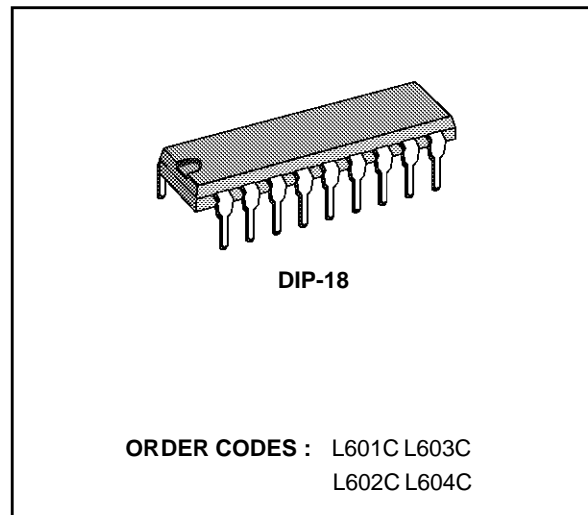


## DARLINGTON ARRAYS

- EIGHT DARLINGTONS PER PACKAGE
- OUTPUT CURRENT 400 mA PER DRIVER (500 mA PEAK)
- OUTPUT VOLTAGE 90 V ( $V_{CE(sus)} = 70$  V)
- INTEGRAL SUPPRESSION DIODES FOR INDUCTIVE LOADS
- OUTPUTS CAN BE PARALLELED FOR HIGHER CURRENT
- TTL / CMOS / PMOS / DTL COMPATIBLE INPUTS
- INPUTS PINNED OPPOSITE OUTPUTS TO SIMPLIFY LAYOUT



### DESCRIPTION

The L601, L602, L603 and L604 are high voltage, high current darlington arrays each containing eight open collector darlington pairs with common emitters. Each channel is rated at 400 mA and can with stand peak currents of 500 mA. Suppression diodes are included for inductive load driving and the inputs are pinned opposite the outputs to simplify board layout.

The four versions interface to all common logic families:

L601	General purpose
L602	14 - 25 V PMOS
L603	5 V TTL
L604	6 - 15 V CMOS

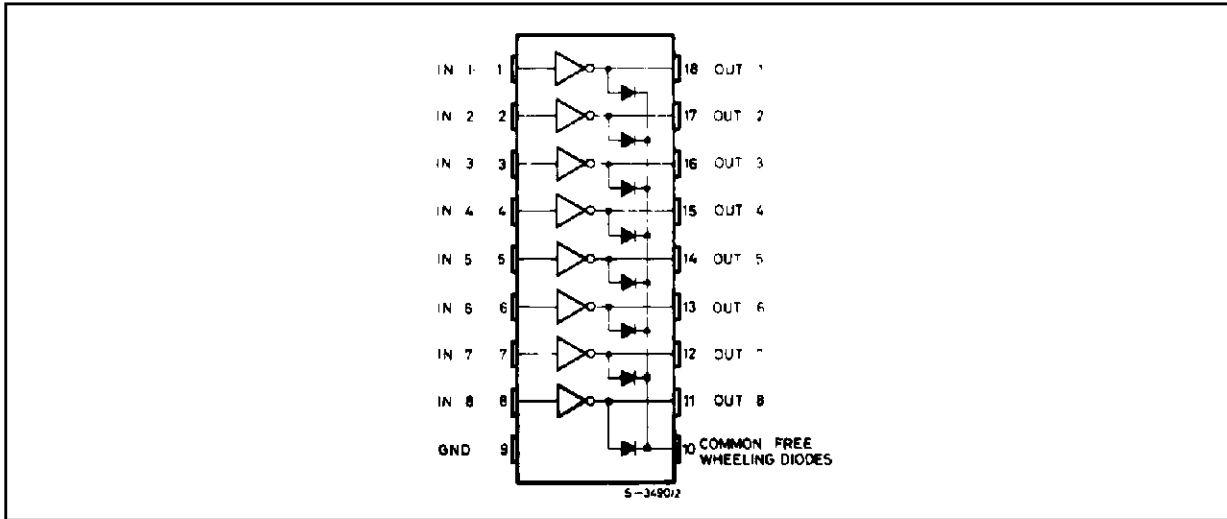
These versatile devices are useful for driving a wide range of loads, including solenoids, relays DC motors, LED displays, filament lamps, thermal print-heads and high power buffers.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CEX}$	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	
$I_i$	Input Current (for L601 only)	25	mA
$P_{tot}$	Total Power Dissipation at $T_{amb} = 25^\circ\text{C}$	1.8	W
$T_{op}$	Operating Junction Temperature	-25 to 150	$^\circ\text{C}$

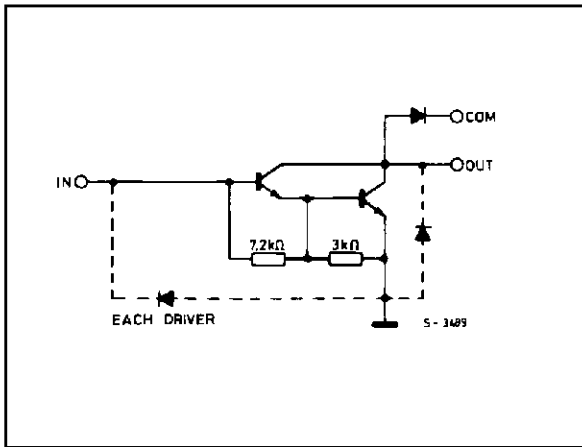
# L601-L602-L603-L604

## PIN CONNECTION (top view)

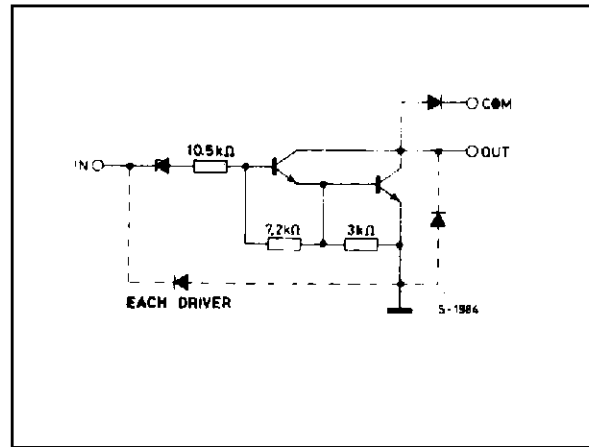


## SCHEMATIC DIAGRAMS

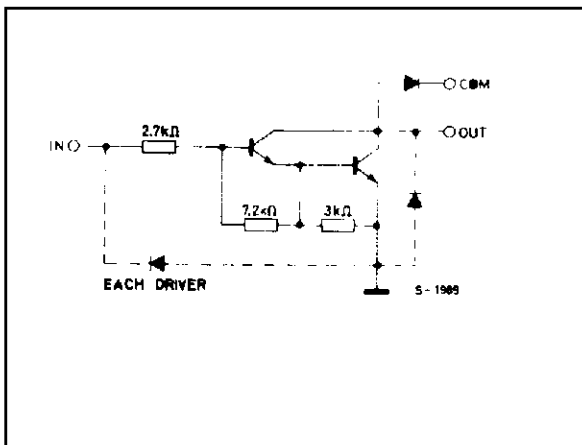
L601



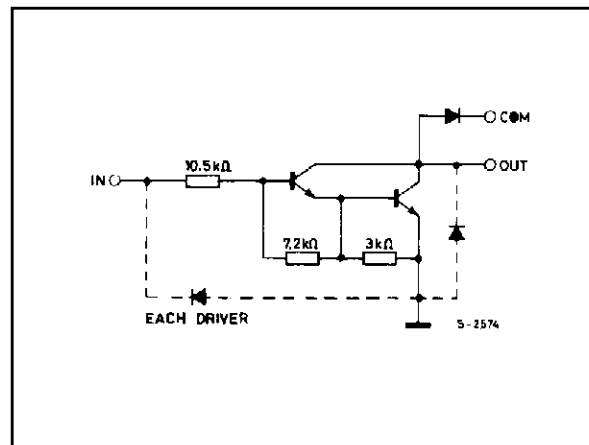
L602



L603



L604



**THERMAL DATA**

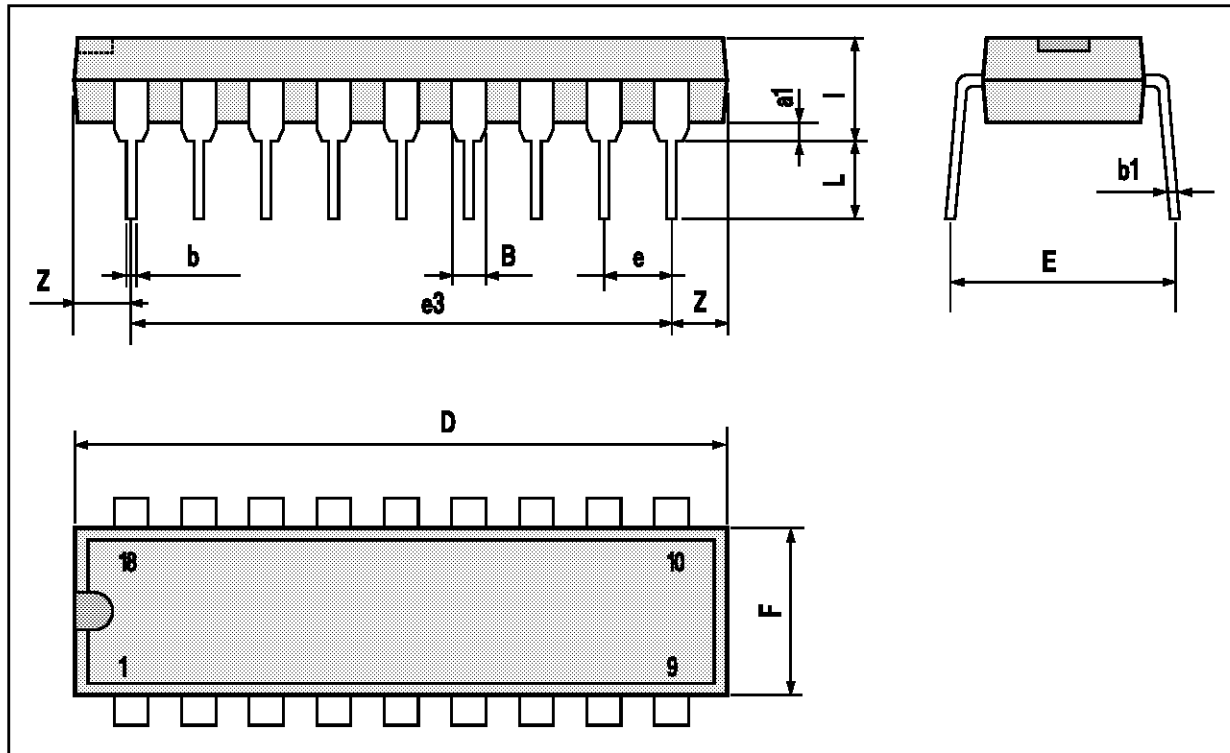
Symbol	Parameter	Value	Unit	
$R_{th-j-amb}$	Thermal resistance Junction-ambient	Max	70	°C/W

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

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Output Leakage Current	$V_{CE} = 90\text{ V}$			10	$\mu\text{A}$
$V_{CE(sat)}$	Collector Emitter Saturation Voltage	$I_C = 300\text{ mA}$ $I_B = 500\text{ }\mu\text{A}$ $I_C = 200\text{ mA}$ $I_B = \mu\text{A}$ $I_C = 100\text{ mA}$ $I_B = 250\text{ }\mu\text{A}$			2 1.7 1.2	V V V
$h_{FE}$	DC Forward Current Gain (L601 only)	$V_{CE} = 3\text{ V}$ $I_C = 300\text{ mA}$	1000			-
$V_i$	Minimum Input Voltage (ON condition)	$V_{CE} = 3\text{ V}$ for L602 for L603 for L604 $I_C = 300\text{ mA}$			11.5 2.5 5	V V V
$V_i$	Maximum Input Voltage (OFF condition)	$V_{CE} = 90\text{ V}$ for L601 for L602 for L603 for L604 $I_C = 25\text{ }\mu\text{A}$	0.55 7 0.75 1			V V V V
$I_R$	Clamp Diode Reverse Current	$V_R = 90\text{ V}$			50	$\mu\text{A}$
$V_F$	Clamp Diode Forward Voltage	$I_F = 300\text{ mA}$		2	2.4	V
$t_{on}$	Turn-on Delay	$0.5\text{ }V_i$ to $0.5\text{ }V_o$		0.4		$\mu\text{s}$
$t_{off}$	Turn-off Delay	$0.5\text{ }V_i$ to $0.5\text{ }V_o$		0.4		$\mu\text{s}$

DIP18 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.065
b		0.46			0.018	
b1		0.25			0.010	
D			23.24			0.915
E		8.5			0.335	
e		2.54			0.100	
e3		20.32			0.800	
F			7.1			0.280
l			3.93			0.155
L		3.3			0.130	
Z		1.27	1.59		0.050	0.063



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