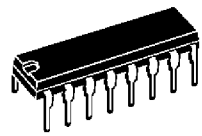
SGS-THOMSON MICROELECTRONICS

TDB7910
TDA7910

MEDIUM POWER SINGLE BIPOLAR OPERATIONAL AMPLIFIER

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



N
DIP16
(Plastic Package)

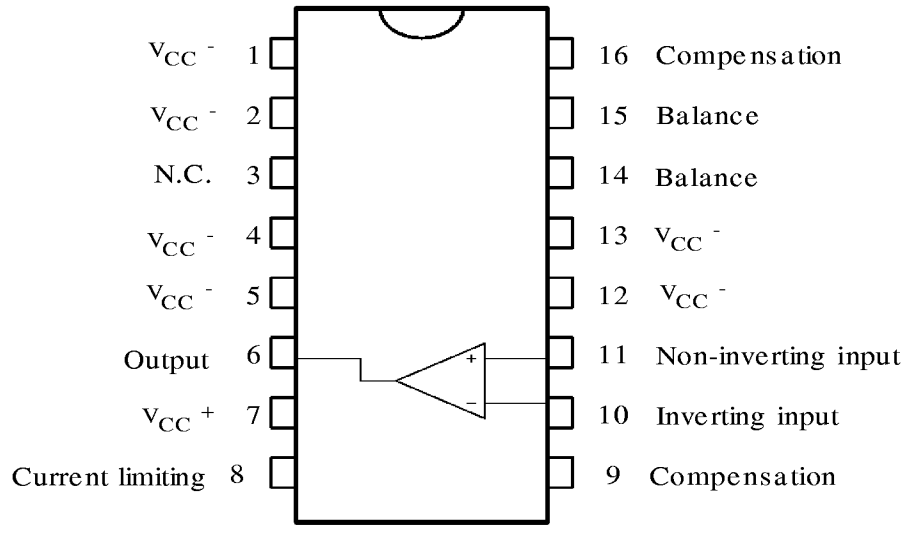
DESCRIPTION

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

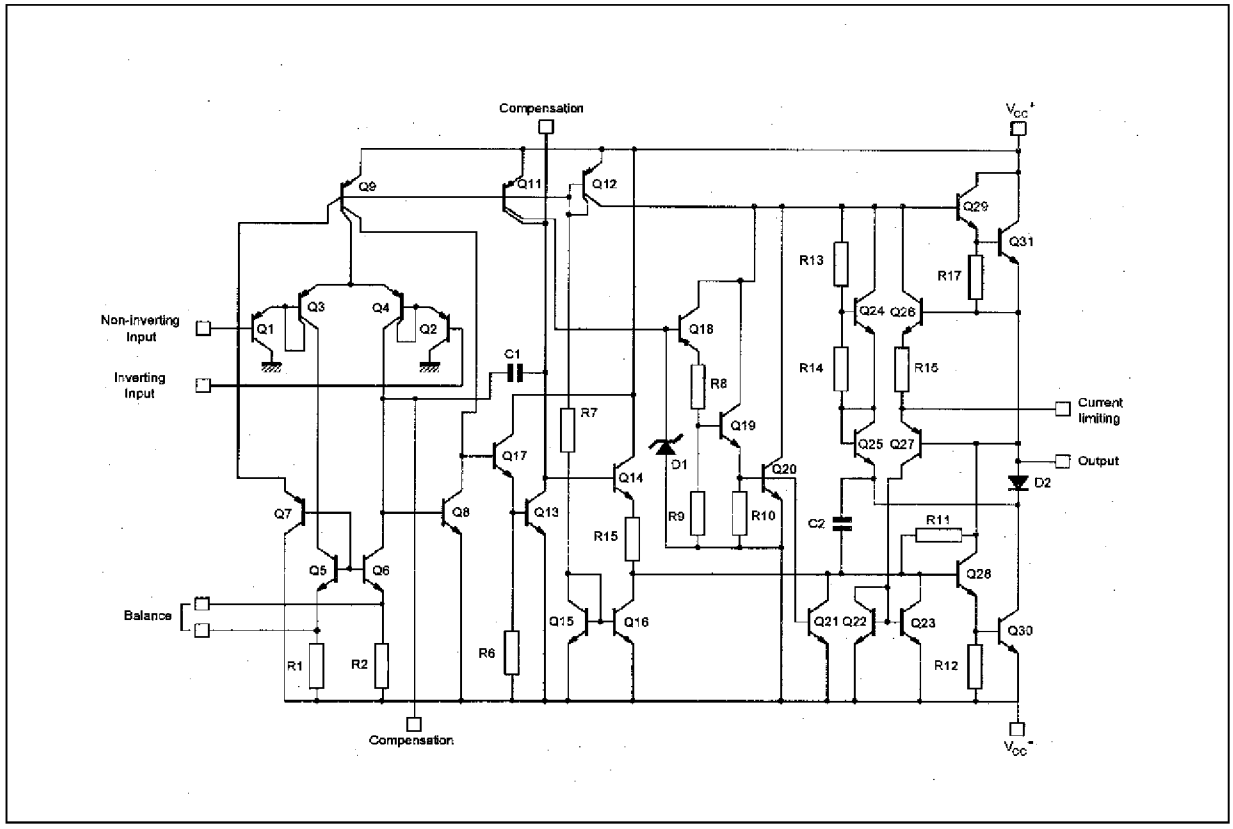
Part Number	Temperature Range	Package
		N
TDB7910	0, +70°C	•
TDA7910	-40, +105°C	•
Example : TDB7910N		

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM

Current limit circuit intervention, the safe operating area and dc power dissipation limitations must be observed.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	±18V	V
V_{id}	Differential Input Voltage	±30V	V
V_i	Input Voltage	±15V	V
I_o	Output Current*	0.75	A
P_{tot}	Power Dissipation	7.5	W
T_{oper}	Operating Free Air Temperature Range TDB7910 TDA7910	0 to +70 -40 to +105	°C

ELECTRICAL CHARACTERISTICS

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

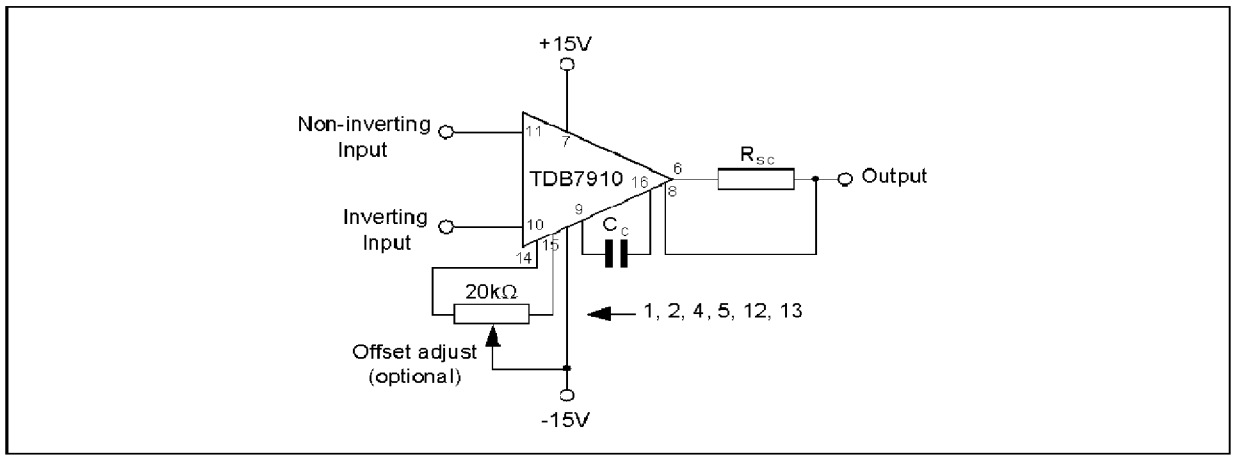
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage $T_{amb} = +25^{o}C$ $T_{min.} \le T_{amb.} \le T_{max.}$		2	 6 7.5	mV
I_{io}	Input Offset Current $T_{amb} = +25^{o}C$ $T_{min.} \le T_{amb.} \le T_{max.}$		20	 200 300	nA
I_{ib}	Input Bias Current $T_{amb} = +25^{o}C$ $T_{min.} \le T_{amb.}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

ELECTRICAL CHARACTERISTICS

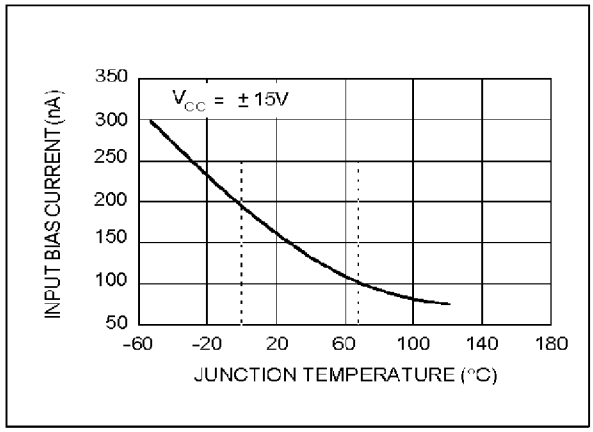
V_{CC}^{+} + 10V, V_{CC}^{-} = 0V, $T_{amb} = 25^{o}C$, V_o = +5V(unless otherwise specified)

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

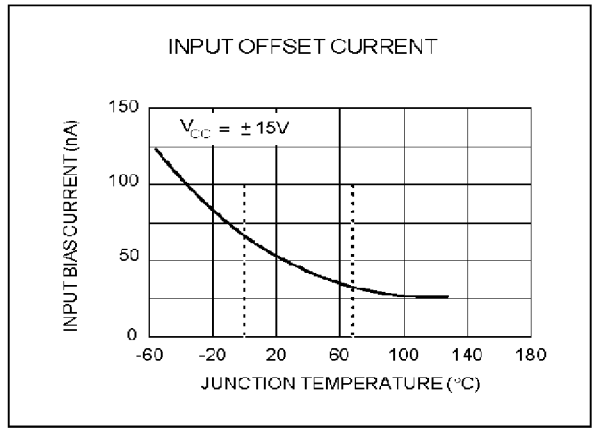
SCHEMATIC DIAGRAM



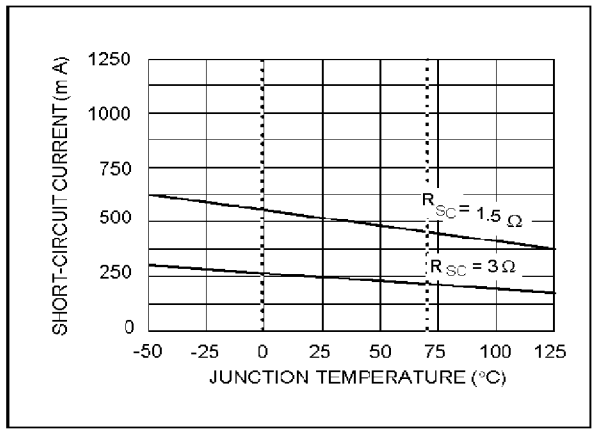
BASIC DIAGRAM



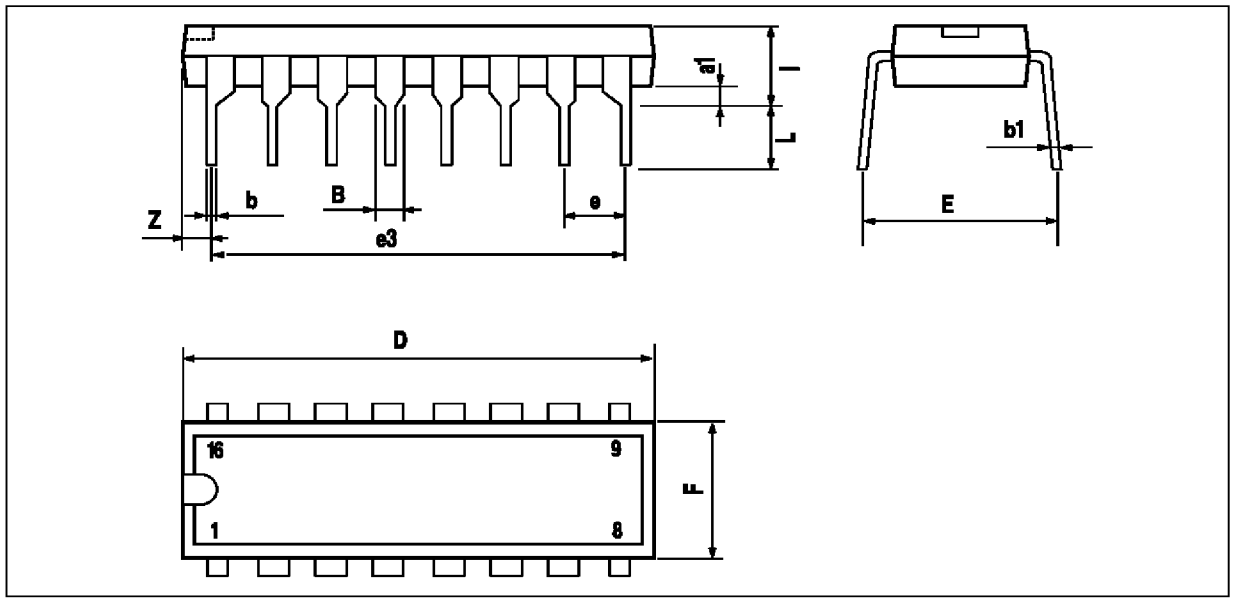
SHORT-CIRCUIT CURRENT



INPUT BIAS CURRENT



INPUT OFFSET CURRENT



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