ABSOLUTE MAXIMUM RATINGS

Supply voltage, V^+		10.6V
Differential input voltage range		-0.3V to V^+ +0.3V
Power dissipation		600 mW
Operating temperature range	SAL, PAL packages	0°C to +70°C
	DA package	-55°C to +125°C
Storage temperature range		-65°C to +150°C
Lead temperature, 10 seconds		+260°C

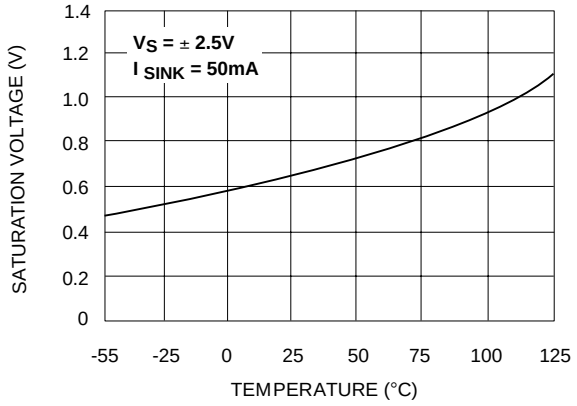
OPERATING ELECTRICAL CHARACTERISTICS
T_A = 25°C V^+ = +5V unless otherwise specified

		2302A			2302				Test
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Unit**	**Conditions**
Supply Voltage	V_S V^+	±2 4		±5 10	±2 4		±5 10	V V	Dual Supply Single Supply
Supply Current	I_S		350	500		350	500	μA	$R_{LOAD} = \infty$
Voltage Gain	A_{VD}	10	100		10	100		V/mV	$R_{LOAD} \geq 15K\Omega$
Input Offset Voltage	V_{OS}		0.5	1.8 2.8		1.5	4.8 5.8	mV	R_{LOAD} =1.5KΩ 0°C ≤ T_A ≤ 70°C
Input Offset Current [1]	I_{OS}		10	200 800		10	200 800	pA	
Input Bias Current [1]	I_B		10	200 1000		10	200 1000	pA	0°C ≤ T_A ≤ 70°C
Common Mode Input Voltage Range [2]	V_{ICR}	-0.3		V^+ -1.5	-0.3		V^+ -1.5	V	0°C ≤ T_A ≤ 70°C
Low Level Output Voltage	V_{OL}		0.18	0.4		0.18	0.4	V	I_{SINK} =12mA V_{INPUT} =1V Differential
Low Level Output Current	I_{OL}	24	60		24	60		mA	V_{OL} =1.0V
High Level Output Voltage	V_{OH}	3.5	4.5		3.5	4.5		V	I_{OH} = -2mA
Response Time [2]	t_{RP}		400			400		ns	C_L =15pF 100mV Input Step/20mV Overdrive
			180			180		ns	C_L = 15pF TTL- Level Input Step

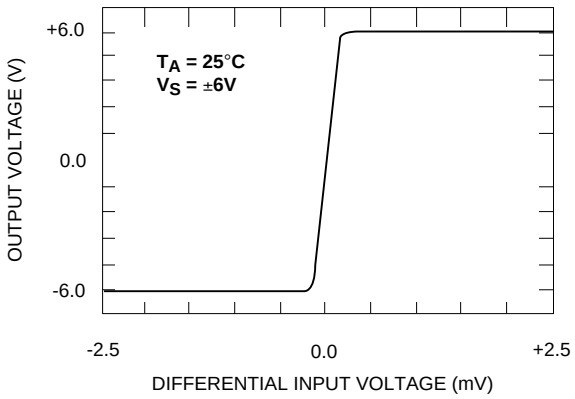
Notes: [1] Consists of junction leakage currents
[2] Sample tested parameters

TYPICAL PERFORMANCE CHARACTERISTICS

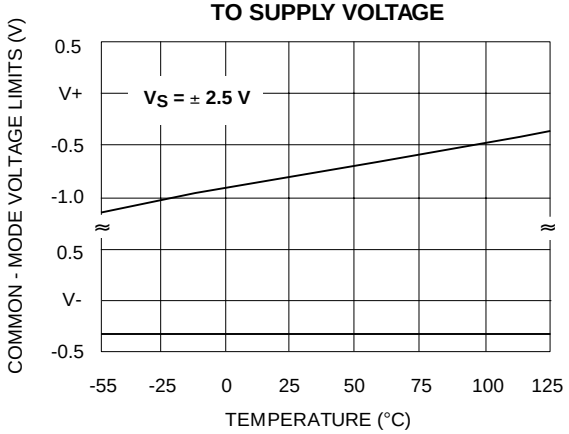
SATURATION VOLTAGE vs. TEMPERATURE



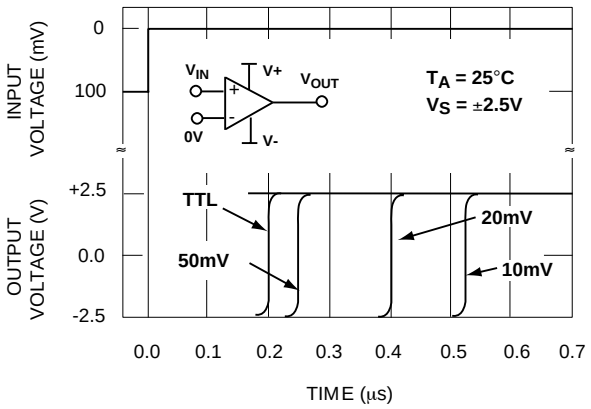
TRANSFER FUNCTION



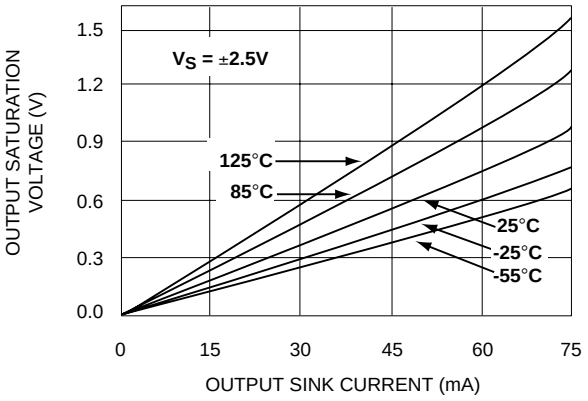
COMMON - MODE VOLTAGE REFERRED TO SUPPLY VOLTAGE



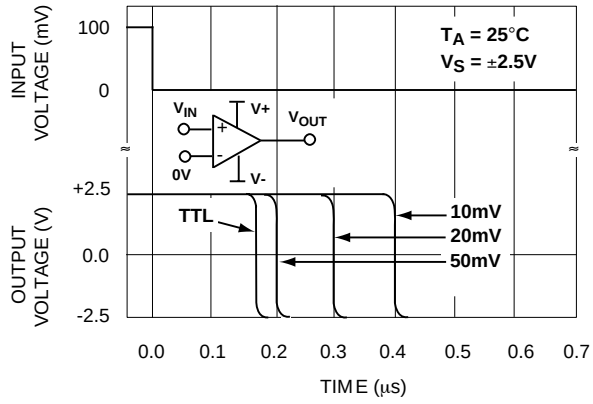
RESPONSE TIME FOR VARIOUS INPUT OVERDRIVES



SATURATION VOLTAGE vs. SINK CURRENT

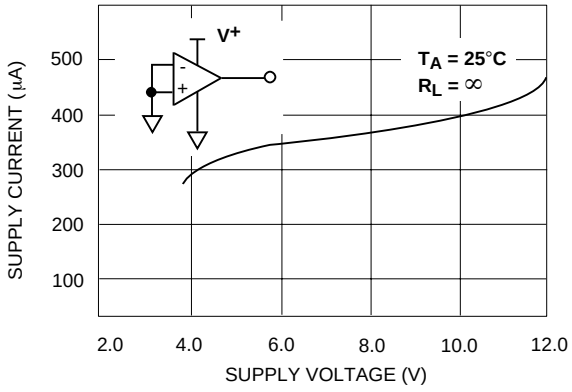


RESPONSE TIME FOR VARIOUS INPUT OVERDRIVES

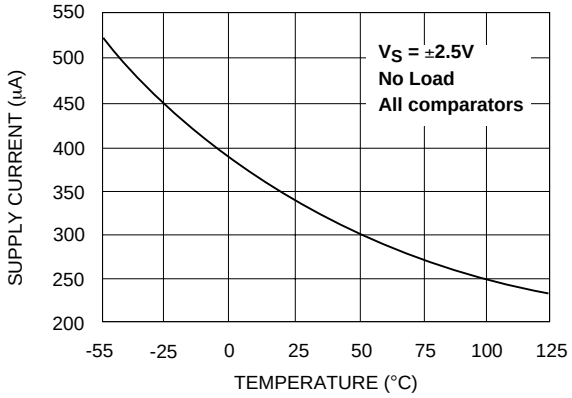


TYPICAL PERFORMANCE CHARACTERISTICS (cont'd)

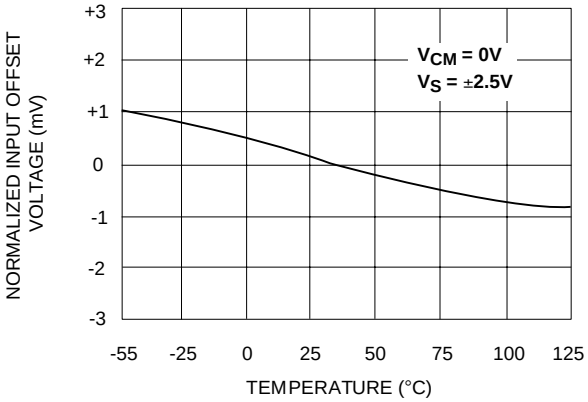
TOTAL SUPPLY CURRENT vs. TOTAL SUPPLY VOLTAGE



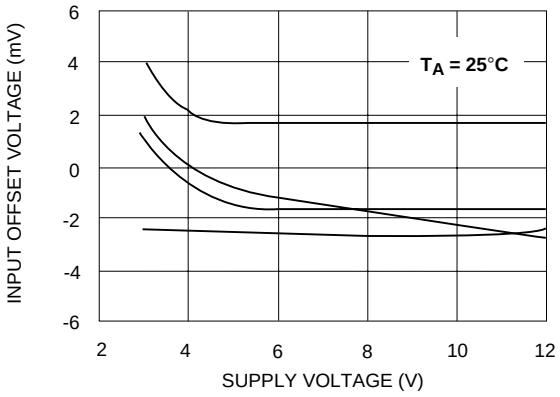
SUPPLY CURRENT vs. TEMPERATURE



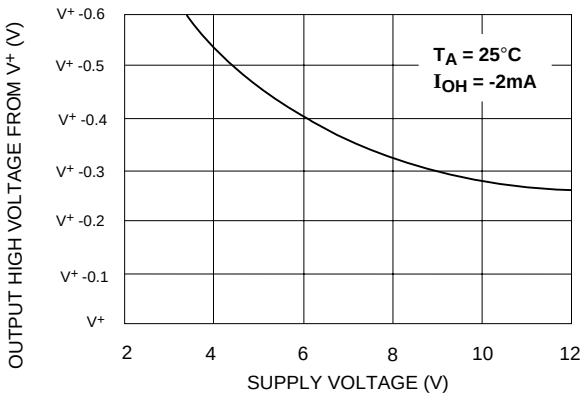
NORMALIZED INPUT OFFSET VOLTAGE vs. TEMPERATURE



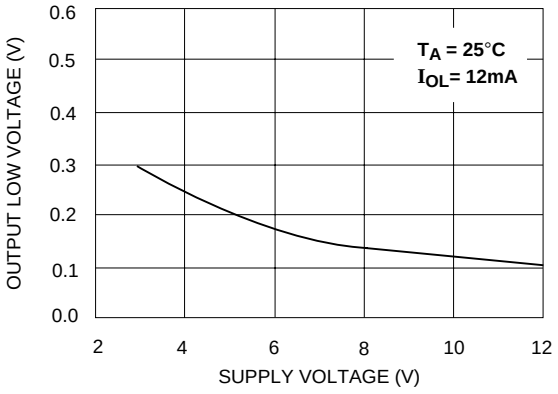
INPUT OFFSET VOLTAGE vs. SUPPLY VOLTAGE REPRESENTATIVE SAMPLES



OUTPUT HIGH VOLTAGE vs. SUPPLY VOLTAGE

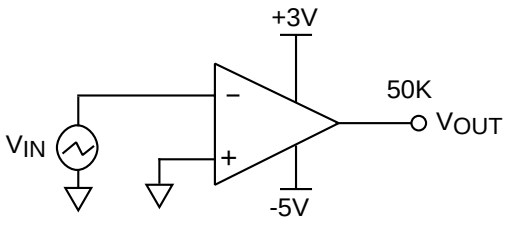


OUTPUT LOW VOLTAGE vs. SUPPLY VOLTAGE



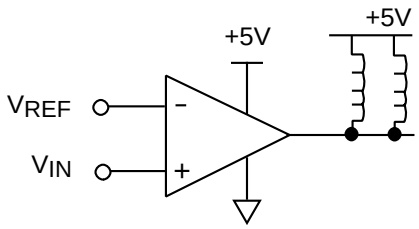
TYPICAL APPLICATIONS

ZERO CROSSING DETECTOR



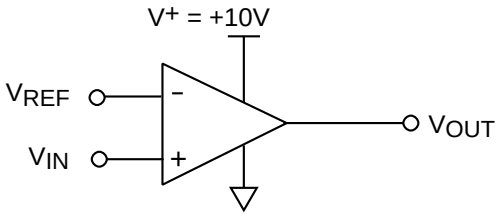
1/2 ALD2302

MULTIPLE RELAY DRIVE



1/2 ALD2302

VOLTAGE LEVEL TRANSLATOR



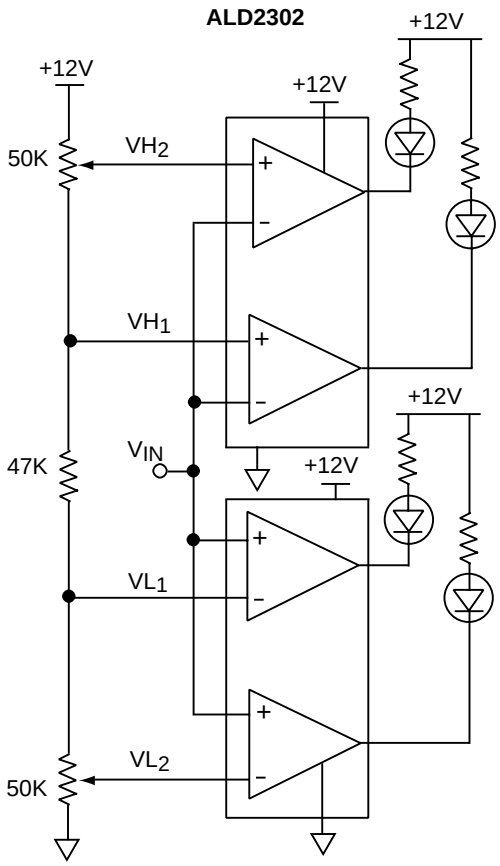
1/2 ALD2302

V_{REF} = 1.4V for TTL input

$V_{REF} = \frac{V^+}{2}$ for CMOS input

Output V_{OUT} swings from rail-to-rail

DOUBLE DUAL LIMIT WINDOW COMPARATOR



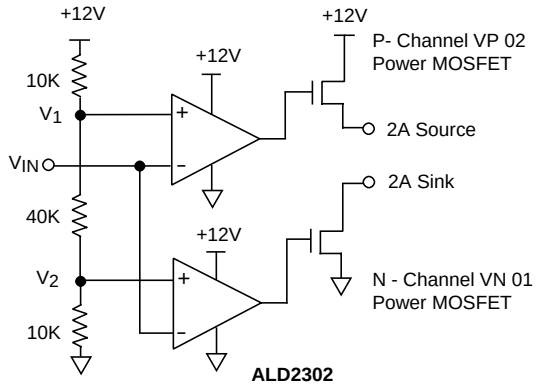
ALD2302

VL_1 and VH_1 first limit window send warning.
VL_2 and VH_2 second limit window execute system cutoff.

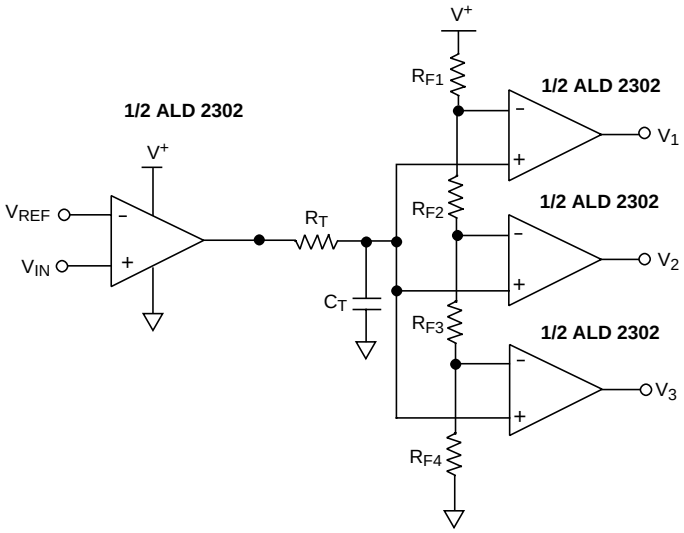
TYPICAL APPLICATIONS (cont'd)

PUSH-PULL COMPLEMENTARY POWER MOSFET DRIVER

This circuit eliminates crossover current in the complementary power transistors. The outputs can be used to source and sink different loads or tied together to provide push-pull drive of the same load.



TIME DELAY GENERATOR

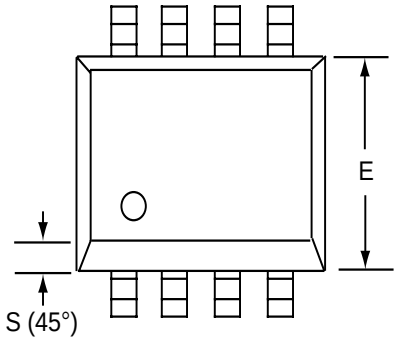


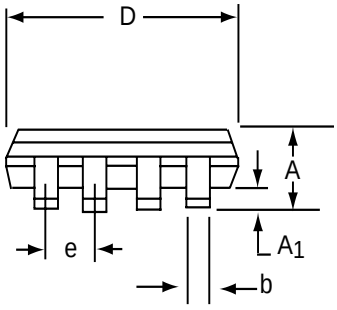
Design & Operating Notes:

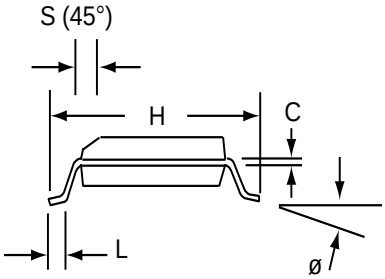
1. As each output sources up to 10mA in the output high state, the output stage of a wired - OR low output circuit must be able to sink this current and still provide desired output voltage levels. For TTL output levels, this consideration limits the number to a maximum of three ALD2302 outputs wired-OR together.
2. In order to minimize stray oscillation, all unused inputs must be tied to ground.
3. The input bias and offset currents are essentially input protection diode reverse bias leakage currents, and are typically less than 1pA at room temperature. The currents are a function of ambient temperature, and would have to be considered in applications where very high source impedance or high accuracy are involved.
4. The high output sinking current of 60mA for each output offers flexibility in many applications, as a separate buffer or driver would not be necessary to drive the intended load. However, as the circuit normally operates close to ambient temperature due to its very low power consumption, thermal effects caused by large output current transients must be considered in certain applications.

SOIC-8 PACKAGE DRAWING

8 Pin Plastic SOIC Package



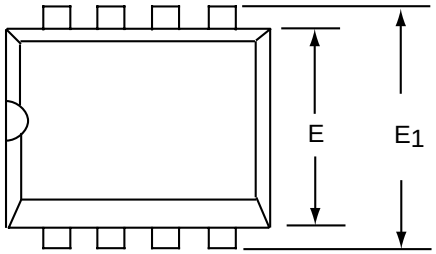


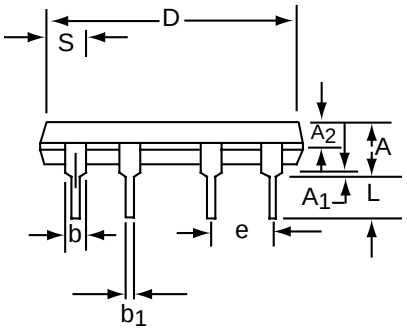


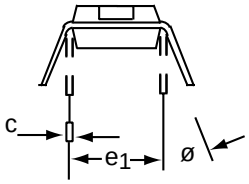
Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A_1	0.10	0.25	0.004	0.010
b	0.35	0.45	0.014	0.018
C	0.18	0.25	0.007	0.010
D-8	4.69	5.00	0.185	0.196
E	3.50	4.05	0.140	0.160
e	1.27 BSC		0.050 BSC	
H	5.70	6.30	0.224	0.248
L	0.60	0.937	0.024	0.037
Ø	0°	8°	0°	8°
S	0.25	0.50	0.010	0.020

PDIP-8 PACKAGE DRAWING

8 Pin Plastic DIP Package



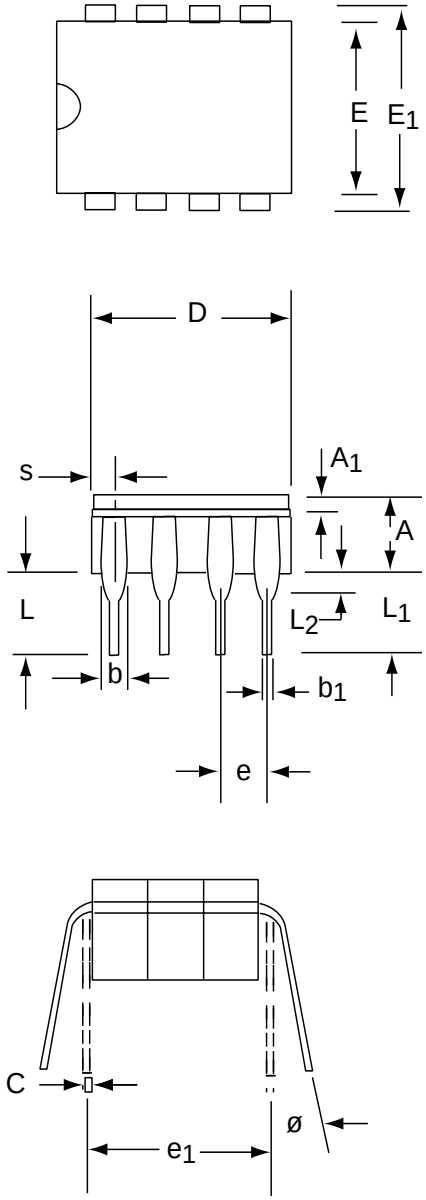




Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	3.81	5.08	0.105	0.200
A_1	0.38	1.27	0.015	0.050
A_2	1.27	2.03	0.050	0.080
b	0.89	1.65	0.035	0.065
b_1	0.38	0.51	0.015	0.020
c	0.20	0.30	0.008	0.012
D-8	9.40	11.68	0.370	0.460
E	5.59	7.11	0.220	0.280
E_1	7.62	8.26	0.300	0.325
e	2.29	2.79	0.090	0.110
e_1	7.37	7.87	0.290	0.310
L	2.79	3.81	0.110	0.150
S-8	1.02	2.03	0.040	0.080
ø	0°	15°	0°	15°

CERDIP-8 PACKAGE DRAWING

8 Pin CERDIP Package



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	3.55	5.08	0.140	0.200
A_1	1.27	2.16	0.050	0.085
b	0.97	1.65	0.038	0.065
b_1	0.36	0.58	0.014	0.023
C	0.20	0.38	0.008	0.015
D-8	--	10.29	--	0.405
E	5.59	7.87	0.220	0.310
E_1	7.73	8.26	0.290	0.325
e	2.54 BSC		0.100 BSC	
e_1	7.62 BSC		0.300 BSC	
L	3.81	5.08	0.150	0.200
L_1	3.18	--	0.125	--
L_2	0.38	1.78	0.015	0.070
S	--	2.49	--	0.098
Ø	0°	15°	0°	15°

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