_H		Stereo Lamp Hysteresis			3		mV _{RMS}
C.R.		Capture Range	$P = 15\text{mV}_{\text{RMS}}$		± 3		%
S/N		Signal to Noise Ratio			70		dB

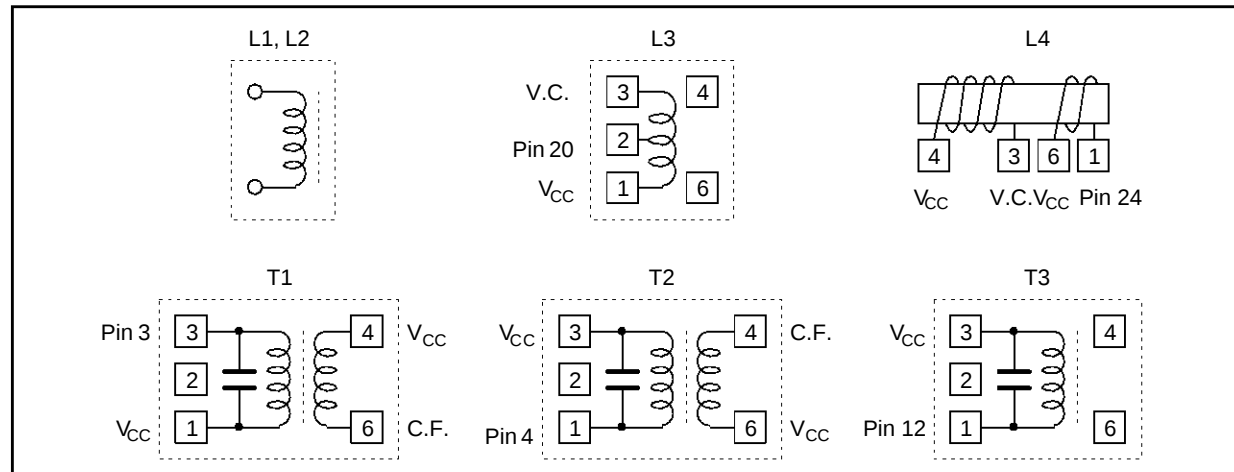
7222A-04.TBL

COIL DATA

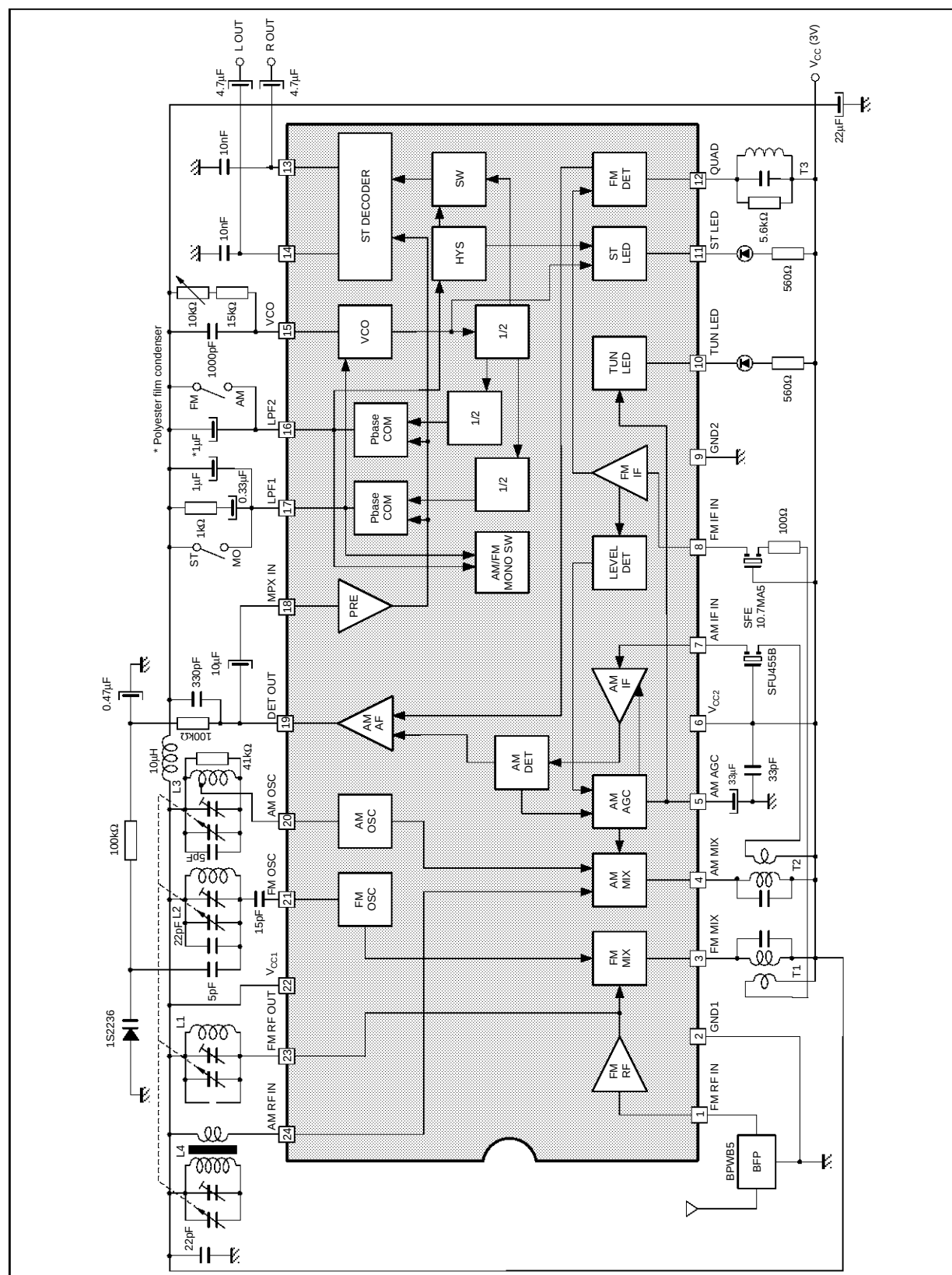
Coil N°		f (Hz)	L (μH)	C_o (pF)	Q_o	Turns					Wire	Ref. *
						1 - 2	2 - 3	1 - 3	1-4	4 - 6		
L ₁	FM RF	100M			100				$2 \frac{1}{2}$		0.5 $\varnothing$ UEW	S-53T-037-202
L ₂	FM OSC	100M			100			$2 \frac{3}{4}$			0.5 $\varnothing$ UEW	S - 0258-24
L ₃	AM OSC	796k	238		115	13	73				0.08 $\varnothing$ UEW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

7222A-05.TBL

* S : Sumida Electric CO, LTD.



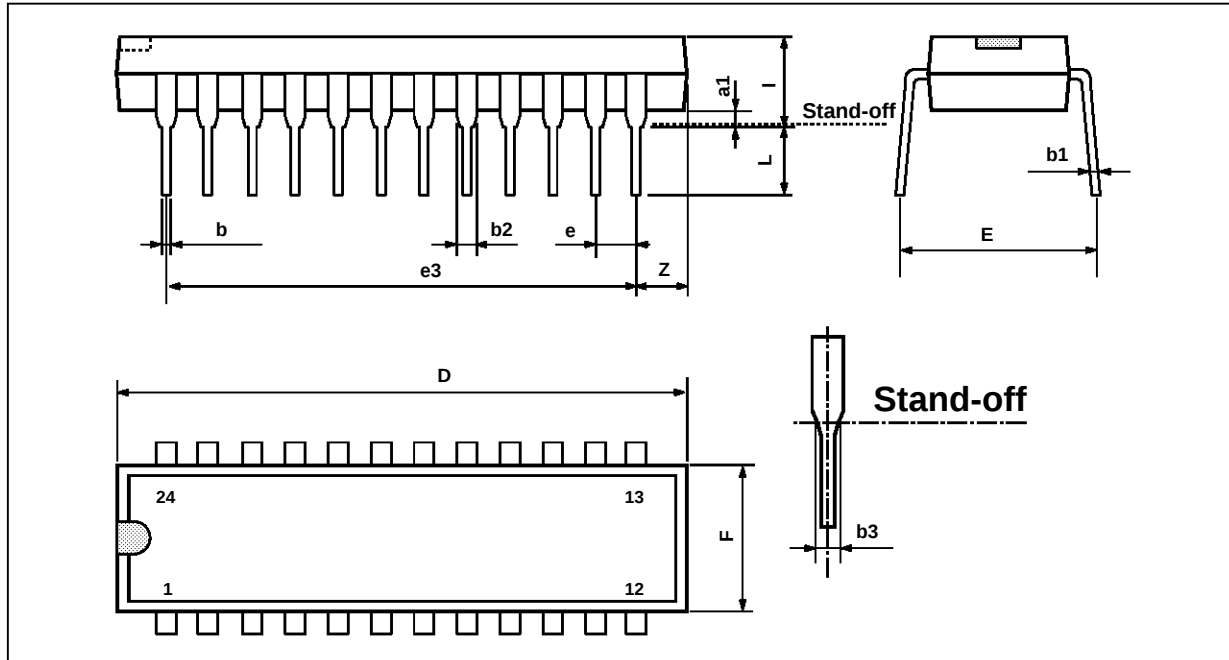
7222A-03.EPS



TDA7222A - TDA7222AD

PACKAGE MECHANICAL DATA (TDA7222A)

24 PINS - PLASTIC SHRINK DIP

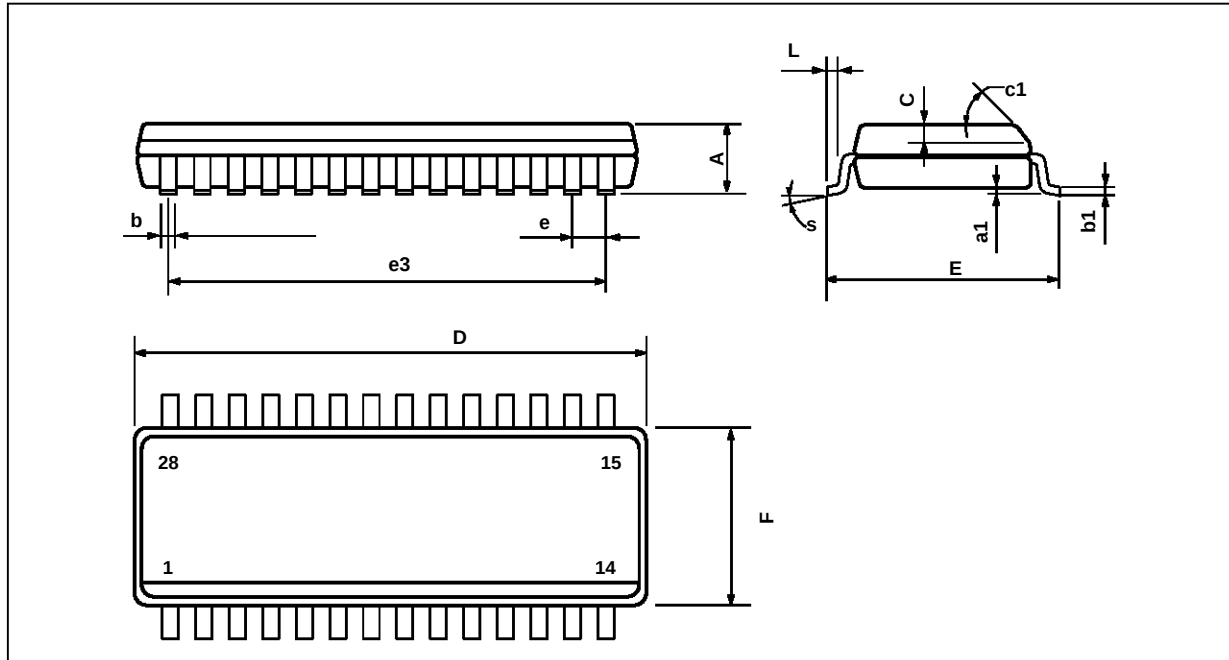


PMSDIP24.EPS

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-SO28.EPS

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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