SGS-THOMSON MICROELECTRONICS

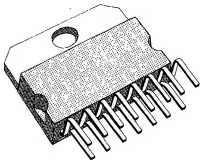
L7150
L7152

50 V QUAD DARLINGTON SWITCHES

- FOUR NPN DARLINGTONS WITH ISOLATED CONNECTIONS
- OUTPUT CURRENT TO 1.5 A EACH DARLINGTON
- MINIMUM BREAKDOWN 50 V
- MULTIWATT PACKAGE ALLOWS OPERATION AT 1.5 A, 50 V, 100 % DUTY CYCLE, ALL FOUR DEVICES ON
- INTEGRAL SUPPRESSION DIODES
- VERSIONS FOR 5 V AND 6-15 V LOGIC FAMILIES

The L7150 has 350 input resistors and is compatible with TTL, DTL, LSTTL and 5 V CMOS logic. The L7152 has 3 KΩ input resistors for use with 6-15 V CMOS and PMOS logic.

These devices are suitable for driving a wide range of inductive and non-inductive loads including DC motors, stepper motors, solenoids, relays, lamps, multiplexed LEDs and heaters.



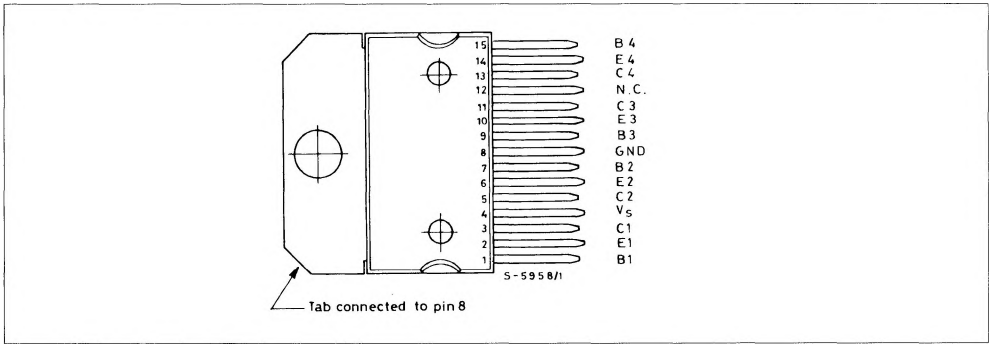
Multiwatt-15

ORDER CODES : L7150
L7152

DESCRIPTION

The L7150 and L7152 are 1.5 A quad darlington arrays mounted in the 15-lead Myltiwatt® plastic package. Each darlington is equipped with a suppression diode for inductive loads and all three terminals are isolated.

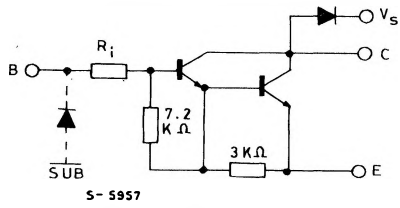
CONNECTION DIAGRAM (top view)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEX}	Output Voltage	50	V
I_o	Output Current	1.75	A
V_I	Input Voltage	30	V
I_B	Input Current	25	mA
P_{tot}	Power Dissipation (T_{case} = 75 °C)	25	W
T_{amb}	Operating Ambient Temperature Range	0 to 70	°C
T_{stg}	Storage Temperature	– 55 to 150	°C

SCHEMATIC DIAGRAM



L7150 : R_{IN} = 350Ω
L7152 : R_{IN} = 3KΩ

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

Symbol	Parameter	Test Condtions	Min.	Typ.	Max.	Unit	Fig.
I_{CEX}	Output Leakage Current	V_{CE} = 50 V T_{amb} = 70°C V_{CE} = 50 V			100 500	µA µA	1
$V_{CER\ (sus)}$	Collector-emitter Sustaining Voltage*	I_C = 100 mA V_i = 0.4 V	35			V	2
$V_{CE\ (sat)}$	Collector-emitter Saturation Voltage	I_C = 500 mA I_B = 625 µA I_C = 750 mA I_B = 935 µA I_C = 1 A I_B = 1.25 mA I_C = 1.25 A I_B = 2 mA			**1.15** **1.3** **1.4** **1.5**	V V V V	3
$I_{i(on)}$	Input Current	for **L7150** V_i = 2.4 V for **L7150** V_i = 3.75 V for **L7152** V_i = 5 V for **L7152** V_i = 12 V	**1.4** **3.3** **0.6** **0.7**		4.3 9.6 1.8 5.2	mA mA mA mA	4
$V_{i(on)}$	Input Voltage	for **L7150** V_{CE} = 2 V I_C = 1 A V_{CE} = 2 V I_C = 1.5 A for **L7152** V_{CE} = 2 V I_C = 1 A V_{CE} = 2 V I_C = 1.5 A			 2 2.5 6.5 10	 V V V V	5
t_{PLH}	Turn-on Delay Time	0.5 V_i to 0.5 V_o			1	µs	
t_{PHL}	Turn-off Delay Time	0.5 V_i to 0.5 V_o			1.5	µs	

(*) $t_{(sus)}$ = 10 µs.

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	3	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	35	°C/W

TEST CIRCUIT

Figure 1.

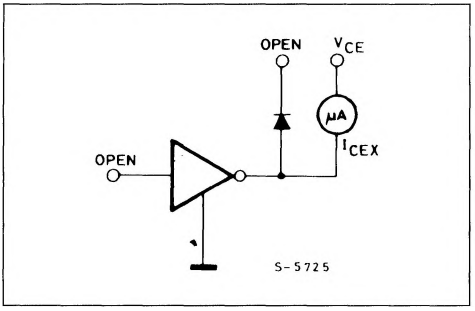


Figure 2.

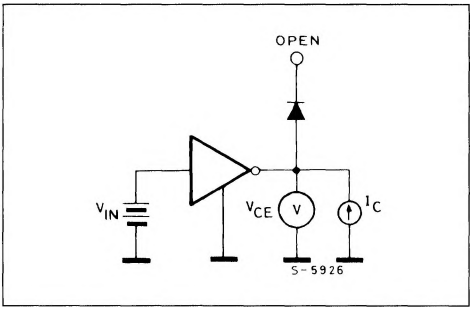


Figure 3.

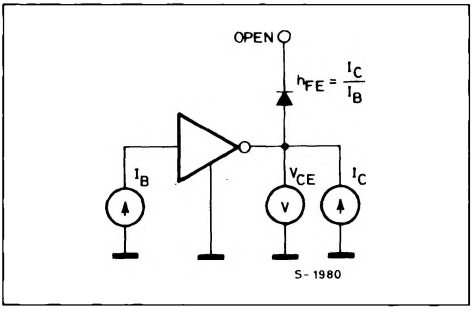


Figure 4.

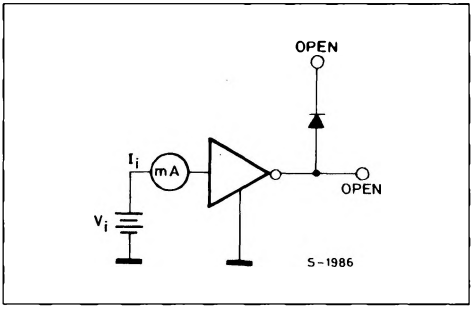
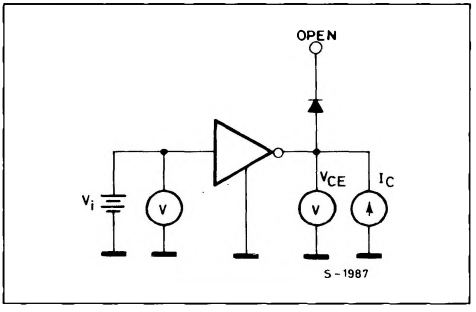


Figure 5.



MOUNTING INSTRUCTIONS

The power dissipated in the circuit must be removed by adding an external heatsink.

Thanks to the Multiwatt® package attaching the heatsink is very simple, a screw or compression spring (clip) being sufficient. Between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact ; no electrical isolation is needed between the two surfaces.

Figure 6 : Mounting Example.