TL35018

HIGH PERFORMANCE TELECOMMUNICATIONS IC

GENERAL DESCRIPTION

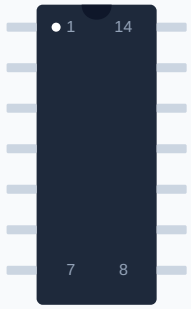
The ***TL35018*** is a premium monolithic integrated line-powered speech circuit interface chip housed in a standard DIP-14 package layout. It is precision-architected for high-end electronic telephone subsets and wireless local loop networks.

By integrating transmit and receive voice-band audio signal paths, an automated internal side-tone balance mechanism, linear attenuation metrics, and logic mute structures, it substantially reduces external component counts while maintaining optimized acoustic clarity across various subscriber line distances.

KEY FEATURES

- Wide operational supply loop range (***3.5V*** to ***12V***)
- Extremely low operating power draw (***2.8mA*** typical)
- Onboard balanced side-tone network matrix
- Built-in logic controlled mute configuration
- Dual-Tone Multi-Frequency (DTMF) link port
- Robust DIP-14 through-hole package format

PIN CONFIGURATION & SIGNAL LAYOUT



DIP-14 Mechanical View

PIN	PIN NAME	FUNCTIONAL DESCRIPTION
1	TX_IN	Microphone pre-amplifier stage signal input
2	TX_OUT	Transmit amplifier channel block output
3	GND	Ground circuit system node reference (***0V***)
4	RX_IN	Earphone/receiver signal amplifier intake
5	RX_OUT	Acoustic loop driving receiver output pin
6	AGC_CAP	Automatic Gain Control capacitor tie-port
7	DTMF_IN	External peripheral Dual-Tone audio interface input
8	V_REF	Internal half-supply reference output node ($V_{CC}/2$)
9	REG_OUT	Shunt regulator decouple stage stabilization junction
10	LINE_OUT-	Differential balanced speech line out node (-)
11	LINE_OUT+	Differential balanced speech line out node (+)
12	ST_BAL	Side-tone balance impedance matching port access

PIN	PIN NAME	FUNCTIONAL DESCRIPTION
13	MUTE	Logic high control line input for microphone muting operation
14	VCC	Positive operational supply circuit input point

ELECTRICAL & OPERATIONAL SPECIFICATIONS

PARAMETER / THRESHOLD CONDITION	SYMBOL	VALUE RANGE	UNIT VALUE
Absolute Maximum Ratings			
Total Peak Operating DC Supply Voltage Voltage Limit	V_{CC_MAX}	-0.3 to +15	V
Maximum Safe Ambient Package Dissipation at $T_A = 25°C$	P_D	650	mW
Operating Ambient Thermal Matrix Limits	T_A	-25 to +70	°C
Storage Temperature Window	T_{stg}	-55 to +150	°C
DC Performance Characteristics (V_{CC} = 5V, f = 1kHz, T_A = 25°C)			
Quiescent Supply Current Consumption (No Input Signal)	I_{CCQ}	2.8 / 4.5 Max	mA
Transmit Gain Signal Loop (Pin 1 to Line Nodes)	G_{TX}	40 ± 2.0	dB
Receiver Attenuation Channel Drive (Pin 4 to Pin 5)	G_{RX}	20 ± 2.0	dB
Total Harmonic Audio Distortion Matrix Profile	THD	0.5 / 1.2 Max	%
Active Logic Command Mute Path Attenuation Factor	A_{MUTE}	70 Typ	dB
Regulated Voltage Reference Target Output	V_{REF}	2.5 ± 0.2	V

Operating Warning: Operational metrics listed under Absolute Maximum Ratings constitute permanent component exposure strain limits. Functional stability during sustained limits is not guaranteed by TL Components.

PACKAGE DIMENSIONS & MECHANICAL DATA (DIP-14)

DIMENSIONAL PARAMETER BLOCK	METRIC DIMENSION (MM)	IMPERIAL DIMENSION (INCH)
Standard Lead Connection Pitch Centerlines	2.54 mm	0.100"
Lateral Row-to-Row Structural Base Center Dimension	7.62 mm	0.300"
Total Body Length Enclosure (Typical Profile)	19.05 mm	0.750"
Molded Internal Encapsulation Width Base	6.35 mm	0.250"