LINEAR INTEGRATED CIRCUITS

L601 L602
L603 L604

HIGH-VOLTAGE, HIGH-CURRENT 8 DARLINGTON ARRAYS

These high-voltage, high-current Darlington transistor arrays comprise eight NPN Darlington on a common monolithic substrate. All units feature open collector outputs and integral suppression diodes for inductive loads. Peak currents of 500 mA can be withstood. They are pinned with inputs opposite outputs to facilitate circuit board layout.

- The L601 is a general-purpose array wich may be used with DTL, TTL, PMOS, CMOS, etc.
- The L602 is specifically designed for use with 14 to 25V PMOS devices. Each input has a Zener diode and resistor in series in order to limit the input current to a safe value.
- The L603 has a series base resistor to each Darlington pair, and thus allows operation directly with TTL or CMOS operating at a supply voltage of 5V.
- The L604 has a series base resistor to each Darlington pair, and thus allows operation directly with PMOS or CMOS utilizing supply voltage of 6 to 15V.

In all cases, the individual Darlington collector current rating is 400 mA. However, outputs may be paralleled for higher load current capability. The devices are supplied in a 18-lead dual in-line plastic package with copper frame.

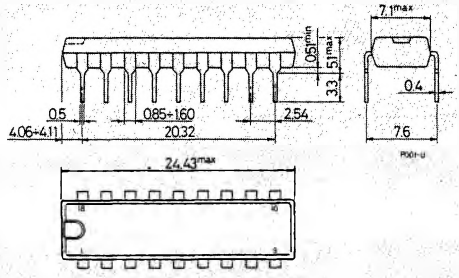
ABSOLUTE MAXIMUM RATINGS

V_{CEX}	Collector emitter voltage (input open)	90	V
I_C	Collector current	0.4	A
I_C	Collector peak current	0.5	A
V_i	Input voltage (for L602, L603 and L604)	30	V
I_i	Input current (for L601 only)	25	mA
P_{tot}	Total power dissipation a $T_{amb} = 25°C$	1.8	W
T_{op}	Operating junction temperature	-25 to 150	°C
T_{stg}	Storage temperature	-55 to 150	°C

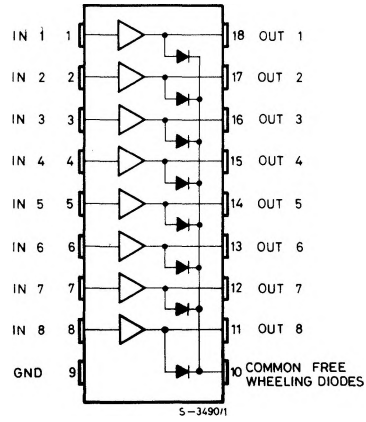
ORDERING NUMBERS: L601B, L602B, L603B, L604B

MECHANICAL DATA

Dimensions in mm

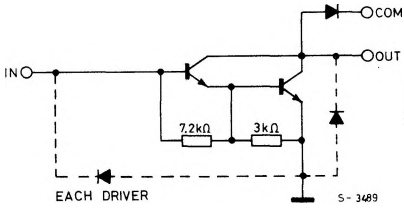


CONNECTION DIAGRAM
(top view)

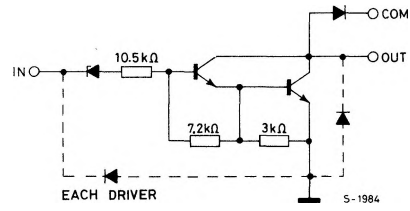


SCHEMATIC DIAGRAMS

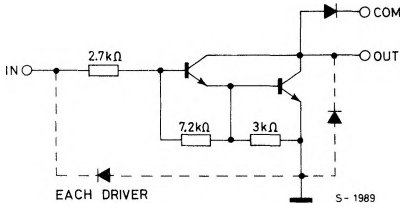
L601



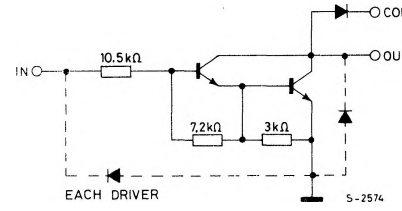
L602



L603



L604



THERMAL DATA

$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	70	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb}= 25°C, unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Output leakage current	V_{CE}= 90V			10	μA
$V_{CE(sat)}$	Collector emitter saturation voltage	I_C= 300 mA I_B= 500 μA I_C= 200 mA I_B= 350 μA I_C= 100 mA I_B= 250 μA			2 1.7 1.2	V V V
h_{FE}	DC forward current gain (L601 only)	V_{CE}= 3V I_C= 300 mA	1000			–
V_i	Minimum input voltage (ON condition)	V_{CE}= 3V I_C= 300 mA for L602 for L603 for L604			 11.5 2.5 2.5	 V V V
V_i	Maximum input voltage (OFF condition)	V_{CE}= 90V I_C= 25 μA for L601 for L602 for L603 for L604	 0.55 7 0.75 1			 V V V V
I_R	Clamp diode reverse current	V_R= 90V			50	μA
V_F	Clamp diode forward voltage	I_F= 300 mA		2	2.4	V
t_{on}	Turn-on delay	0.5 V_i to 0.5 V_o		0.4		μs
t_{off}	Turn-off delay	0.5 V_i to 0.5 V_o		0.4		μs