Typical Characteristics of Linear IC Operational Amplifiers

Features	General Purpose										Wide-Band					Precision			
			Single Supply																
RCA Type No.	CA741CF, CH, CS, CT ● CA747CE, CF, CH, CT ● CA748CF, CH, CS, CT CA1458S, T ●	CA741F, L, S, T CA747E, F, T ● CA748F, S, T CA1558F, S, T ● CA6741S, T #	CA3401E, H†	CA101	CA201	CA101A, CA201A	CA301A	CA107, CA207	CA307	CA3008, CA3010 CA3029, CA3037	CA3008A, CA3010A CA3029A, CA3037A	CA3015, CA3016 CA3030, CA3038	CA3015A, CA3016A CA3030A, CA3038A	CA3100F, H, S, T	CA108S, T CA208S, T	CA108AS, AT CA208AS, AT	CA308H, S, T	CA308AS, AT
Characteristics / Operating Conditions	V^+, V^- = ±15 V			$V_\pm$ = ±5 to ±15V				$V_\pm$ = ±5 to ±15V		V^+, V^- = ±6 V		V^+, V^- = ±12 V		V^+, V^- = ±15V	Typ. Values @ $V_\pm$ = ±5 to ±15 except for A_V, V_O, V_I which are characterized only at ±15 V			
Symbol																			
Static Conditions (at T_A = 25°C)																			
Input Offset Voltage – mV max	V_{IO}	6	5	–	5	7.5	2	7.5	2	7.5	5	2	5	2	5	2	0.5	7.5	0.5
Input Offset Current – nA max	I_{IO}	200	200	–	200	500	10	50	10	50	5000	1500	5000	1600	2000	0.2	0.2	1	1
Input Bias Current – nA max.	I_I	500	500	300	500	1500	75	250	75	250	12,000	4000	24,000	6000	400	2	2	7	7
Input Offset Voltage Temperature Coefficient – μV/°C typ.	$V_{IO}/\Delta T$	2	2	–	3	6	3	6	3	6	1.2	1.2	3.5	1.2	10	3	1	6	1
Peak-to-Peak Output Voltage – V min.	V_{OM}	24	24	10 @ T_A=	24	24	24	24	24	24	4	4	12	12	18 @ R_L = 2 kΩ	26	26	26	26
		R_L = 10 kΩ		0 to 75°C	R_L=10kΩ				R_L=10kΩ		R_L = ∞					R_L = 10k			
Peak-to-Peak Output Current – mA min.	I_{OM}	10	10	5	—	—	—	—	—	—	9 typ. at 0.5 kΩ R_L		18 typ. at 0.5 kΩ R_L		30 @ R_L = 250Ω	–	–	–	–
Device Dissipation – mW max	P_D	85	85	–	—	—	—	—	—	—	30 typ.	30 typ.	175 typ.	175 typ.	–	18	18	24	24
Maximum Supply Voltage – V^+, V^-	V^+, V^-	±18	±22	V^+ = 18	±22	±22	±22	±18	±22	±18	±8	±8	±16	±16	±18	±20	±20	±18	±18
Minimum Output Voltage for Single-Supply Operation (neg. gnd.) – V typ.	V_O	1.5	1.5	–	—	—	—	—	—	—	2.0	2.0	4.7	4.7	–	–	–	–	–
Common Mode Input Voltage Range V min.	V_{ICR}	±12	±12	–	±12	±15	±12	±12	±15	±12	+0.5, -4.0	+0.5, -4.0	+0.65, -8.0	+0.65, -8.0	±12	±13.5	±13.5	±14	±14

For CA3130, CA3130A, CA3130B characteristics, see Page 17

- ● The characteristics values apply to each of the dual op-amps in the package.
- ○ For CA748T & CA748CT external compensation is required
- △ No offset adjustment is provided for CA1458T, CA1558T, CA747CT or CA747T.
- # Low-noise premium version of the CA3741T that is virtually free of "popcorn" (burst) noise.
- † The characteristics values apply to each of the four operational amplifiers.
- ♦ Specifically designed for single-supply operation; the negative side of the common-mode input voltage range (V_{ICR}) is almost at the same potential as the negative supply voltage.

Characteristics	Features	General Purpose									Wide-Band					Precision			
				Single Supply															
	RCA Type No.	CA741CF, CH, CS, CT CA747CE, CF, CH, CT ● CA748CF, CH, CS, CT CA1458S, T ●	CA741F, L, S, T CA747E, F, T ● CA748F, S, T CA1558F, S, T ● CA6741S, T #	CA3401E, H†	CA101	CA201	CA101A,CA201A	CA301A	CA107,CA207	CA307	CA3008, CA3010 CA3029, CA3037	CA3008A, CA3010A CA3029A, CA3037A	CA3015, CA3016 CA3030, CA3038	CA3015A, CA3016A CA3030A, CA3038A	CA3100F, H, S, T	CA108S, T CA208S, T	CA108AS, AT CA208AS, AT	CA308H, S, T	CA308AS, AT
	Operating Conditions	$V^+, V^- = \pm 15$ V			$V\pm = \pm 5$ to ± 15 V				$V\pm = \pm 5$ to ± 15 V		$V^+, V^- = \pm 6$ V		$V^+, V^- = \pm 12$ V		$V^+, V^- = \pm 15$V	Typ. Values @ $V\pm = \pm 5$ to ± 15 except for A_V, V_O, V_I, which are characterized only at ± 15 V			
	Symbol																		
Dynamic Conditions (at T_A = 25°C)																			
Forward Transconductance—μmho	gm																		
Min.		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Max.		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Open-Loop Voltage Gain	A_{OL}	R_L = 2 kΩ		1k	R_L = 2 kΩ				R_L = 2 kΩ		f = 1 kHz				f = 1 MHz				
volts/volt min.		20k	50k		50k	20k	50k	25k	50k	25k	710	710	2k	2k	60	50k	80k	25k	80k
dB min.		86	94	60	94	86	94	88	94	88	57	57	66	66	36	94	98	88	98
Slew Rate (Non-Inverting Unity Gain) – V/μs typ.	SR	0.5	0.5	0.6	–	–	10	10	–	–	3.0	3.0	7.0	7.0	25	–	–	–	–
Common Mode Rejection Ratio – dB min.	CMRR	77	77	–	70	65	80	70	80	70	70	70	80	80	76	85	96	80	96
Gain-Bandwidth Product (Unity Gain Non-Inverting Comp.) MHz typ.	f_T (op-amp)	1.0	1.0	5							15	15	50	50	38	–	–	–	–
Special Features																			
Short Circuit Protection		yes	yes	no	yes	yes	yes	yes	yes	yes	no	no	no	no	no	yes	yes	yes	yes
Frequency Compensation		int.	int.	int.	ext.	ext.	ext.	ext.	int.	int.	ext.	ext.	ext.	ext.	ext.	ext.	ext.	ext.	ext.
Adaptable to Single-Supply Operation		yes	yes	♦							yes	yes	yes	yes	yes	yes	yes	yes	yes
Offset Adjustment		yes	yes△1	–	yes	yes	yes	yes	no	no	yes	yes	yes	yes	yes	no	no	no	no

For CA3130, CA3130A, CA3130B characteristics, see Page 17