ACTUATOR DRIVER WITH CURRENT FEEDBACK FOR CD – ROM/DVD—YD5954

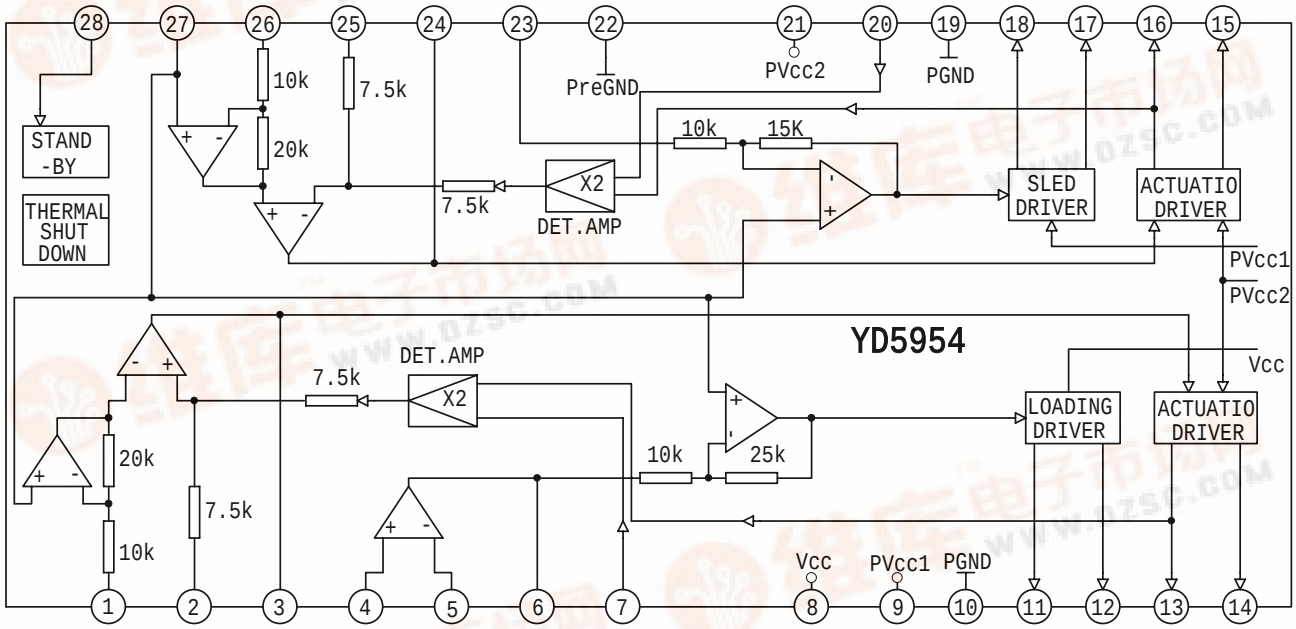
DESCRIPTION

The YD5954 is a four-channel BTL driver IC for driving the motors and actuators in products such as CD-ROM/DVD drivers. Two of the channels use current feedback to minimize the current phase shift caused by the influence of load inductance.

FEATURES

*Wide dynamic range(4.0V(typ.) when Vcc=12V, PV_{CC}=5V, and R_L=8Ω).
*Level shift circuit on chip.
*Thermal shutdown circuit on chip.

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Power Supply Voltage	V_{CC}, $PV_{CC1}/2$	13.5	V
Power Dissipation	P_D	1.7	W
Operating Temperature	Topr	-34 to +85	℃
Storage Temperature	Tstg	-55 to +150	℃

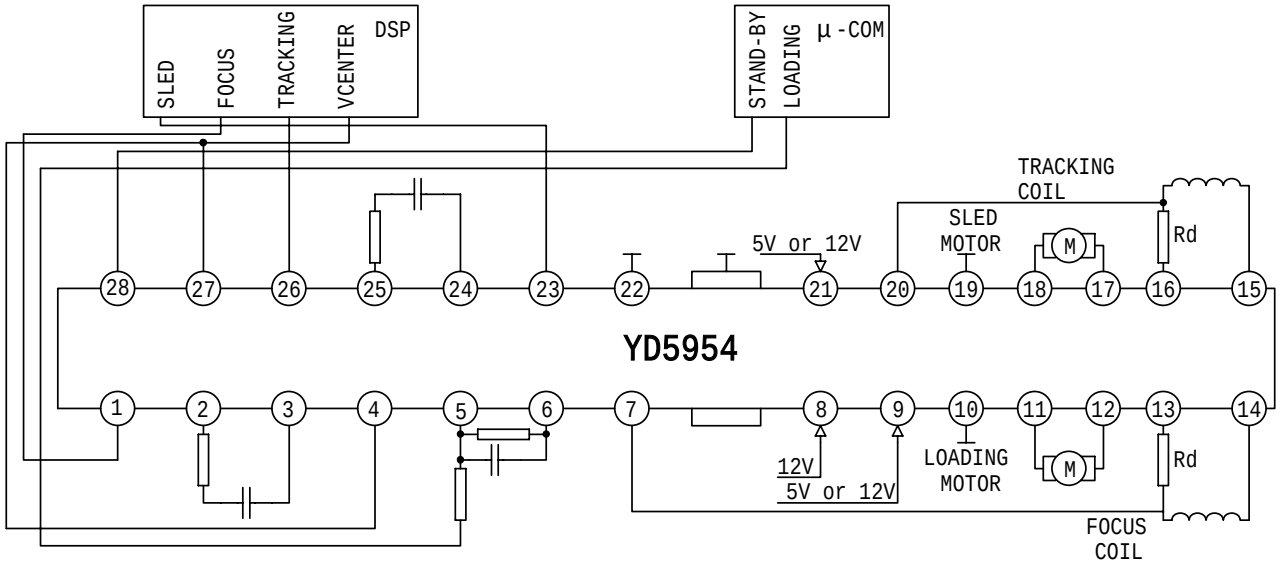
ELECTRICAL CHARACTERISTICS

(Unless other specified, Tamb=25℃, Vcc=12V, Pvcc1=Pvcc2=5V, BIAS=2.5V, R_L=8., Rd=0.5, C= 100pF)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	Icc			18	27	mA
Actuator Driver						
Output Offset Current	I_{OOF}		-6		6	mA
Maximum Output Amplitude	V_{OM}		3.6	4.0		V
Transmission Gain	G_M	V_{IN}=BIAS ±0.2V	1.3	1.5	1.7	A/V
Loading Driver						
Input op-amp Same Phase Input Range	V_{ICM}		-0.3		11.0	V
Input Bias Current (outflow current)	I_{BOP}			30	300	nA
Output High Level Voltage	V_{OHOP}	No load	10.8	11.1		V
Output Low Level Voltage	V_{OLOP}	No load		0.8	1.1	V
Output Offset Voltage	V_{OOFLD}		-100	0	100	mV
Maximum Output Amplitude	V_{OMLD}		7.5	9.0		V
Closed-circuit Voltage Gain	G_{VLD}	V_{IN}=BIAS ±0.2V	18.0	20.0	22.0	dB
Sled Driver						
Offset Voltage	V_{OOFSL}		-50	0	50	mV

Maximum Output Amplitude	V_{OMSL}		3.6	4.0		V
Voltage Gain	G_{VSL}	V_{IN}=BIAS ±0.2V	13.5	15.5	17.5	dB
F/R Gain Differential	ΔG_{VSL}	V_{IN}=BIAS ±0.2V	0	1	2	dB
STBY Logic						
STBY On Voltage	V_{STBY1}	All Channels Off	0		0.5	V
STBY Off Voltage	V_{STBY2}	All Channels On	2.0			V

APPLICATION CIRCUIT



OUTLINE DRAWING