

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

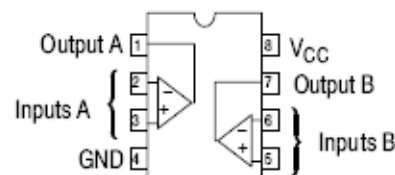
Product Specification

▶ Domestic	Part Number	LM393ADR
▶ Overseas	Part Number	LM393ADR
▶ Equivalent	Part Number	LM393ADR

EV is the abbreviation of name EVVO

■ Features

- Wide Single-Supply Range: 2.0 V to 36 V
- Split-Supply Range: ± 1.0 V to ± 18 V
- Very Low Current Drain Independent of Supply Voltage: 0.4 mA
- Low Input Bias Current: 25 nA
- Low Input Offset Current: 5.0 nA
- Low Input Offset Voltage: 5.0 mV (max)
- Input Common Mode Range to Ground Level
- Differential Input Voltage Range Equal to Power Supply Voltage



Parameter	Symbol	Rating	Unit
Power Supply Voltage	V _{CC}	+36 or ± 18	V
Input Differential Voltage Range	V _{IDR}	36	V
Input Common Mode Voltage Range	V _{ICR}	-0.3 to +36	V
Output Short Circuit-to-Ground	I _{SC}	Continuous	mA
Output Sink Current*	I _{Sink}	20	
Power Dissipation @ T _A = 25°C	P _D	570	mW
Derate above 25°C	1/R _{θJA}	5.7	mW/°C
Operating Ambient Temperature Range	T _A	0 to 70	°C
Maximum Operating Junction Temperature	T _{J(max)}	150	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C
ESD Protection at any Pin	V _{esd}		V
- Human Body Model		2000	
- Machine Model		200	

<http://www.evvosemi.com/>

■ Electrical Characteristics ($V_{CC} = 5.0\text{ V}$, $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$, unless otherwise noted.)

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Input Offset Voltage*1	V_{IO}	$T_A = 25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$		± 1.0	± 5.0 9.0	mV
Input Offset Current	I_{IO}	$T_A = 25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$		± 5.0	± 50 ± 150	nA
Input Bias Current *2	I_{IB}	$T_A = 25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$		25	250 400	nA
Input Common Mode Voltage Range *2	V_{ICR}	$T_A = 25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$	0 0		$V_{CC} - 1.5$ $V_{CC} - 2.0$	V
Voltage Gain	A_{VOL}	$R_L \geq 15\text{ k}\Omega$, $V_{CC} = 15\text{ V}$, $T_A = 25^\circ\text{C}$	50	200		V/mV
Large Signal Response Time		$V_{in} = \text{TTL Logic Swing}$, $V_{ref} = 1.4\text{ V}$, $V_{RL} = 5.0\text{ V}$, $R_L = 5.1\text{ k}\Omega$, $T_A = 25^\circ\text{C}$		300		ns
Response Time *4	t_{TLH}	$V_{RL} = 5.0\text{ V}$, $R_L = 5.1\text{ k}\Omega$, $T_A = 25^\circ\text{C}$		1.3		μs
Input Differential Voltage *5	V_{ID}	All $V_{in} \geq GND$ or V-Supply (if used)			V_{CC}	V
Output Sink Current	I_{Sink}	$V_{in} \geq 1.0\text{ V}$, $V_{in+} = 0\text{ V}$, $V_O \leq 1.5\text{ V}$, $T_A = 25^\circ\text{C}$	6.0	16		mA
Output Saturation Voltage	V_{OL}	$V_{in} \geq 1.0\text{ V}$, $V_{in+} = 0$, $I_{Sink} \leq 4.0\text{ mA}$, $T_A = 25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$		150	400 700	mV
Output Leakage Current	I_{OL}	$V_{in-} = 0\text{ V}$, $V_{in+} \geq 1.0\text{ V}$, $V_O = 5.0\text{ V}$, $T_A = 25^\circ\text{C}$ $V_{in-} = 0\text{ V}$, $V_{in+} \geq 1.0\text{ V}$, $V_O = 30\text{ V}$, $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$		0.1	1000	nA
Supply Current	I_{CC}	$R_L = \infty$ Both Comparators, $T_A = 25^\circ\text{C}$ $R_L = \infty$ Both Comparators, $V_{CC} = 30\text{ V}$		0.4	1.0 2.5	mA

*1. At output switch point, $V_O = 1.4\text{ V}$, $R_S = 0\Omega$ with V_{CC} from 5.0 V to 30 V , and over the full input common mode range (0 V to $V_{CC} - 1.5\text{ V}$).

*2. Due to the PNP transistor inputs, bias current will flow out of the inputs. This current is essentially constant, independent of the output state, therefore, no loading changes will exist on the input lines.

*3. Input common mode of either input should not be permitted to go more than 0.3 V negative of ground or minus supply.
The upper limit of common mode range is $V_{CC} - 1.5\text{ V}$.

*4. Response time is specified with a 100 mV step and 5.0 mV of overdrive. With larger magnitudes of overdrive faster response times are obtainable.

*5. The comparator will exhibit proper output state if one of the inputs becomes greater than V_{CC} , the other input must remain within the common mode range. The low input state must not be less than -0.3 V of ground or minus supply.

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.