

Electrical characteristics at specified free-air temperature,
V_{CC} =5V (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		LM324			UNIT
			MIN	TYP	MAX	
V _{IO} Input offset voltage	V _{CC} =5V to MAX, V _{IC} =V _{ICR} min, V _O =1.4V	25°C		3	7	mV
		Full range			9	
ΔV _{IO} Average temperature coefficient of input offset current		Full range		7		V/°C
I _{IO} Input offset current	V _O =1.4V	25°C		2	50	nA
		Full range			150	
I _{IO} Average temperature coefficient of input offset current		Full range		10		pA/°C
I _{IB} Input bias current	V _O =1.4V	25 °C		-20	-250	nA
		Full range			-500	
V _{ICR} Common-mode input voltage range	V _{CC} =5V to MAX	25°C	0 to V _{CC} -1.5			V
		Full range	0 to V _{CC} -2			
V _{OH} High-level output voltage	R _L 2KΩ	25°C	V _{CC} -1.5			V
	V _{CC} =MAX, R _L 2KΩ	Full range	26			
	V _{CC} =MAX, R _L 10 KΩ	Full range	27	28		
V _{OL} Low-level output voltage	R _L 10 KΩ	Full range		5	20	mV
A _{VD} Large-signal differential voltage amplification	V _{CC} =15V, V _O =1V to 11V	25 °C	25	100		V/mV
	R _L 2KΩ	Full range	15			
CMRR Common-Mode rejection ratio	V _{CC} =15V to MAX V _{IC} =V _{ICR} min	25°C	65	80		dB
K _{SVR} Supply voltage rejection ratio (V _{CC} /V _{IO})	V _{CC} =5V to MAX	25 °C	65	100		dB
V _{O1} /V _{O2} Crosstalk attenuation	f=1kHz to 20kHz	25 °C		120		dB
I _O Output current	V _{CC} =15V, V _{ID} = 1V, V _O =0	25°C	-20	-30		mA
		Full range	-10			
	V _{CC} =15V, V _{ID} =-1V, V _O =0	25°C	10	20		
		Full range	5			
I _{OS} Short-circuit out put current	V _{CC} at 5V, GND at -5V, V _O =0	25°C		40	60	mA
I _{CC} Supply current (four amplifiers)	V _O =2.5V, No load	Full range		0.7	1.2	mA
	V _{CC} =MAX, V _O = 0.5V _{CC} , No load	Full range		1.1	3	

*All characteristics are measured under open loop conditions with zero common-mode input voltage unless otherwise specified. "MAX" V_{CC} for testing purposes is 30 V. full range is 0 °C to 70°C