L702

LINEAR INTEGRATED CIRCUIT

QUAD DARLINGTON SWITCH

- SUSTAINING VOLTAGE: MIN. 70V
- 2A OUTPUT
- HIGH CURRENT GAIN

The L 702 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.

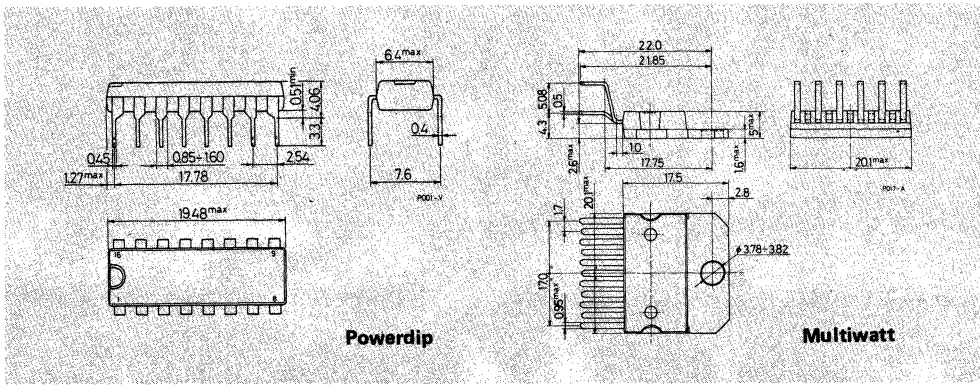
ABSOLUTE MAXIMUM RATINGS

V_{CEX}	Collector-emitter voltage (input open)		90	V
V_i	Input voltage		30	V
I_C	Collector current		2	A
I_C	Collector peak current (repetitive)		3	A
P_{tot}	Total power dissipation at $T_{pin\ 9\ to\ 16} \leqslant 90°C$	Powerdip	4	W
	Total power dissipation at $T_{amb} \leqslant 70°C$	Powerdip	1.1	W
	Total power dissipation at $T_{case} \leqslant 90°C$	Multiwatt	20	W
T_{stg}	Storage temperature		-55 to 150	°C
T_j	Operating junction temperature		-25 to 150	°C

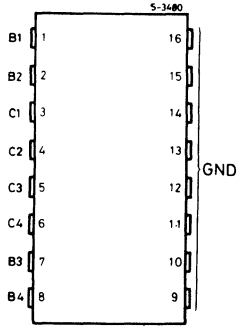
ORDERING NUMBER: L 702B - Powerdip
L 702N - Multiwatt

MECHANICAL DATA

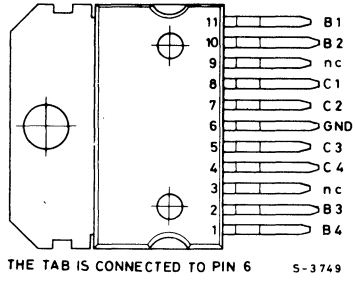
Dimensions in mm



CONNECTION DIAGRAMS (top view)

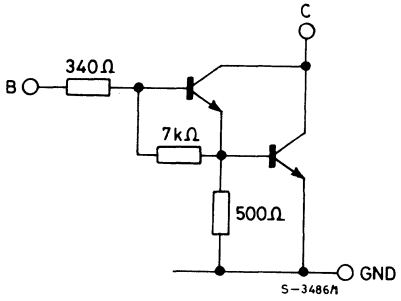


Powerdip



Multiwatt

SCHEMATIC DIAGRAM (each Darlington)



THERMAL DATA

$R_{th\ j\text{-}amb}$	Thermal resistance junction ambient	Powerdip	max	70	°C/W
$R_{th\ j\text{-}pins\ 9/16}$	Thermal resistance junction pins 9 to 16	Powerdip	max	14	°C/W
$R_{th\ j\text{-}case}$	Thermal resistance junction-case	Multiwatt	max	3	°C/W

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

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Output leakage current	V_{CE} = 90V		10	50	μA
$V_{CE\ (sust)}$	Collector emitter (°) sustaining voltage	I_C = 100 mA	70			V
$V_{CE\ (sat)}$	Collector emitter saturation voltage	I_C = 1.25A I_i = 2 mA		1.3	1.9	V
h_{FE}	DC forward current gain	I_C = 1A V_{CE} = 3V	1000	4000		
I_i	Input current	V_i = 3.75V V_i = 2.4V open collector		7 3	11 6	mA mA
V_i	Input voltage off condition	V_{CE} = 70V $I_C \leq$ 0.1 mA			0.4	V
	on condition	V_{CE} = 3V $I_C \geq$ 1A	2.4			V
t_{on}	Turn on time	V_s = 12V		0.3		μs
t_{off}	Turn off time	R_L = 10 Ω		1		μs

(°) Pulsed: pulse duration = 300 μs, duty cycle = 1.5%.

Fig. 1 - Switching time

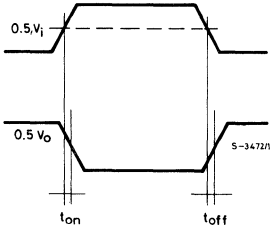


Fig. 2 - t_{on} and t_{off} test circuit

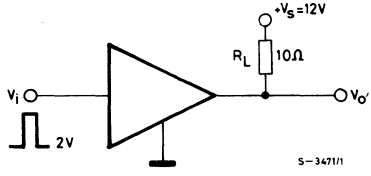


Fig. 3 - Peak collector current vs. duty cycle and number of outputs(L702B only)

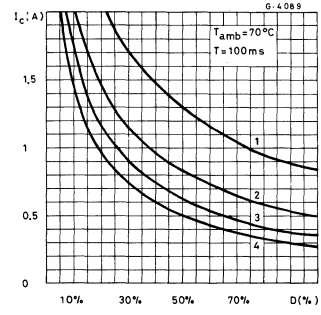


Fig. 4 - Collector emitter saturation voltage vs. collector current

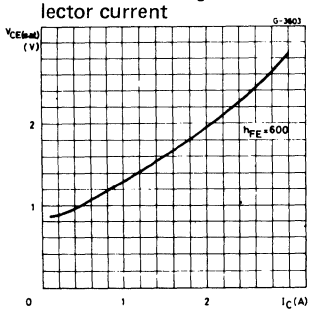


Fig. 5 - Collector current vs. input voltage

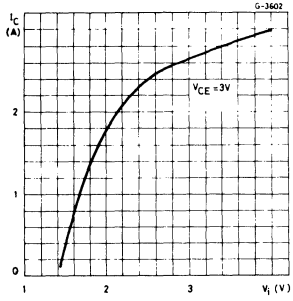


Fig. 6 - Input current vs. input voltage

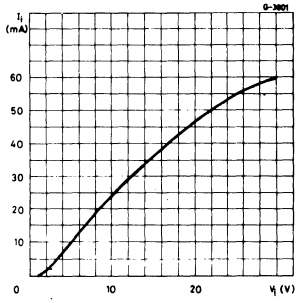


Fig. 7 - Safe operating areas (L702B)

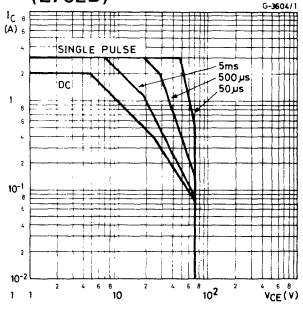


Fig. 8 - Safe operating areas (L702N)

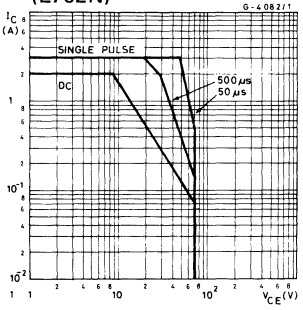
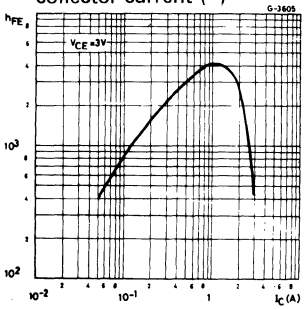


Fig. 9 - DC current gain vs. collector current (*)



(*) Pulse width = 300 μs, duty cycle 1.5%.

Fig. 10 - Stepping motor buffer