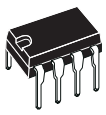
TDA2320

PREAMPLIFIER FOR INFRARED REMOTE CONTROL SYSTEMS

- WIDE SUPPLY VOLTAGE RANGE: 4 TO 20V
- SINGLE OR SPLIT SUPPLY OPERATION
- VERY LOW CURRENT CONSUMPTION: 0.8mA
- VERY LOW DISTORTION: 0.03% TYPICA



N
DIP8
(Plastic Package)

D
SO8
(Plastic Micropackage)

DESCRIPTION

The TDA2320 is a monolithic integrated circuit in Dip package especially designed to amplify the IR signal in remote controlled TV or radio sets. It directly interfaces the digital control circuitry.

The TDA2320 incorporates a two-stage amplifier with excellent sensitivity and high noise immunity. It can work with a single 5V supply voltage and flash or carrier transmission modes as provided for example by the M709A/M710A/MOS transmitters.

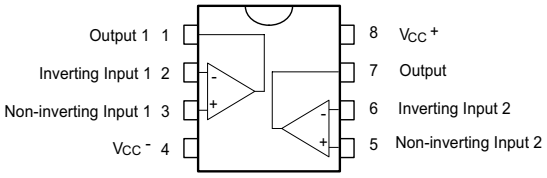
The TDA2320 is particularly intended to be used in conjunction with the M104 and M206 + M3870 remote control receivers.

ORDER CODE

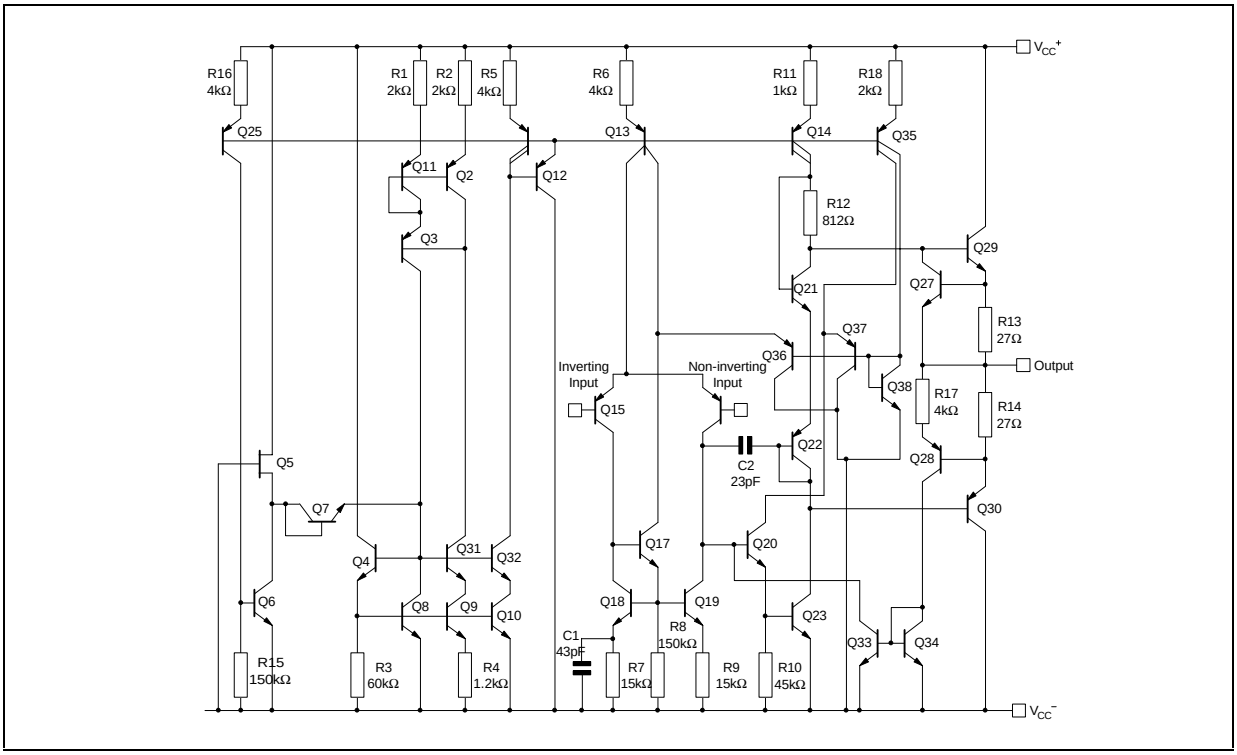
Part Number	Temperature Range	Package	
		N	D
TDA2320	-40°C, +105°C	•	•
Example : TDA2320N			

N = Dual in Line Package (DIP

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM (1/2 TDA2320)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	20	V
p_{tot}	Total Power Dissipation at T_{amb} = 70°C [1)]	400	mW
T_{stg} , T_j	Storage and Junction Temperature	-40 to 150	°C

1. Power dissipation must be considered to ensure maximum junction temperature (Tj) is not exceeded.

ELECTRICAL CHARACTERISTICS

V_{CC} = 5V, T_{amb} = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Supply Voltage	4		20	V
I_{CC}	Supply Current V_{CC} = 20V		0.8	2	mA
I_{ib}	Input Bias Current		100	500	nA
V_{io}	Input Offset Voltage $R_s \leq 10k\Omega$		0.5		mV
I_{io}	Input Offset Current		15		nA
A_{vd}	Large Signal Voltage Gain f = 1kHz f = 100kHz	64	70 30		dB
V_{opp}	DC Output Voltage Swing		2.5		V
GBP	Gain-bandwidth Product f = 200kHz	1.5	3		MHz
SR	Slew Rate R_L = 2kΩ		1.5		V/µs
e_n	Equivalent Input Noise Voltage f = 40kHz Rs = 10kΩ		20		$\frac{nV}{\sqrt{Hz}}$
PSRR	Power Supply Rejection Ratio f = 100Hz		80		dB

Figure 1 : Supply Current versus Supply Voltage

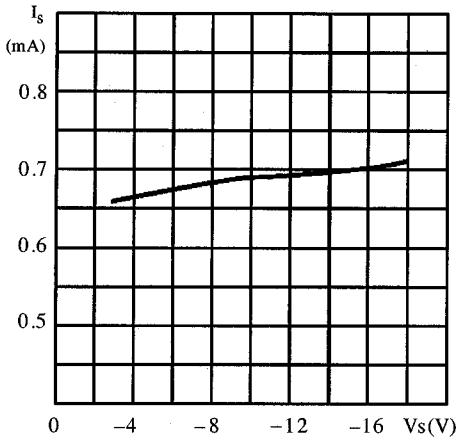


Figure 2 : Supply Current versus Ambient Temperature

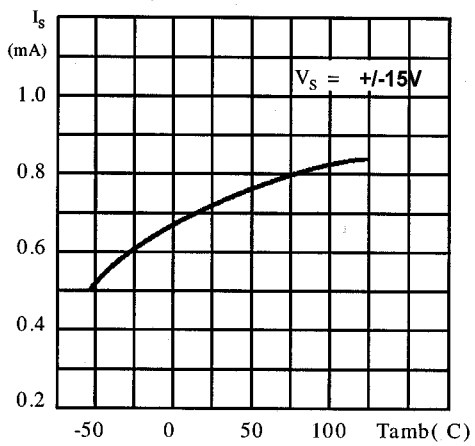


Figure 3 : Output Short Circuit Current versus Ambient Temperature

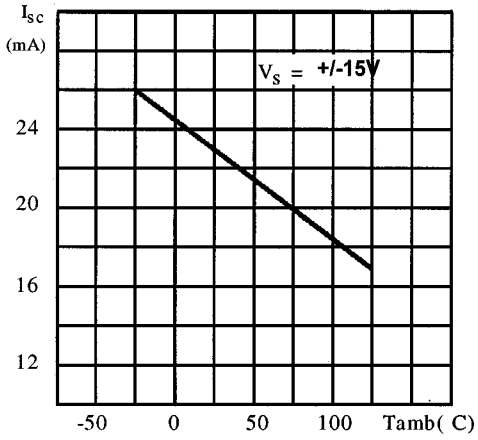


Figure 4 : Open Loop Frequency and Phase Response

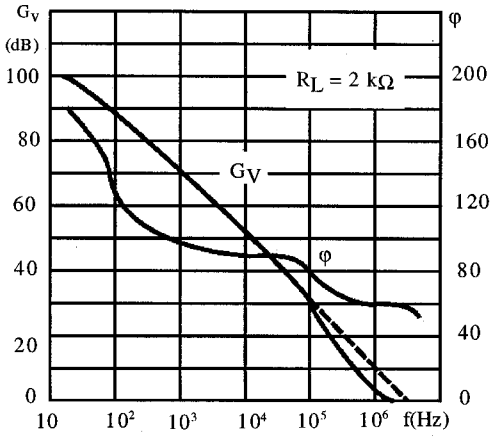


Figure 5 : Output Loop Gain versus Ambient Temperature

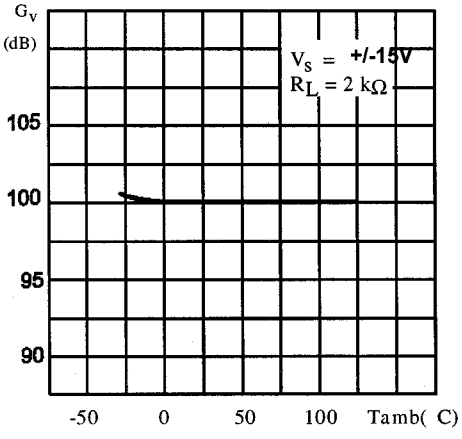


Figure 6 : Supply Voltage Rejection versus Frequency

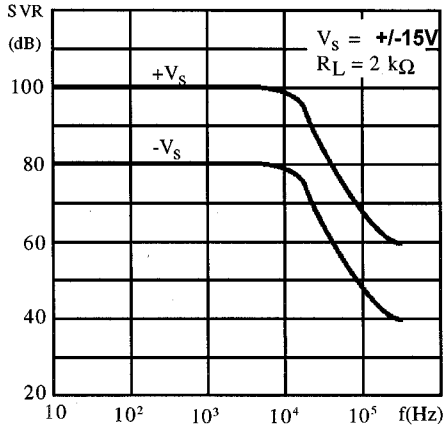


Figure 7 : Large Signal Frequency Response

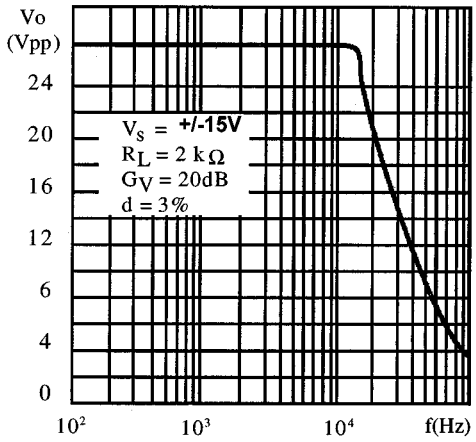


Figure 8 : Output Voltage Swing versus Load Resistance

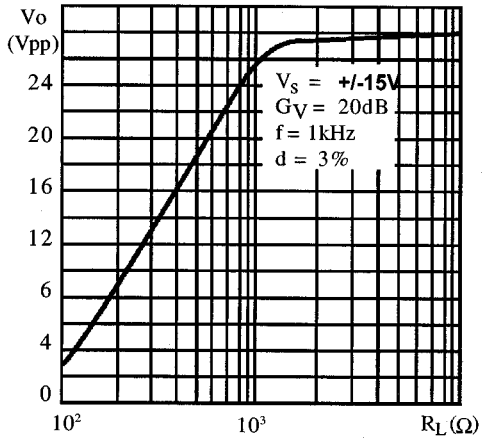


Figure 9 : Total Input Noise versus Frequency

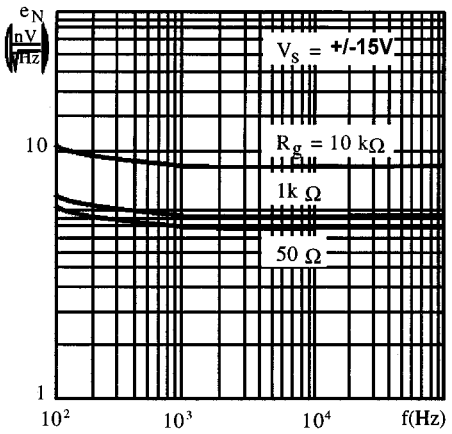


Figure 10 : Amplitude Response

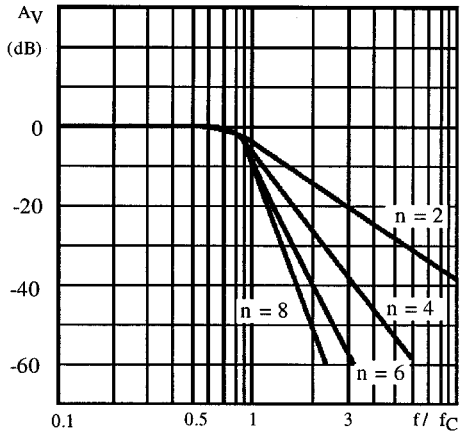


Figure 11 : Amplitude Response (±1dB ripple)

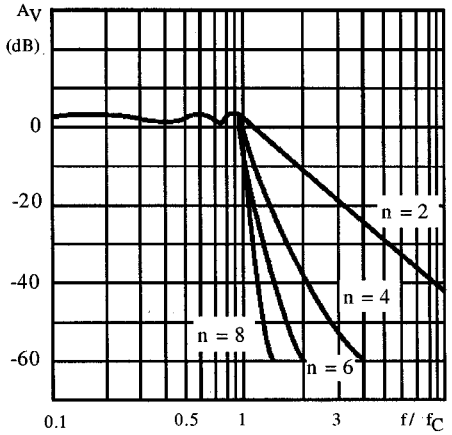


Figure 12 : Filter Configuration

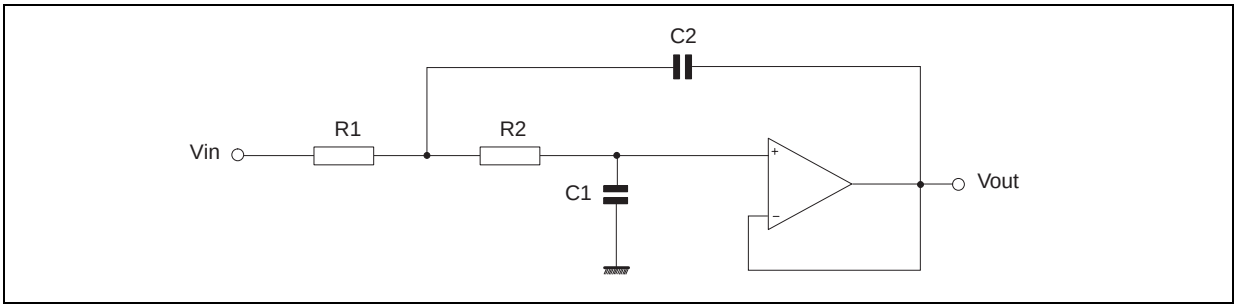


Figure 13 : 5th Order Low-pass Filter (Butterworth) with Unity Gain configuration

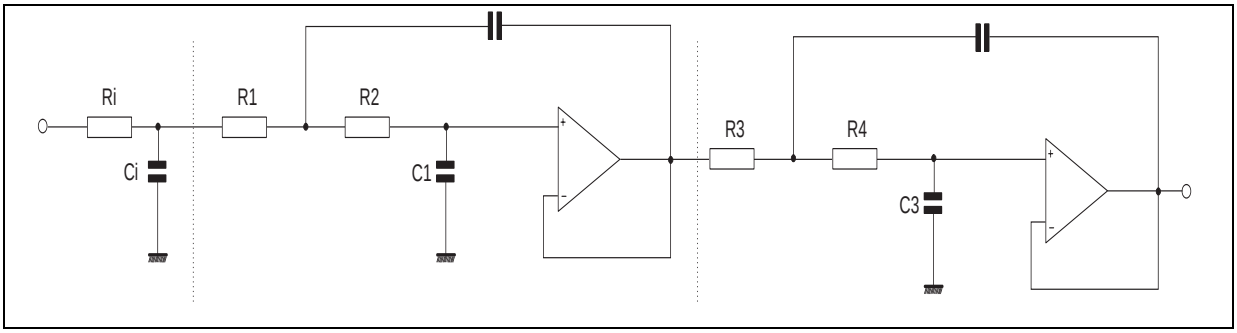
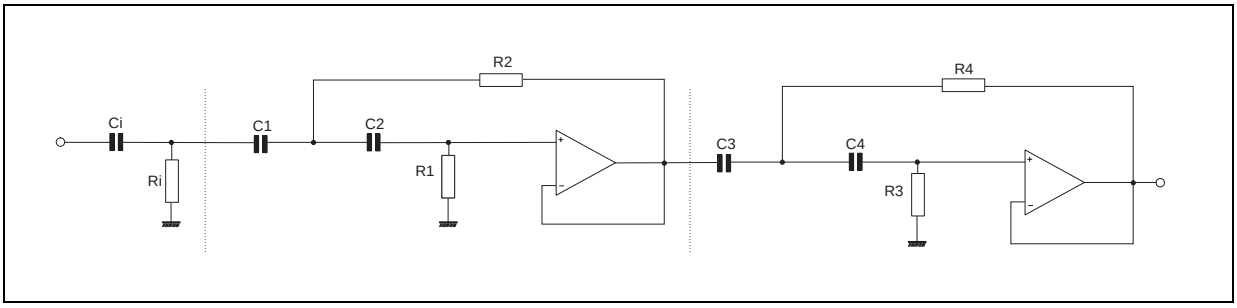
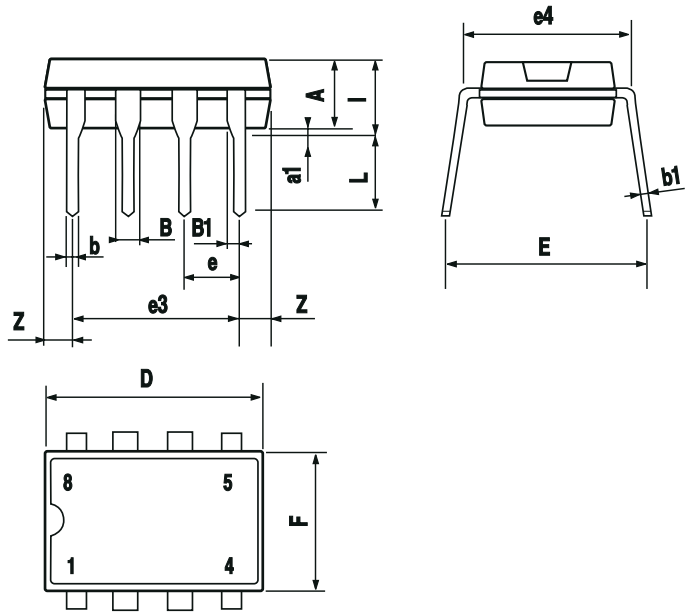


Figure 14 : 5th Order High-pass Filter (Butterworth) with Unity Gain configuration



PACKAGE MECHANICAL DATA

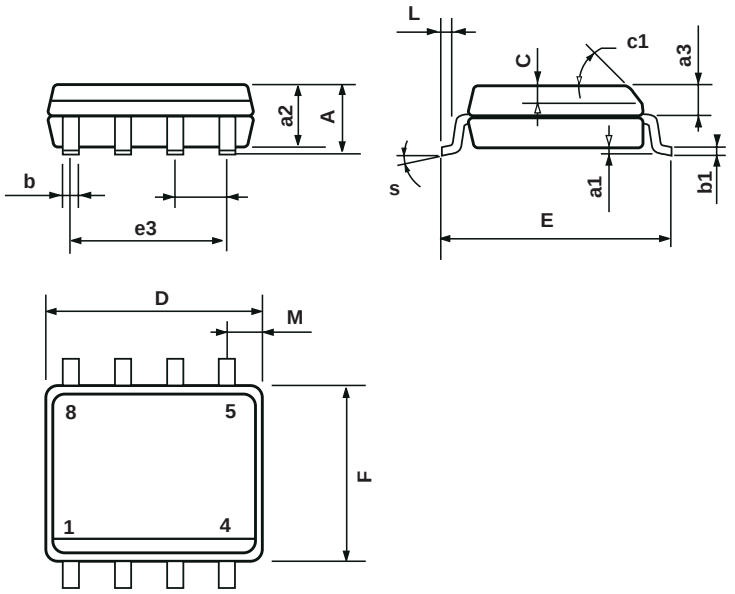
8 PINS - PLASTIC DIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC MICROPACKAGE (SO)



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					