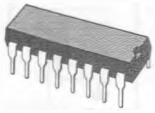
SGS-THOMSON MICROELECTRONICS

TDB7910

POWER SINGLE OPERATIONAL AMPLIFIER

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



N
DIP16
(Plastic Package)

DESCRIPTION

The TDB7910 is an internally compensated medium power operational amplifier 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.

The amplifier is 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.

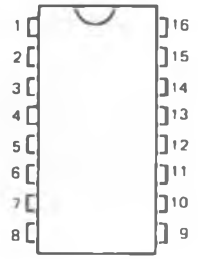
The TDB7910 is thermal overload and short-circuit protected.

ORDER CODES

Part Number	Temperature Range	Package
		N
TDB7910	0 °C to + 70 °C	•
Example : TDB7910N		

PIN CONNECTIONS (top view)

DIP16

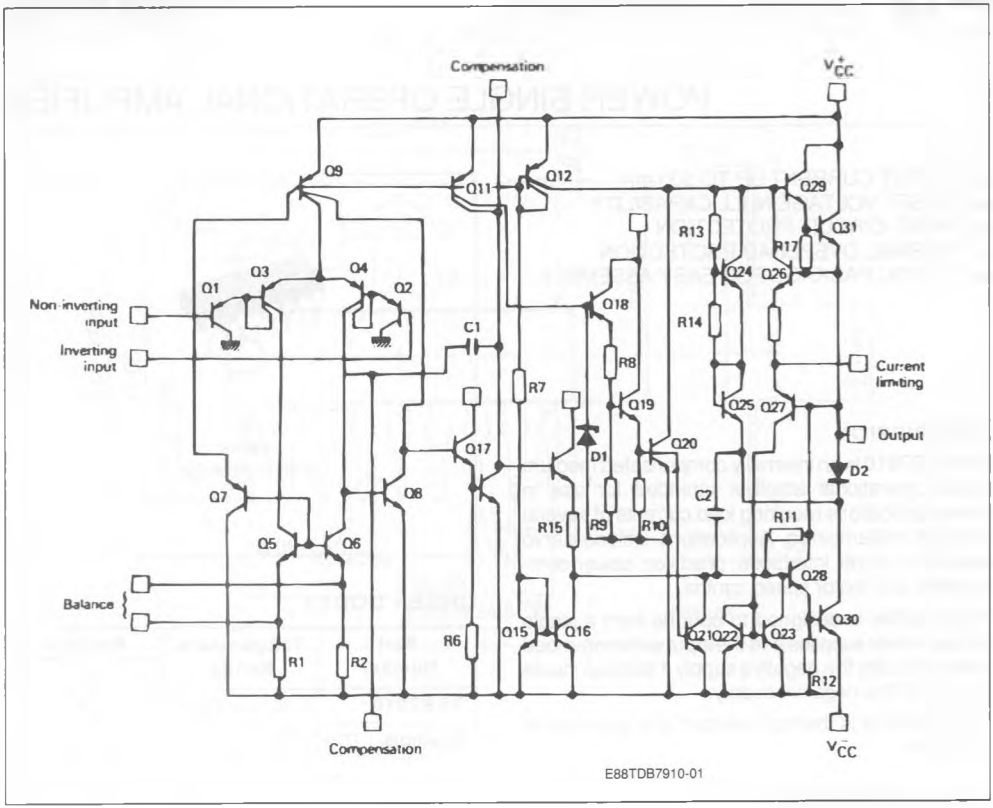


1 - V_{CC}^-
2 - V_{CC}^-
3 - NC
4 - V_{CC}^-
5 - V_{CC}^-
6 - Output
7 - V_{CC}^+
8 - Current limiting

9 - Compensation
10 - Inverting input
11 - Non-inverting input
12 - V_{CC}^-
13 - V_{CC}^-
14 - Balance
15 - Balance
16 - Compensation

E88TDB7910-06

SCHEMATIC DIAGRAM



Case	V_{CC}^-	NC	V_{CC}^+	Output	Current Limiting	Compensation	Non-Inverting Input	Inverting input	Balance
DIP16	1, 2 4, 5 12, 13	3	7	6	8	9, 16	11	10	1

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	± 18	V
V_I	Input Voltage	± 15	V
V_{ID}	Differential Input Voltage	± 30	V
I_O	Output Current*	0.75	A
P_{tot}	Power Dissipation	7.5	W
T_{oper}	Operating Free-air Temperature Range	0 to + 70	°C
T_{stg}	Storage Temperature Range	− 65 to + 150	°C

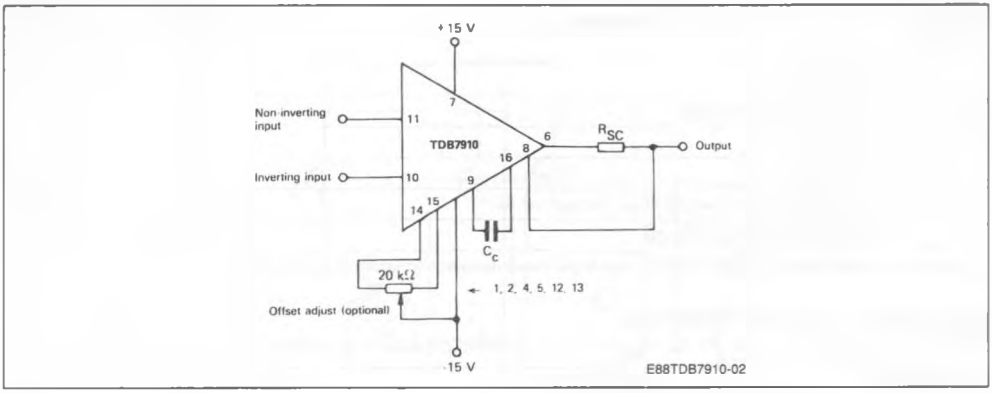
* Under short-circuit conditions, the safe operating area and dc power dissipation limitations must be observed.

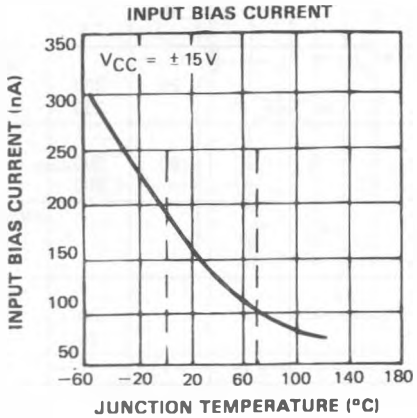
ELECTRICAL CHARACTERISTICS

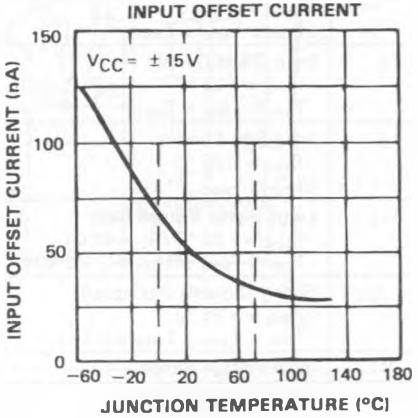
TDB7910 : 0 °C ≤ T_{amb} ≤ + 70 °C, V_{CC} = + 15 V (unless otherwise specified)

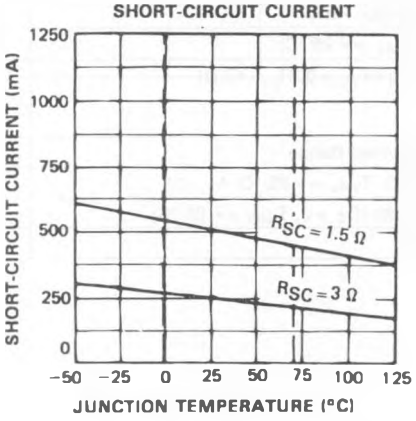
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{IO}	Input Offset Voltage (R_S ≤ 10 kΩ) T_{amb} = + 25 °C T_{min} ≤ T_{amb} ≤ T_{max}		2	 6 7.5	mV
I_{IO}	Input Offset Current T_{amb} = + 25 °C T_{min} ≤ T_{amb} ≤ T_{max}		20	 200 300	nA
I_{IB}	Input Bias Current T_{amb} = + 25 °C T_{min} ≤ T_{amb} ≤ T_{max}		80	 500 800	nA
A_{VD}	Large Signal Voltage Gain T_{amb} = + 25 °C (R_L = 47 Ω) T_{min} ≤ T_{amb} ≤ T_{max} (R_L = 2 kΩ)	 20 15			V/mV
I_{CC}^{+}, I_{CC}^{-}	Supply Currents (no signal) T_{amb} = + 25 °C T_{min} ≤ T_{amb} ≤ T_{max}			 20 25	mA
V_I	Input Voltage Range	± 12	± 13		V
I_{OS}	Output Circuit Current T_{amb} = + 25 °C, R_{SC} = 1.5 Ω		 0.5		A
SVR	Supply Voltage Rejection Ratio			150	μV/V
CMR	Common-mode Rejection Ratio	70			dB
Z_I	Input Impedance (T_{amb} = + 25 °C)	0.3	1		MΩ
V_{OPP}	Output Voltage Swing (R_{SC} = 0, R_L = 47 Ω) T_j = + 25 °C T_{min} ≤ T_{amb} ≤ T_{max}	 ± 11.5 ± 10	 ± 12.5		V
V_{IOR}	Offset Voltage Adjustment Range		± 15		mV
SVO	Slew Rate (R_L = 47 Ω, T_{amb} = + 25 °C, A_V = 1)		0.5		V/μs
GW_R	Small Signal Bandwidth (C_C = 0, T_{amb} = + 25 °C)		1		MHz
RTH	Thermal Resistance		60		°C/W

BASIC DIAGRAM









PACKAGE MECHANICAL DATA

16 PINS – PLASTIC DIP