

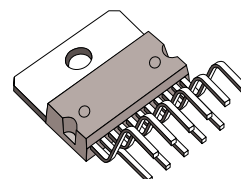
2A QUAD DARLINGTON SWITCH

- SUSTAINING VOLTAGE: 70 V
- 2 A OUTPUT
- HIGH CURRENT GAIN
- IDEAL FOR DRIVING SOLENOIDS, DC MOTORS, STEPPER MOTORS, RELAYS, DISPLAYS, ETC.

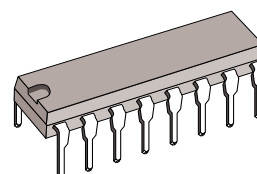
DESCRIPTION

The L702 is a monolithic integrated circuit for high current and high voltage switching applications. It comprises four darlington transistors with common emitter and open collector suitable for current sinking applications mounted on the new POWERDIP and Multiwatt® packages.

This circuit reduces components, sizes and costs; it can provide direct interface between low level logic and a variety of high current applications.



Multiwatt-11



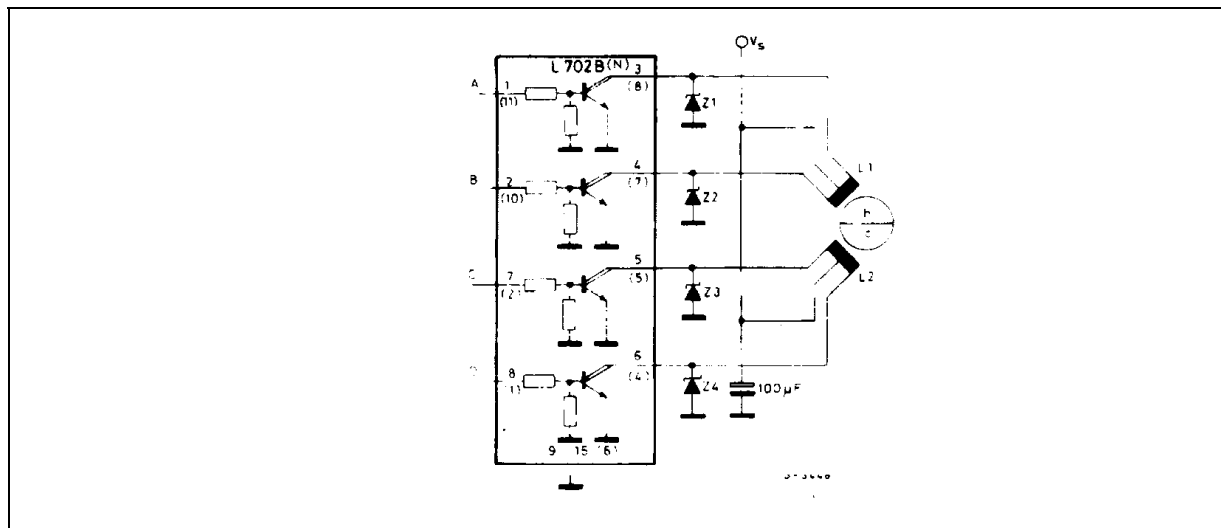
Powerdip 8 + 8

ORDER CODES : L702B - Powerdip
L702N - Multiwatt

ABSOLUTE MAXIMUM RATINGS

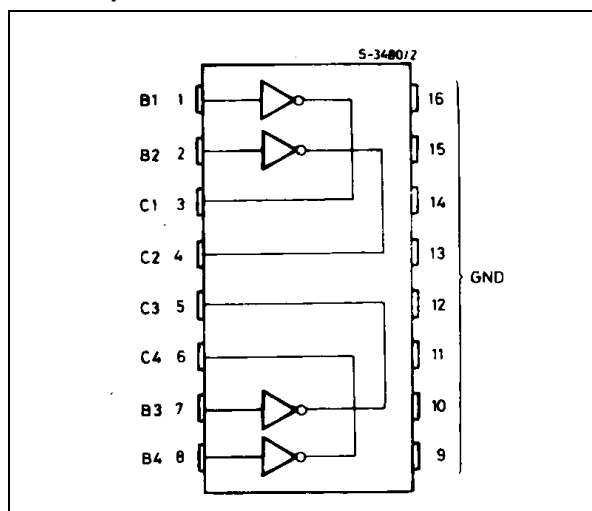
Symbol	Parameter	Value	Unit
V_{CEX}	Collector-emitter Voltage (input open)	90	V
V_i	Input Voltage	30	V
I_C	Collector Current	3	A
P_{tot}	Total Power Dissipation at $T_{pin} 9 \text{ to } 16 \leq 90^\circ\text{C}$	4	W
	Total Power Dissipation at $T_{amb} \leq 70^\circ\text{C}$		
	Total Power Dissipation at $T_{case} \leq 90^\circ\text{C}$	20 W	
T_{stg}	Storage Temperature	-55 to 150	$^\circ\text{C}$
T_j	Operating Junction Temperature	-25 to 150	$^\circ\text{C}$

STEPPING MOTOR BUFFER

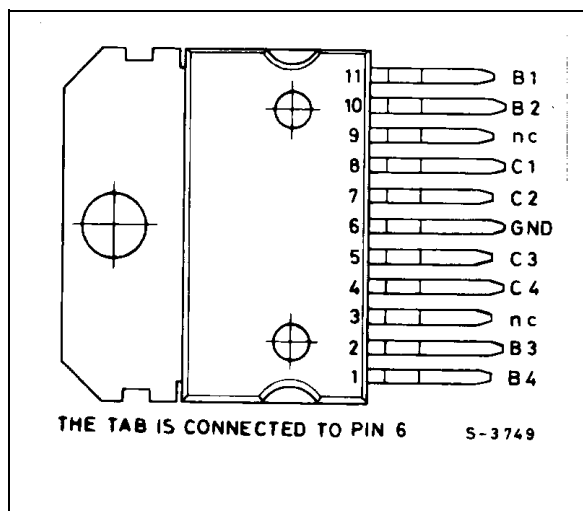


CONNECTION DIAGRAMS (top view)

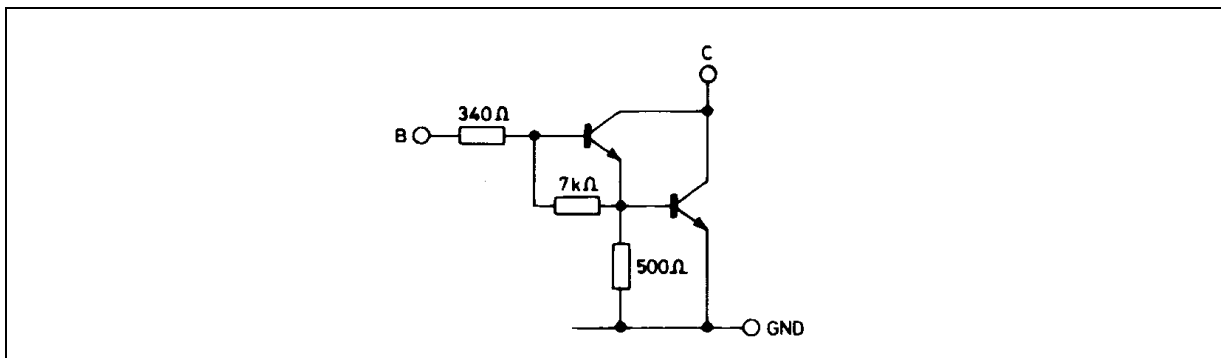
Powerdip



Multiwatt



SCHEMATIC DIAGRAM (each Darlington)



THERMAL DATA

Symbol	Parameter			Value	Unit
$R_{th\ j-amb}$	Thermal Resistance Junction Ambient	} Powerdip	Max	70	°C/W
$R_{th\ j-pins\ 9/16}$	Thermal Resistance Junction Pins 9 to 16		Max	14	°C/W
$R_{th\ j-case}$	Thermal Resistance Junction-case	Multiwatt	Max	3	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Output Leakage Current	$V_{CE} = 90\text{ V}$		10	50	μA
$V_{CE(sust)}$	Collector Emitter ($^{\circ}$) Sustaining Voltage	$I_C = 100\text{ mA}$	70			V
$V_{CE(sat)}$	Collector Emitter Saturation Voltage	$I_C = 1.25\text{ A}$ $I_i = 2\text{ mA}$		1.3	1.9	V
h_{FE}	DC Forward Current Gain	$I_C = 1\text{ A}$ $V_{CE} = 3\text{ V}$	1.000	4.000		
I_i	Input Current	$V_i = 3.75\text{ V}$ $V_i = 2.4\text{ V}$ Open Collector		7 3	11 6	mA mA
V_i	Input Voltage	Off Condition $V_{CE} = 70\text{ V}$ $I_C \leq 0.1\text{ mA}$			0.4	V
		On Condition $V_{CE} = 3\text{ V}$ $I_C \geq 1\text{ A}$	2.4			V
T_{on}	Turn On Time	$V_S = 12\text{ V}$ $R_L = 10\ \Omega$		0.3		μs
T_{off}	Turn Off Time			1		μs

Figure 1. Switching Time.

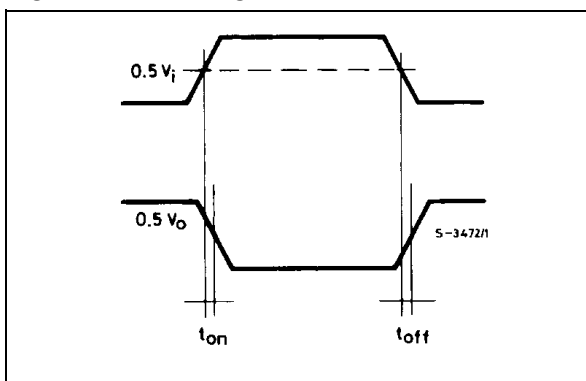
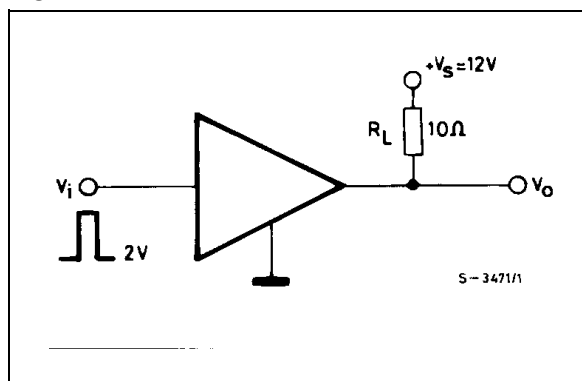
Figure 2. t_{on} and t_{off} Test Circuit.

Figure 3. Peak Collector Current vs. Duty Cycle and Number of Outputs (L702B only)

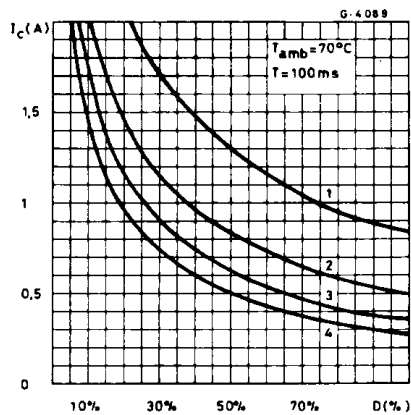


Figure 4. Collector Emitter Saturation Voltage vs. Collector Current.

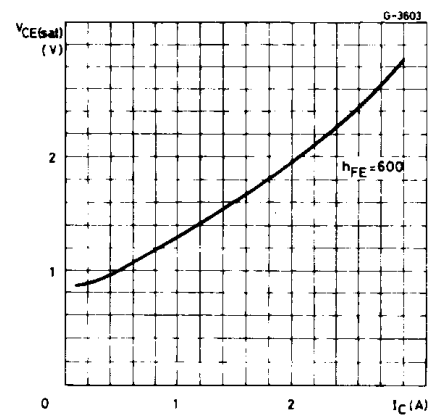


Figure 5. Collector Current vs. Input Voltage.

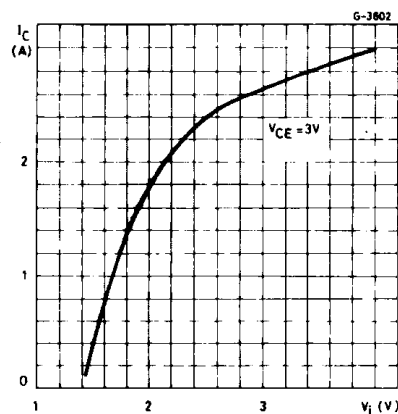


Figure 6. Input Current vs. Input Voltage.

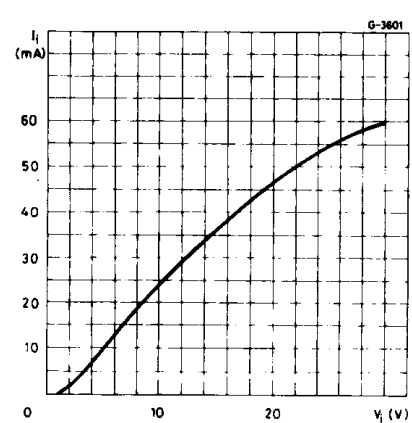


Figure 7. Safe Operating Areas (L702B).

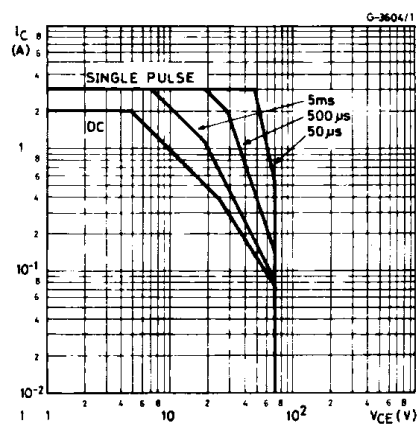
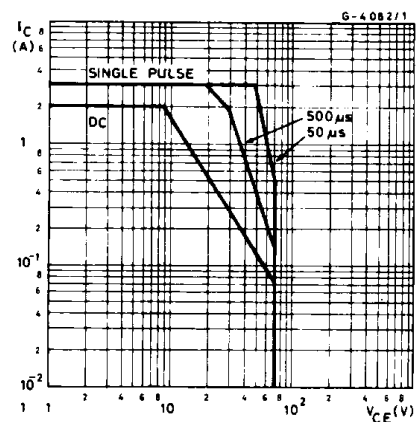
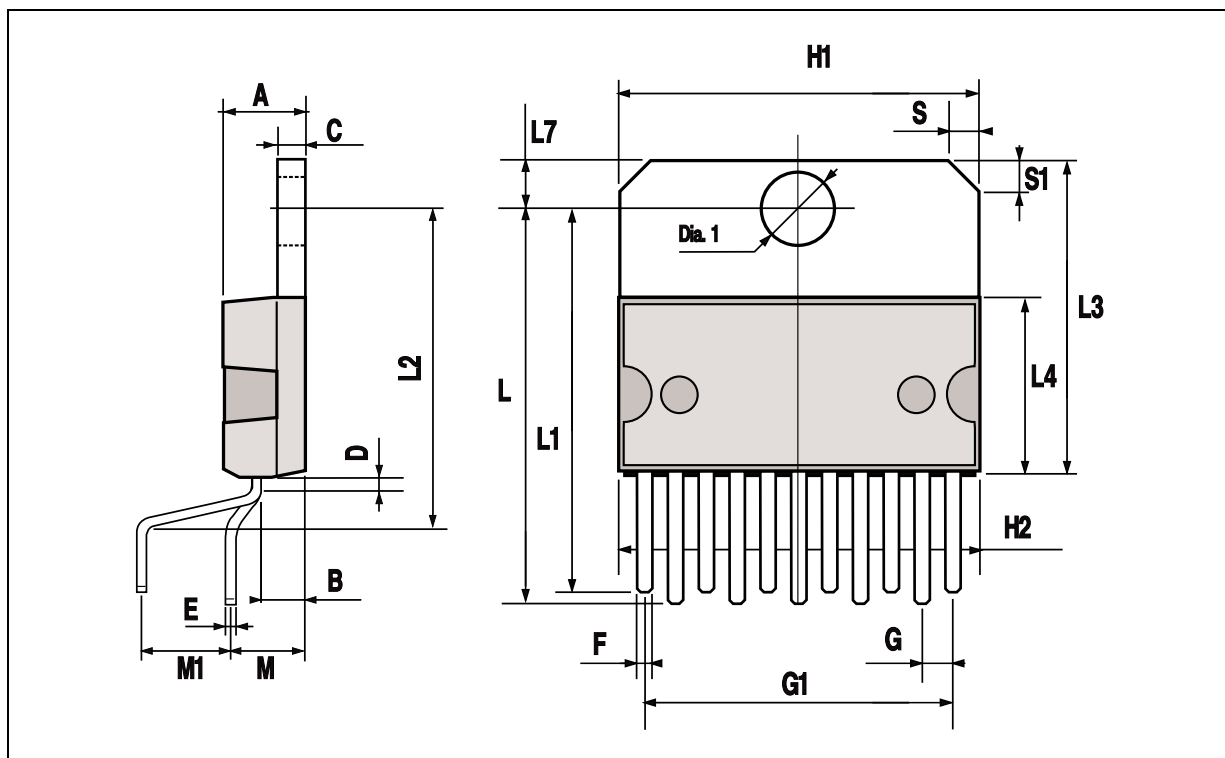


Figure 8. Safe Operating Areas (L702N).

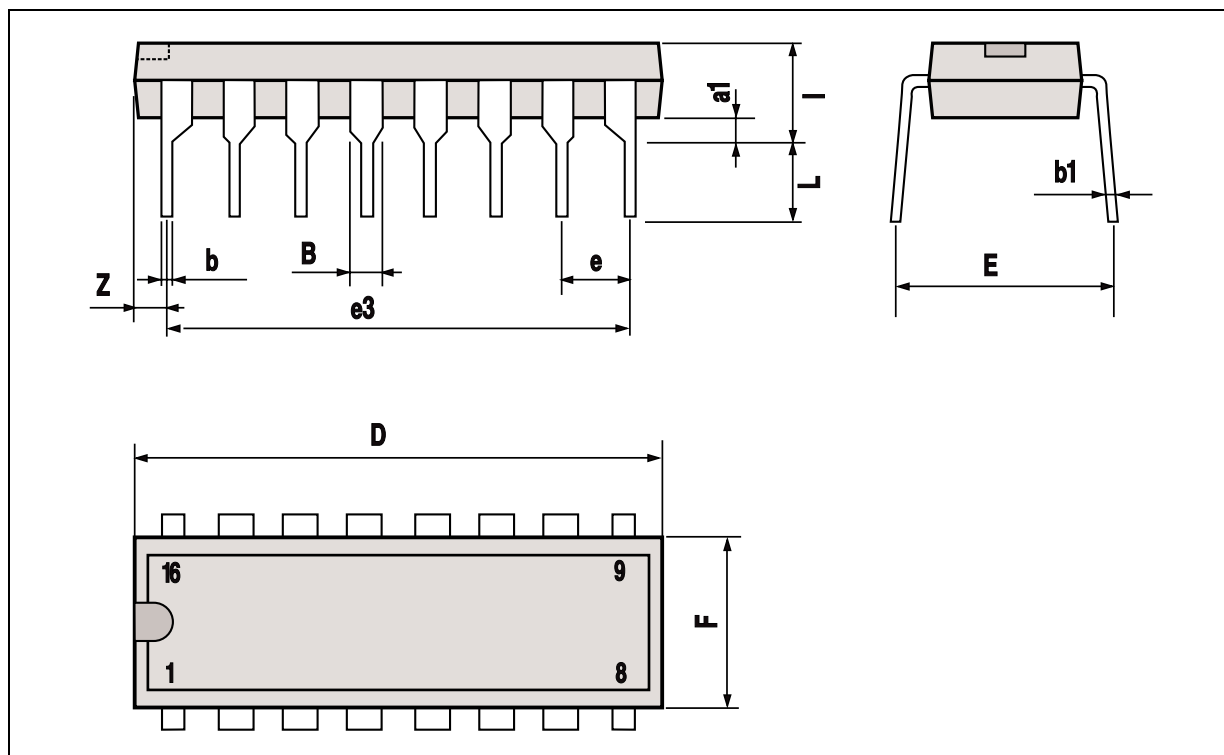


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.88		0.95	0.035		0.037
G	1.57	1.7	1.83	0.062	0.067	0.072
G1	16.87	17	17.13	0.664	0.669	0.674
H1	19.6			0.772		
H2			20.2			0.795
L	21.5		22.3	0.846		0.878
L1	21.4		22.2	0.843		0.874
L2	17.4		18.1	0.685		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.1	4.3	4.5	0.161	0.169	0.177
M1	4.88	5.08	5.3	0.192	0.200	0.209
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152



POWERDIP PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.85		1.40	0.033		0.055
b		0.50			0.020	
b1	0.38		0.50	0.015		0.020
D			20.0			0.787
E		8.80			0.346	
e		2.54			0.100	
e3		17.78			0.700	
F			7.10			0.280
I			5.10			0.201
L		3.30			0.130	
Z			1.27			0.050



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