



# L603 - L604

## DARLINGTON ARRAYS

- EIGHT DARLINGTONS PER PACKAGE
- OUTPUT CURRENT 400 mA PER DRIVER (500mA 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 INPUTS
- INPUTS PINNED OPPOSITE OUTPUTS TO SIMPLIFY LAYOUT



### DESCRIPTION

The 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 400mA and can withstand 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.

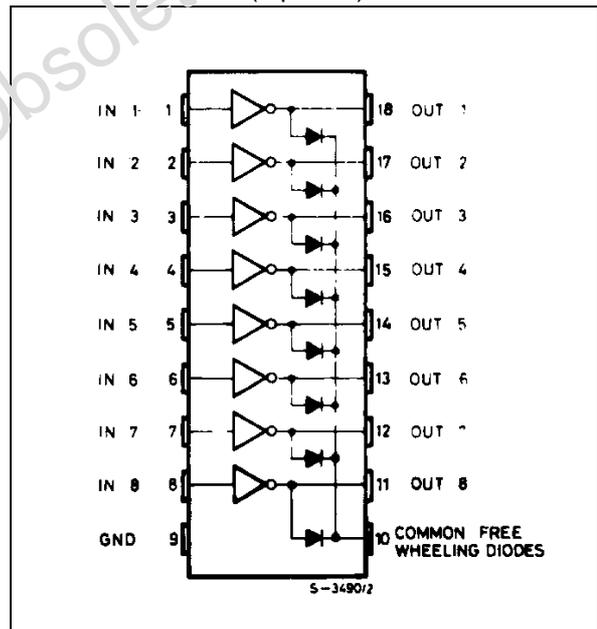
The four versions interface to all common logic families:

**L603** = 5V TTL

**L604** = 5 - 15V CMOS

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

### PIN CONNECTION (top view)



### 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 L603 and L604)	30	V
$P_{tot}$	Total Power Dissipation at $T_{amb} = 25^\circ\text{C}$	1.8	W
$T_{op}$	Operating Junction Temperature	-25 to 150	$^\circ\text{C}$

## L603 - L604

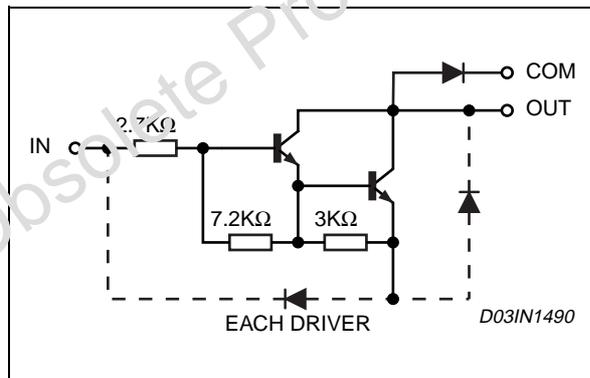
### THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th-j amb</sub>	Thermal Resistance Junction ambient	max 70	°C/W

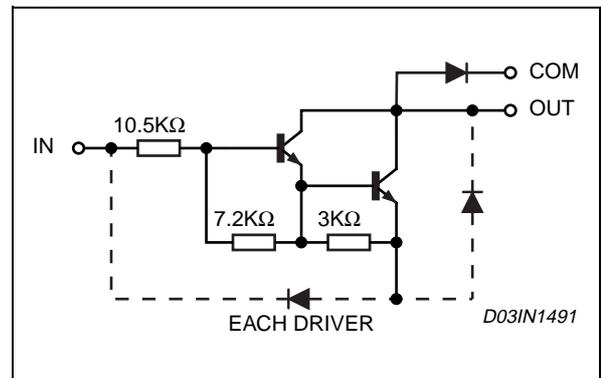
### ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I <sub>CEX</sub>	Output Leakage Current	V <sub>CE</sub> = 90V			10	μA
V <sub>CE(sat)</sub>	Collector Emitter Saturation Voltage	I <sub>C</sub> = 300mA; I <sub>B</sub> = 500μA			2	V
		I <sub>C</sub> = 200mA; I <sub>B</sub> = μA			1.7	V
		I <sub>C</sub> = 100mA; I <sub>B</sub> = 250μA			1.2	V
V <sub>i</sub>	Maximum Input Voltage (ON condition)	V <sub>CE</sub> = 3V; I <sub>C</sub> = 300mA			2.5	V
		L603 L604			5	V
V <sub>i</sub>	Maximum Input Voltage (OFF condition)	V <sub>CE</sub> = 90V; I <sub>C</sub> = 25μA	0.75			V
		L603 L604	1			V
I <sub>R</sub>	Clamp Diode Reverse Current	V <sub>R</sub> = 90V			50	μA
V <sub>F</sub>	Clamp Diode Forward Voltage	I <sub>F</sub> = 300mA		2	2.4	V
t <sub>on</sub>	Turn-on Delay	0.5 V <sub>i</sub> to 0.5 V <sub>o</sub>		0.4		μs
t <sub>off</sub>	Turn-off Delay	0.5 V <sub>i</sub> to 0.5 V <sub>o</sub>		0.4		μs

**L603**



**L604**

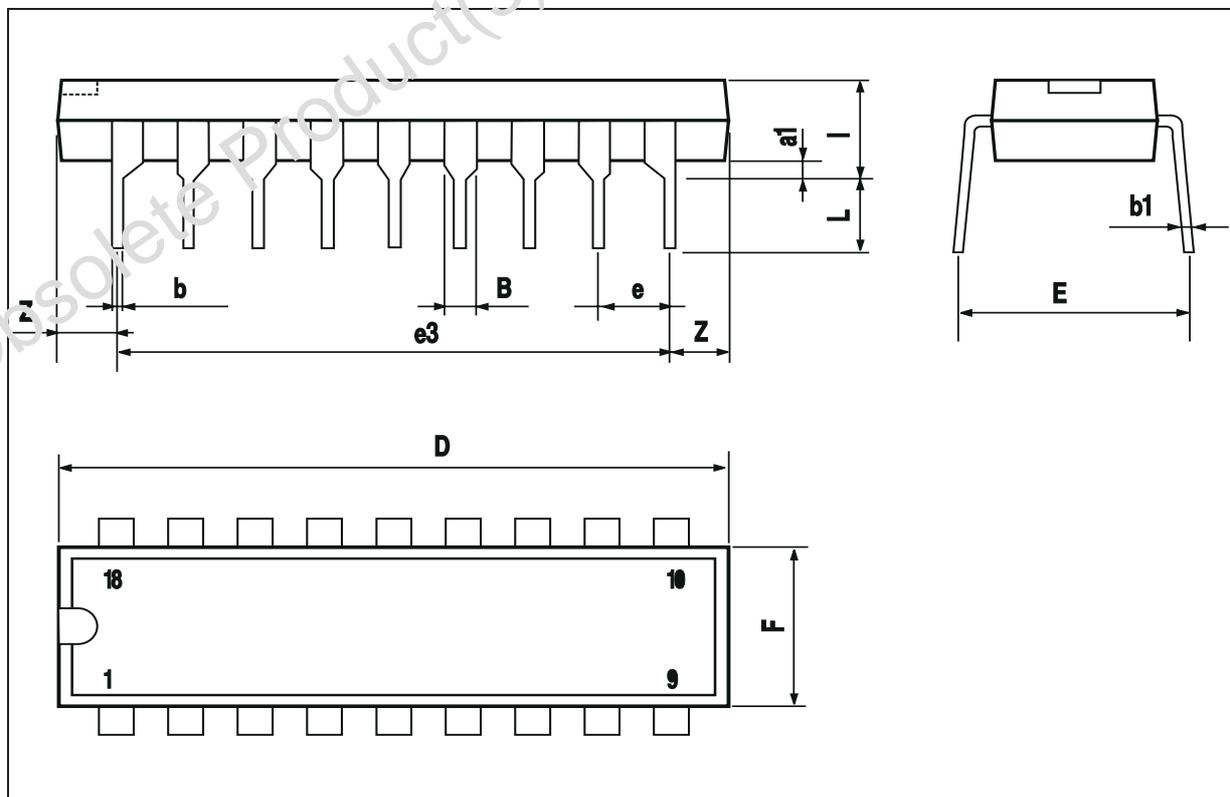


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.065
b		0.46			0.018	
b1		0.25			0.010	
D			23.24			0.915
E		8.5			0.335	
e		2.54			0.100	
e3		20.32			0.800	
F			7.1			0.280
I			3.93			0.155
L		3.3			0.130	
Z		1.27	1.59		0.050	0.063

**OUTLINE AND MECHANICAL DATA**



**DIP18**



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