

**MEDIUM POWER  
SINGLE BIPOLAR OPERATIONAL AMPLIFIER**

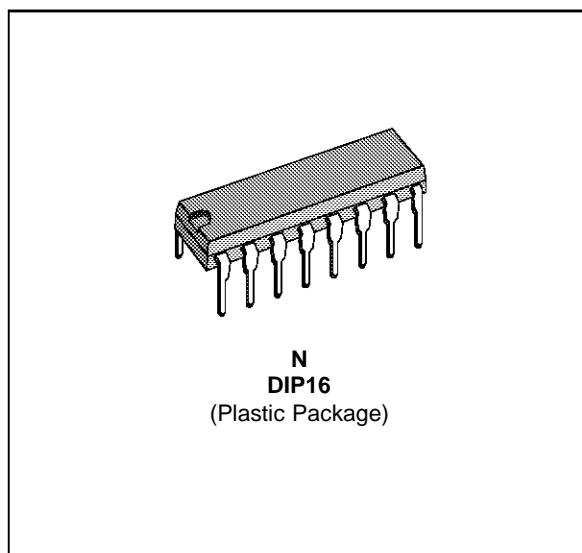
- OUTPUT CURRENT UP TO 500 mA
- OFFSET VOLTAGE NULL CAPABILITY
- SHORT-CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION
- PLASTIC PACKAGE FOR EASY ASSEMBLY

**DESCRIPTION**

The TDB7910 and TDA7910 are internally compensated medium power operational amplifiers intended for use in those applications requiring load currents of several hundred milliamperes. Applications include servo amplifiers, driver interfaces, precision power comparators and motor speed control.

These amplifiers are designed to operate from a single or dual power supplies and the input common-mode range includes the negative supply if balance inputs are tied to the negative supply.

The TDB7910 and TDA7910 are thermal overload and short-circuit protected.

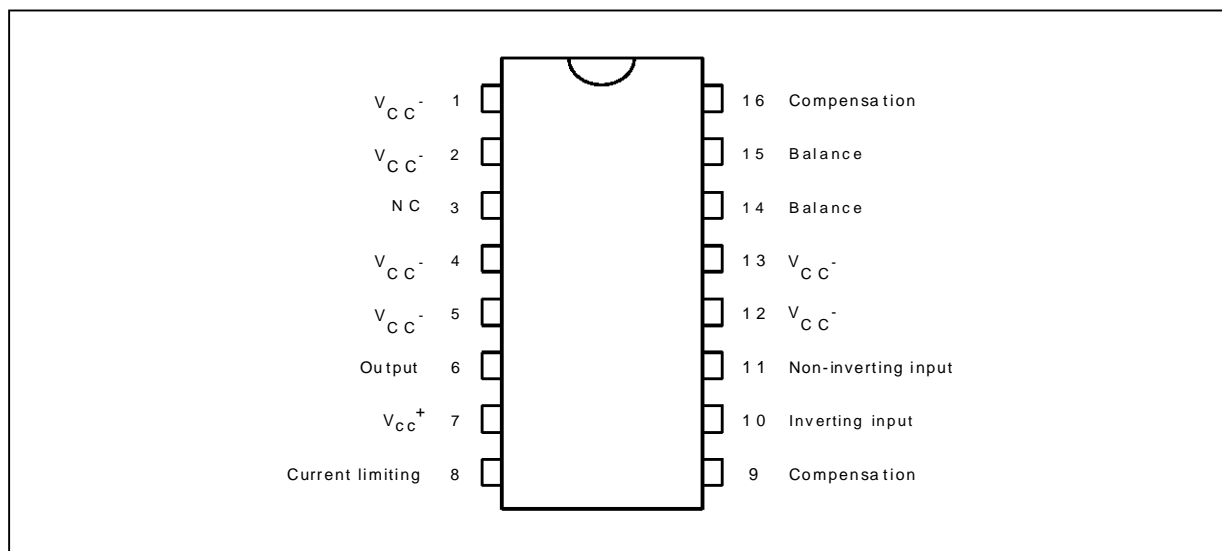


**ORDER CODES**

Part Number	Temperature Range	Package
		N
TDB7910	0°C, +70°C	•
TDA7910	-40°C, +105°C	•
<b>Example : TDB7910N</b>		

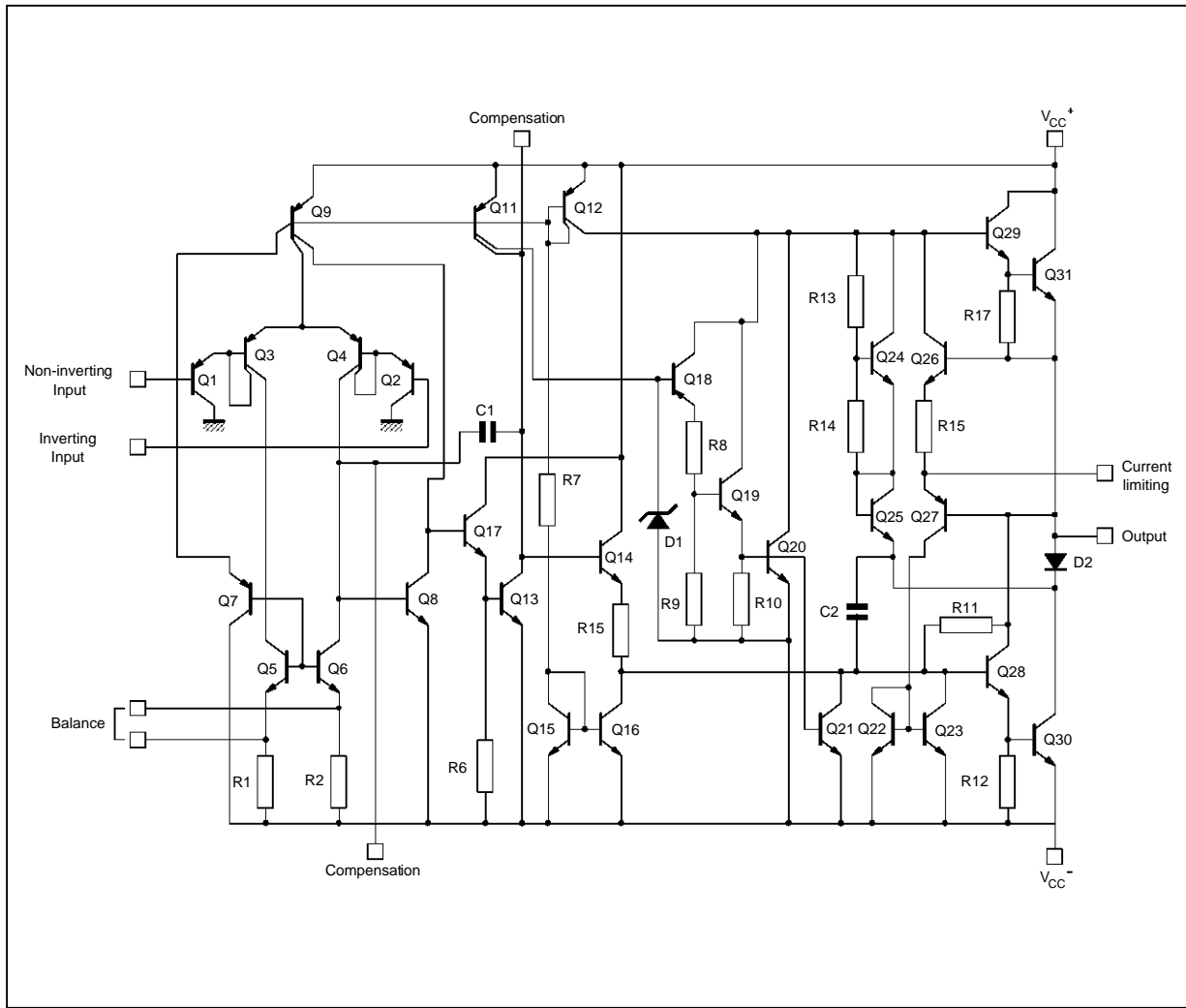
7910-01.TBL

**PIN CONNECTIONS (top view)**



7910-01.EPS

**SCHEMATIC DIAGRAM**



7910-02.EPS

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit	
V <sub>cc</sub>	Supply Voltage	± 18	V	
V <sub>i</sub>	Input Voltage	± 15	V	
V <sub>id</sub>	Differential Input Voltage	± 30	V	
I <sub>O</sub>	Output Current*	0.75	A	
P <sub>tot</sub>	Power Dissipation	7.5	W	
T <sub>oper</sub>	Operating Free-air Temperature Range	TDB7910 TDA7910	0 to +70 -40 to +105	°C
T <sub>stg</sub>	Storage Temperature Range		-65 to +150	°C

7910-02.TBL

\* Under short-circuit conditions, the safe operating area and dc power dissipation limitations must be observed.

**ELECTRICAL CHARACTERISTICS**

$V_{CC} = \pm 15V$ ,  $T_{amb} = 25^{\circ}C$  (unless otherwise specified)

Symbol	Parameter	TDB7910 - TDA7910			Unit
		Min.	Typ.	Max.	
$V_{io}$	Input Offset Voltage $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		2	6 7.5	mV
$I_{io}$	Input Offset Current $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		20	200 300	nA
$I_{ib}$	Input Bias Current $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		80	500 800	nA
$A_{vd}$	Large Signal Voltage Gain ( $R_L = 47\Omega$ , $V_o = \pm 10V$ ) $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$	20 15			V/mV
$I_{cc}$	Supply Current - (no load) $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		10	20 25	mA
$V_{icm}$	Input Common Mode Voltage Range	$\pm 12$	$\pm 13$		V
$I_{os}$	Output Short Circuit Current ( $R_{SC} = 1.5\Omega$ )		0.5		A
SVR	Supply Voltage Rejection Ratio	77			dB
CMR	Common Mode Rejection Ratio	70			dB
$Z_i$	Input Impedance	0.3			M $\Omega$
$V_{OPP}$	Output Voltage Swing ( $R_{SC} = 0$ , $R_L = 47\Omega$ ) $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$	$\pm 11$ $\pm 10$	$\pm 12$		V
$V_{ior}$	Offset Voltage Adjustment Range		$\pm 15$		mV
SR	Slew Rate ( $R_L = 47\Omega$ , $T_{amb} = +25^{\circ}C$ , $A_v = 1$ , $V_{in} = \pm 10V$ )		0.5		V/ $\mu s$
GBP	Gain Bandwidth Product ( $C_C = 0$ , $R_L = 47\Omega$ , $C_L = 100pF$ , $f = 100kHz$ , $V_{in} = 10mV$ )		0.5		MHz
$R_{TH}$	Thermal Resistance		60		$^{\circ}C/W$

7910-03.TBL

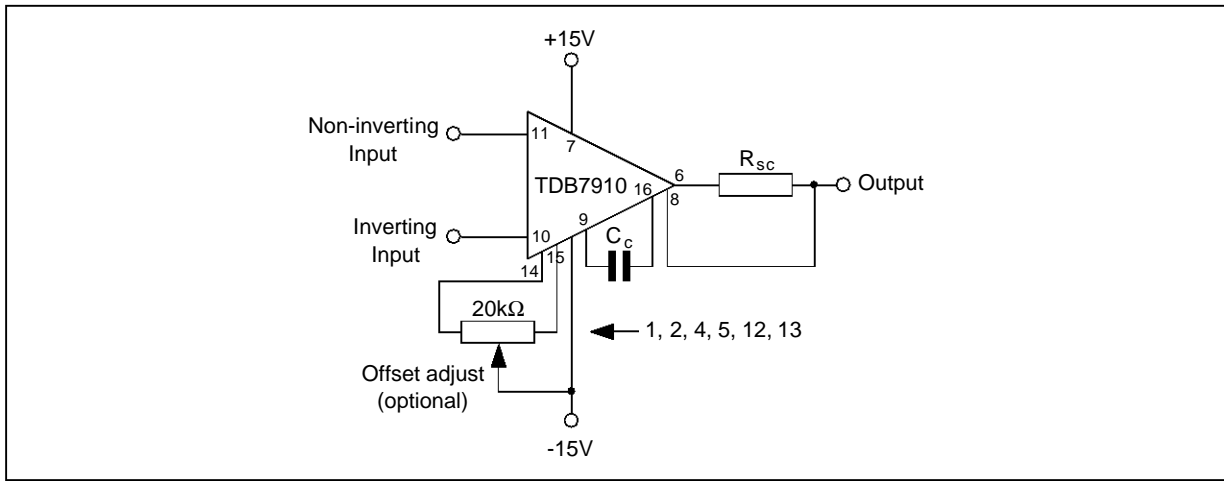
**ELECTRICAL CHARACTERISTICS**

$V_{CC}^+ = 10V$ ,  $V_{CC}^- = 0V$ ,  $T_{amb} = 25^{\circ}C$ ,  $V_o = +5V$  (unless otherwise specified)

Symbol	Parameter	TDB7910 - TDA7910			Unit
		Min.	Typ.	Max.	
$V_{io}$	Input Offset Voltage $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$			6 7.5	mV
$A_{vd}$	Large Signal Voltage Gain ( $R_L = 47\Omega$ , $V_o = 1$ to $5V$ ) $T_{amb} = +25^{\circ}C$ , $T_{min.} \leq T_{amb} \leq T_{max.}$	20 15			V/mV
$I_{cc}$	Supply Current - (no load) $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		5	20 25	mA
$V_{OH}$	High Level Output Voltage ( $R_{SC} = 0$ , $R_L = 47\Omega$ ) $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$	6 5	8		V
$V_{OL}$	Low Level Output Voltage $T_{amb} = +25^{\circ}C$ $T_{min.} \leq T_{amb} \leq T_{max.}$		2	3 3	V
GBP	Gain Bandwidth Product ( $C_C = 0$ , $R_L = 47\Omega$ , $C_L = 100pF$ , $f = 100kHz$ , $V_{in} = 10mV$ )		1		MHz

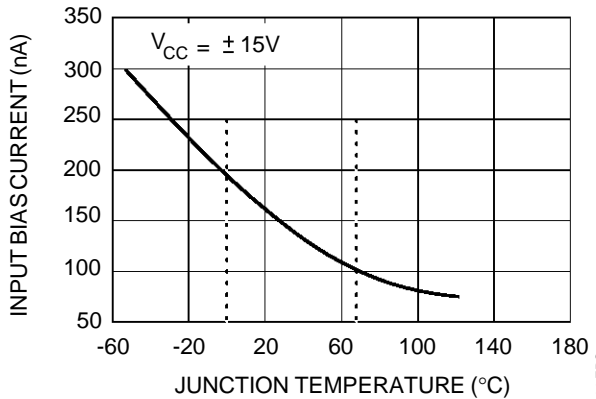
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BASIC DIAGRAM



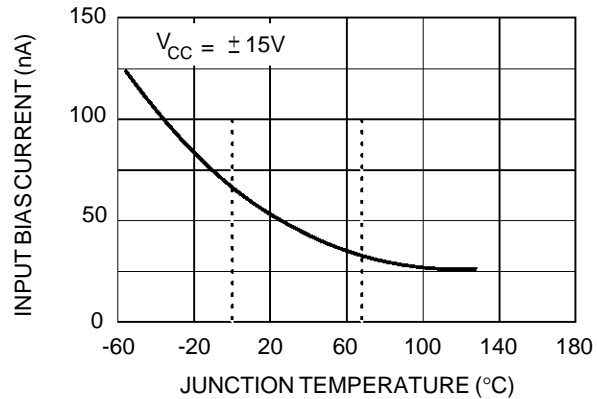
7910-03.EPS

INPUT BIAS CURRENT



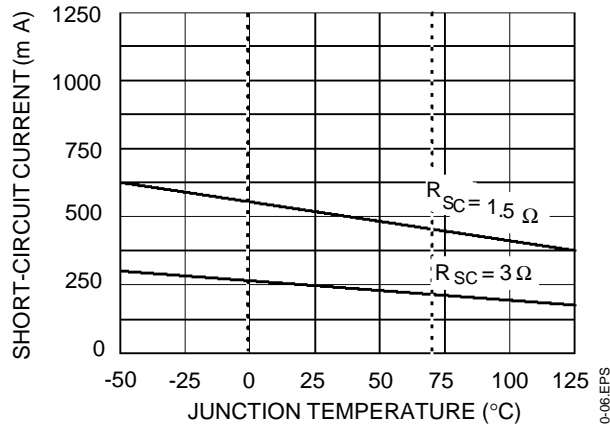
7910-04.EPS

INPUT OFFSET CURRENT



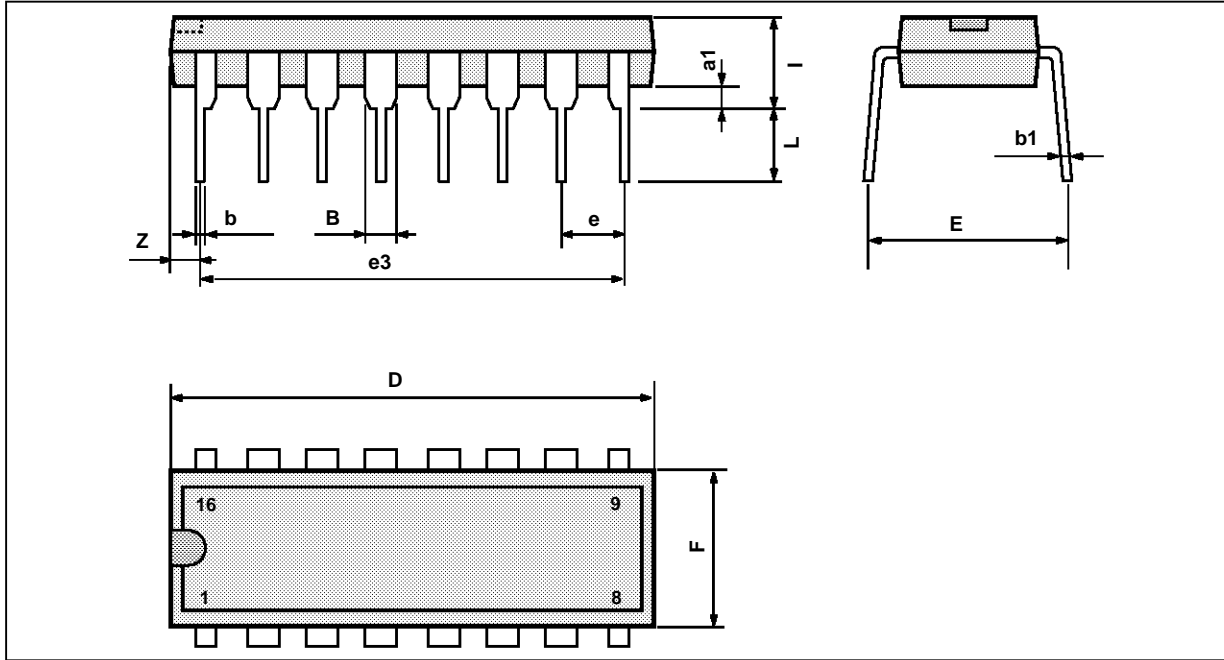
7910-05.EPS

SHORT-CIRCUIT CURRENT



7910-06.EPS

**PACKAGE MECHANICAL DATA**  
16 PINS - PLASTIC DIP



PM-DIP16.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
i			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

DIP16.TBL

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