- **Switch ±10-V Analog Signals**
- **TTL Logic Capability**
- **5-to 30-V Supply Ranges**
- **Low (100 Ω) On-State Resistance**
- **High (1011 Ω) Off-State Resistance**
- **8-Pin Functions**

Description

The TL604JDP is a plug and play modern replacement for the original TL604, on an 8 pin adaptor board. The board is configured for up to 4 different modern switch ICs to guard against future obsolescence. The specifications below are selected as the worst of the 4 different ICs.

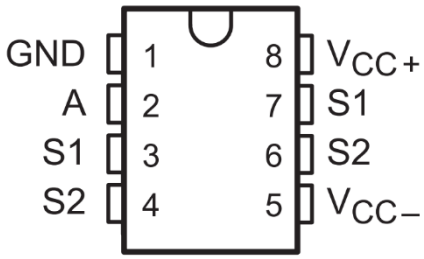
Original text from Texas Instrument's 1986 datasheet:

"The TL604 is a monolithic P-MOS analog switch that provide fast switching speeds with high r_{off}/r_{on} ratio and no offset voltage. The p-channel enhancement-type MOS switches accept analog signals up to ±10 V and are controlled by TTL-compatible logic inputs. The monolithic structure is made possible by BI-MOS technology, which combines p-channel MOS with standard bipolar transistors.

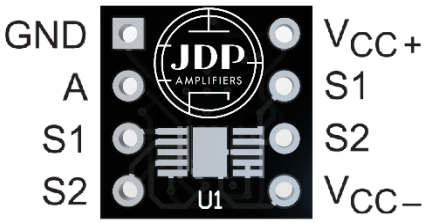
These switches are particularly useful in military, industrial, and commercial applications such as data acquisition, multiplexers, A/D and D/A converters, MODEMS, sample-and-hold systems, signal multiplexing, integrators, programmable operational amplifiers, programmable voltage regulators, crosspoint switching networks, logic interface, and many other analog systems.

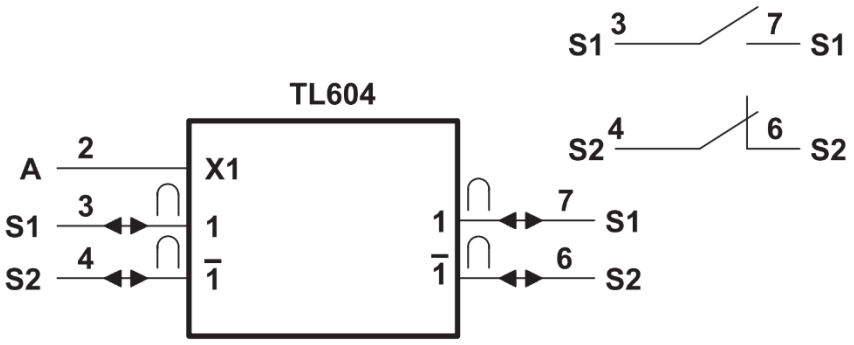
The TL604 is a dual complementary SPST switch with a single control input. The TL604 is characterized for operation from -40°C to +125°C."

ORIGINAL TI PACKAGE
(TOP VIEW)



ADAPTOR PACKAGE
(TOP VIEW)





FUNCTION TABLE

INPUT	ANALOG SWITCHES	
A	S1	S2
H	On (closed)	Off (open)
L	Off (open)	On (closed)

Absolute Maximum Ratings over operating free-air temperature range

Supply voltage, V_{CC+} (see Note 1) . . . . . 36 V
Supply voltage, V_{CC-} . . . . . –36 V
V_{CC+} to V_{CC-} supply voltage differential . . . . . 36 V
Control input voltage . . . . . V_{CC+}
Switch off-state voltage . . . . . 36 V
Switch on-state current . . . . . 39 mA
Operating free-air temperature range: . . . . . -40°C to 125°C

NOTE 1: All voltage values are with respect to network ground terminal.

Recommended Operating Conditions

PARAMETER	MIN	TYP	MAX	UNIT
Supply voltage, V_{CC+}	9		36	V
Supply voltage, V_{CC-}	0		-36	V
V_{CC+} to V_{CC-} supply voltage differential	9		36	V
High-level control input voltage, V_{IH}	2.0		V_{CC+}	V
Low-level control input voltage, V_{IL}	V_{CC-}		0.8	V
Voltage at any analog switch terminal	V_{CC-}		V_{CC+}	V
Switch on-state current			39	mA
Operating free-air temperature, T_A	–40		125	°C

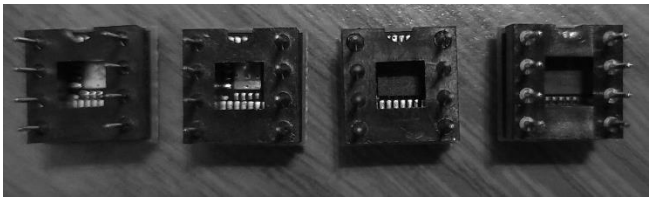
Electrical Characteristics:

V_{DD} = +15 V ± 10%, V_{SS} = –15 V ±10%, GND = 0 V (unless otherwise noted)
Typical at V_{DD} = +15 V, V_{SS} = –15 V, T_A = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_{IH} High-level input current			0.4	1.2	µA
I_{IL} Low-level input current		–100	–5		pA
I_{off} Switch off-state current	TA = -40°C to 125°C	–20		20	nA
r_{on} Switch on-state resistance	VS = ±10 V	2	13.5	23	Ω
C_{on} Switch on-state input capacitance	VS = 0 V, f = 1 MHz, 25°C	44		145	pF
C_{off} Switch off-state input capacitance		12		45	pF
ICC+ Supply current from V_{CC}+			45	80	µA
ICC– Supply current from V_{CC}–		1	5	35	µA
t_{off} Switch turn-off time		100	163	242	nS
t_{on} Switch turn-on time		80	185	313	nS

Variations:

Due to 4 different ICs being specified, this adaptor may arrive in any of the 4 following pictured configurations. Notice that two of the configurations have the IC on top, and two of the configurations have the IC on the bottom. Regardless of which variation you receive, these are all interchangeable with each other and with the original Texas Instruments TL604 part. The above specifications have been written taking the worst value of all 4 ICs in order to ensure that the part you receive will meet or exceed the specifications.



Alternate Part Number:

This part was used in Peavey amplifiers under their own part number SN99661.