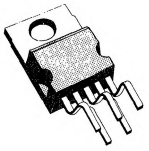
SGS-THOMSON MICROELECTRONICS

L149

4A LINEAR DRIVER

- HIGH OUTPUT CURRENT (4A peak)
- HIGH CURRENT GAIN (10.000 typ.)
- OPERATION UP TO ± 20 V
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION
- OPERATION WITHIN SOA
- HIGH SLEW-RATE (30 V/ μs)

The L149 is a general purpose power booster in Pentawatt® package consisting of a quasi-complementary darlington output stage with the associated biasing system an inhibit facility.
The device is particularly suited for use with an operational amplifier inside a closed loop configuration to increase output current.



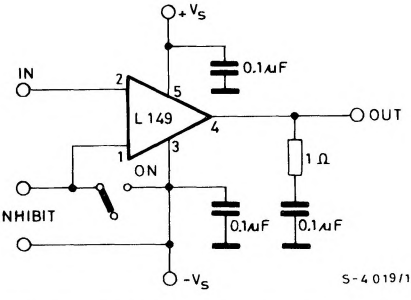
Pentawatt®

ORDER CODE : L149V

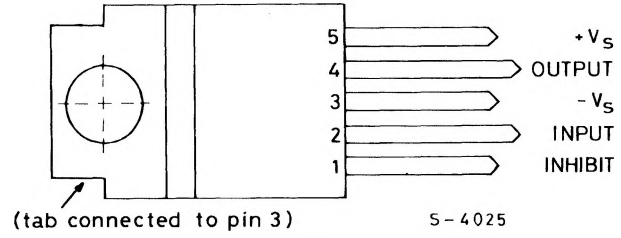
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	± 20	V
V_i	Input Voltage		V_s
$V_5 - V_4$	Upper Power Transistor V_{CE}	40	V
$V_4 - V_3$	Lower Power Transistor V_{CE}	40	V
I_o	DC Output Current	3	A
I_o	Peak Output Current (internally limited)	4	A
V_{INH}	Input Inhibit Voltage	$-V_s + 5$ $-V_s - 1.5$	V V
P_{tot}	Power Dissipation at T_{case} = 75 °C	25	W
T_{stg}, T_j	Storage and Junction Temperature	– 40 to 150	°C

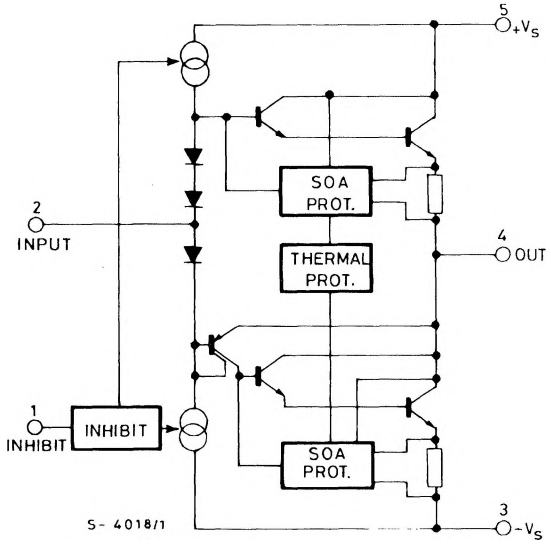
TEST CIRCUIT



CONNECTION DIAGRAM (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	3	°C/W

ELECTRICAL CHARACTERISTICS (T_j = 25°C, V_s = ± 16V)

Parameter		Test conditions		Min.	Typ.	Max.	Unit
V_s	Supply voltage					± 20	V
I_d	Quiescent drain current	V_s = ± 16V			30		mA
I_{in}	Input current	V_s = ± 16V	V_i = OV		200	400	µA
h_{FE}	DC current gain	V_s = ± 16V	I_o = 3A	6000	10000		–
G_v	Voltage gain	V_s = ± 16V	I_o = 1.5A		1		–
V_{CEsat}	Saturation voltage (for each transistor)	I_o = 3A				3.5	V
V_{os}	Input offset voltage	V_s = ± 16V				0.3	V
V_{INH}	Inhibit input voltage (pins 1-3)	ON condition				± 0.3	V
		OFF condition		± 1.8			
R_{INH}	Inhibit input resistance				2.0		KΩ
SR	Slew rate				30		V/ µs
B	Power bandwidth	V_o = ± 10V, d = 1 %, R_L = 8Ω			200		KHz

APPLICATION INFORMATION

Figure 1 : High slew-rate power operational amplifier (SR = 13V/ µs).

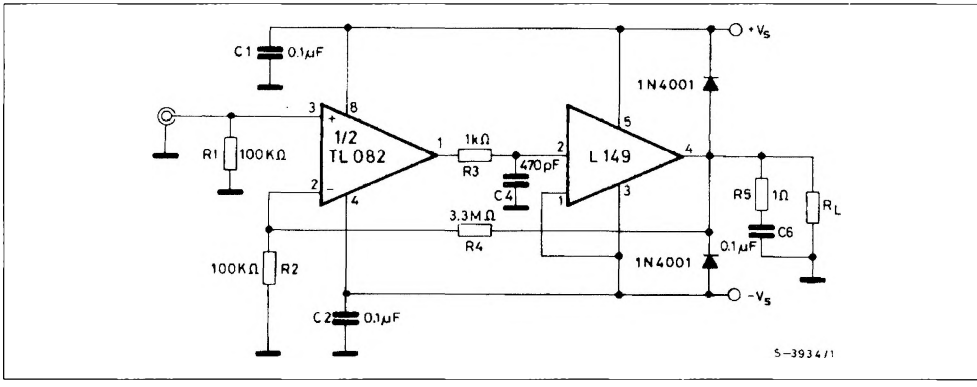


Figure 2 : Maximum saturation voltage vs. output current.

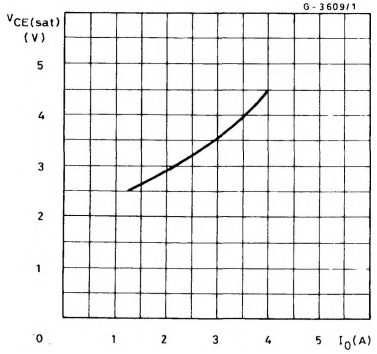


Figure 3 : Current limiting characteristics..

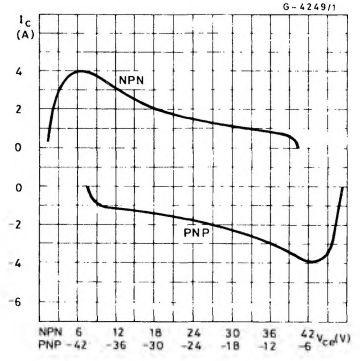


Figure 4 : Supply voltage rejection vs. frequency.

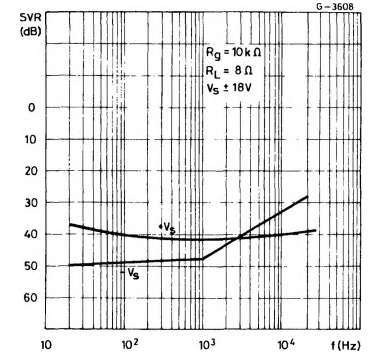


Figure 5 : Distortion vs. output power (f = 1 KHz).

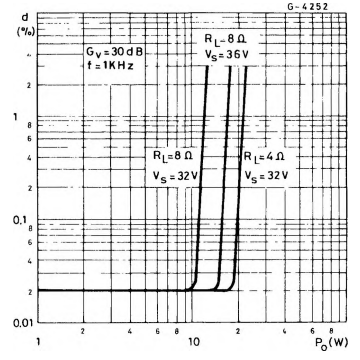


Figure 6 : Distortion vs. output power (f = 10 KHz).

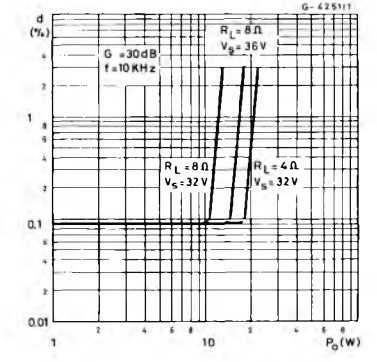


Figure 7 : Output power vs. supply voltage.