élantec
HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

EL1510C

Medium Power Differential Line Driver

Features

- 40V_{P-P} differential output drive into 100Ω
- -85dBc typical driver output distortion at full output at 150kHz
- Low quiescent current of 7.5mA per amplifier

Applications

- ADSL G.lite CO line driving
- G.SHDSL, HDSL2 line drivers
- ADSL full rate CPE line driving
- Video distribution amplifiers
- Video twisted-pair line drivers

Ordering Information

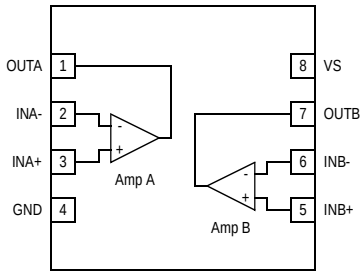
Part No	Package	Tape & Reel	Outline #
EL1510CS	8-Pin SOIC		MDP00XX
EL1510CL	8-Pin LPP		MDP00XX

General Description

The EL1510C is a dual operational amplifier designed for central office and customer premise line driving in both SDSL and ADSL solutions. This device features a high drive capability of 250mA while consuming only 7.5mA of supply current per amplifier, while operating from ±12V supplies. This driver achieves a typical distortion of less than minus 85dBc, at 150kHz into a 25Ω load. The EL1510C is available in the power 8-pin LPP package and is specified for operation over the full -40°C to +85°C temperature range. The LPP package has a very low ambient to junction thermal coefficient of 40°C/W.

The EL1510C is ideal for CPE modem application in ADSL, HDSL2, G.SHDSL, and VDSL.

Connection Diagram



8-Pin LPP Top View

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Absolute Maximum Ratings (T_A = 25°C)

Values beyond absolute maximum ratings can cause the device to be prematurely damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

V_S+ Voltage to Ground	-0.3V to +26.4V
V_{IN}+ Voltage	GND to V_S+
Current into any Input	8mA
Continuous Output Current	75mA
Operating Temperature Range	-40°C to +85°C
Storage Temperature Range	-60°C to +150°C
Operating Junction Temperature	-40°C to +150°C
Power Dissipation	See Curves
ESD Voltage	2kV

Important Note:

All parameters having Min/Max specifications are guaranteed. Typ values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore: $T_J = T_C = T_A$

Electrical Characteristics

V_S = ±12V, R_F = 1.5kΩ, R_L = 75Ω to GND, T_A = 25°C unless otherwise specified.

Parameter	Description	Conditions	Min	Typ	Max	Unit
AC Performance						
BW	-3 dB Bandwidth	A_V = +4		70		MHz
HD	Total Harmonic Distortion	f = 150kHz, V_O = 16Vp-p, R_L = 25Ω		-85		dBc
dG	Differential Gain	A_V = +2, R_L = 37.5Ω		0.17		%
dθ	Differential Phase	A_V = +2, R_L = 37.5Ω		0.1		°
SR	Slewrate	V_{OUT} from -4.5V to +4.5V		500		V/µS
DC Performance						
V_{OS}	Offset Voltage		-20		20	mV
ΔV_{OS}	V_{OS} Mismatch		-10		10	mV
R_{OL}	Transimpedance	V_{OUT} from -4.5V to +4.5V		1.4		MΩ
Input Characteristics						
I_B+	Non-Inverting Input Bias Current		-3		3	µA
I_B-	Inverting Input Bias Current		-30		30	µA
ΔI_B-	I_B- Mismatch		-40		40	µA
e_N	Input Noise Voltage			2.8		nV√Hz
i_N	-Input Noise Current			19		pA√Hz
Output Characteristics						
V_{OUT}	Loaded Output Swing (single ended)	R_L = 100Ω to GND		±11		V
		R_L = 25Ω to GND		±9.2		V
I_{OUT}	Output Current	R_L = 0Ω		450		mA
Supply						
V_S	Supply Voltage	Single Supply	5		24	V
I_S	Supply Current	All Outputs at 0V		15		mA

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General Disclaimer

Specifications contained in this data sheet are in effect as of the publication date shown. Elantec, Inc. reserves the right to make changes in the circuitry or specifications contained herein at any time without notice. Elantec, Inc. assumes no responsibility for the use of any circuits described herein and makes no representations that they are free from patent infringement.

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