

INTERFACE CIRCUIT - RELAY AND LAMP-DRIVER

- HIGH OUTPUT CURRENT
- ADJUSTABLE SHORT-CIRCUIT PROTECTION
- THERMAL PROTECTION WITH HYSTERESIS TO AVOID THE INTERMEDIATE OUTPUT LEVELS
- LARGE SUPPLY VOLTAGE RANGE : + 8 V to + 45 V

DESCRIPTION

The TDE1737-TDF1737 is a monolithic amplifier designed for high current and high voltage applications, specifically to drive lamps, relays and control of stepper motors.

This device is essentially blow-out proof. Current limiting is available to limit the peak output current to a safe value, the adjustment only requires one external resistor. In addition, thermal shut down is provided to keep the I.C. from overheating. If internal dissipation becomes too great, the driver will shut down to prevent excessive heating.

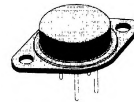
The output is also protected against short-circuits with the positive power supply.

The device operates over a wide range of supply voltages from standard ± 15 V operational amplifier supplies down to the single + 12 V or + 24 used for industrial electronic systems.

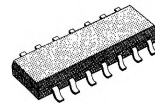
ORDER CODES

Part Number	Temperature Range	Package		
		CM	DP	FP
TDE1737	- 25 °C to + 85 °C	•	•	•
TDF1737	- 40 °C to + 85 °C		•	•

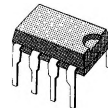
Example : TDE1737DP



METAL CAN
CM SUFFIX

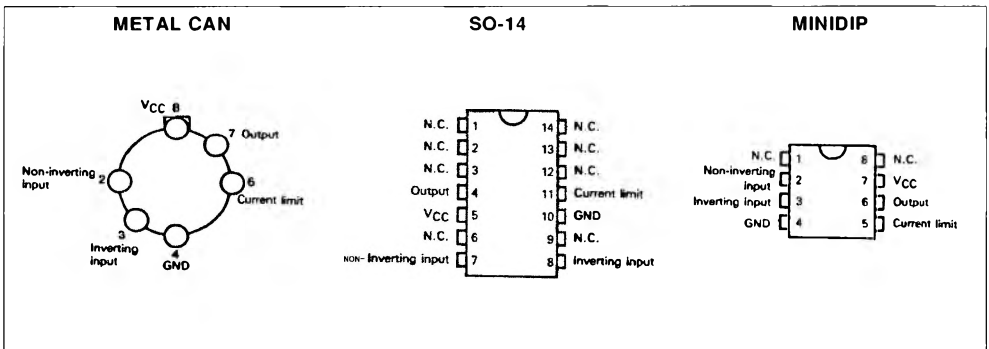


SO-14 J
FP SUFFIX



MINIDIP/2
DP SUFFIX

PIN CONNECTION (top views)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	
V_s	Supply Voltage	50	V	
V_I	Input Voltage	50	V	
V_{ID}	Differential Input Voltage	50	V	
I_O	Output Current	1000	mA	
P_{tot}	Power Dissipation	Internally Limited	W	
T_{oper}	Operating Free-air Temperature Range	TDE1737	- 25 to + 85	°C
T_{oper}	Operating Free-air Temperature Range	TDF1737	- 40 to + 85	°C
T_{stg}	Storage Temperature Range		- 65 to + 150	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit	
$R_{th(j-c)}$	Maximum Junction-case Thermal Resistance	METAL CAN	45	°C/W
		MINIDIP	50	
$R_{th(j-a)}$	Maximum Junction-ambient Thermal Resistance	METAL CAN	185	°C/W
		MINIDIP	120	
	Junction-ceramic Substrate (case glued to substrate)	SO14	90	°C/W
	Junction-ceramic Substrate (case glued to substrate, substrate temperature maintained constant)	SO14	65	°C/W

ELECTRICAL CHARACTERISTICS

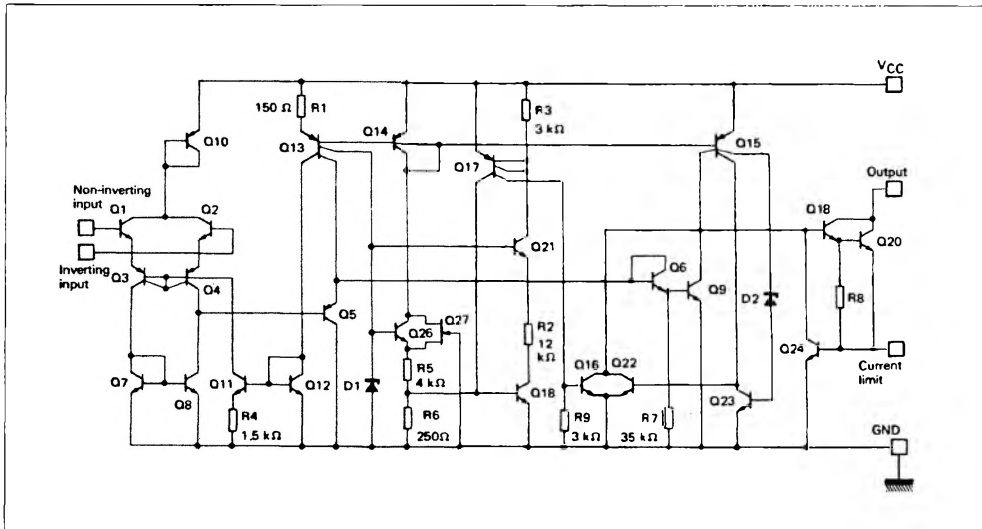
TDE1737 - 25 °C ≤ T_{amb} ≤ + 85 °C, + 8 V ≤ V_{CC} ≤ + 45 V, I_O ≤ 300 mA, T_j ≤ + 150 °C
(unless otherwise specified)

TDF1737 - 40 °C ≤ T_{amb} ≤ + 85 °C, + 8 V ≤ V_{CC} ≤ + 45 V, I_O ≤ 300 mA, T_j ≤ 150 °C

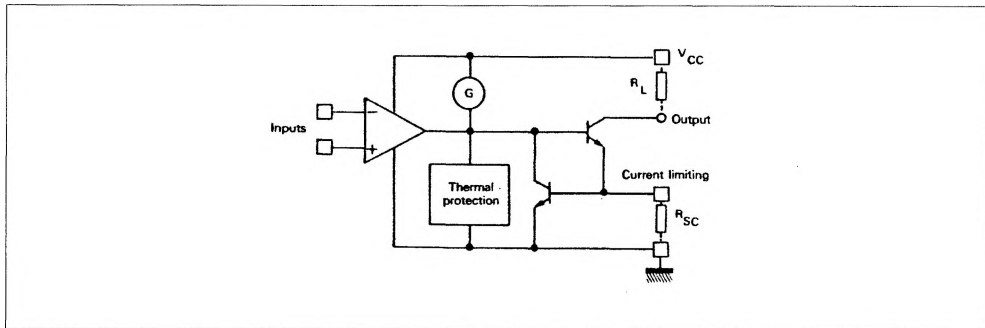
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{IO}	Input Offset Voltage - (note 1)	-	2	50	mV
I_{IB}	Input Bias Current	-	0.1	1.5	μA
I_{CC}	Supply Current ($V_{CC} = + 24$ V, $I_O = 0$)	-	3	5	mA
V_{CM}	Common-mode Input Voltage Range	2	-	$V_{CC}-2$	V
I_{SC}	Short-circuit Current Limit ($R_{SC} = 1.5 \Omega$, $T_{case} = + 25$ °C)	-	500	-	mA
$V_{CC}-V_O$	Output Saturation Voltage (output low) ($V_I^+ - V_I^- \geq 50$ mV, $I_O = 300$ mA, $R_{SC} = 0$)	-	1	1.5	V
I_{OL}	Output Leakage Current (output high) ($V_O = V_{CC} = + 24$ V, $T_{amb} = + 25$ °C)	-	-	10	μA

- Notes :**
1. The offset voltage given is the maximum value of input voltage required to drive the output voltage within 2 V of the ground or the supply voltage.
 2. Devices bonded on a 40 cm² glass-epoxy printed circuit 0.15 cm thick with 4 cm² of cooper.

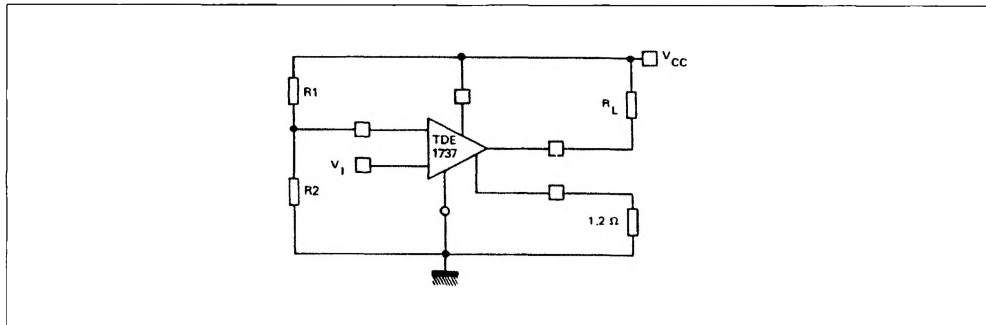
SCHEMATIC DIAGRAM



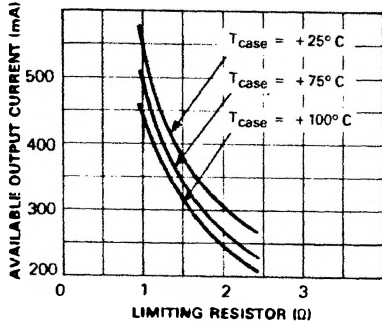
SIMPLIFIED SCHEMATIC



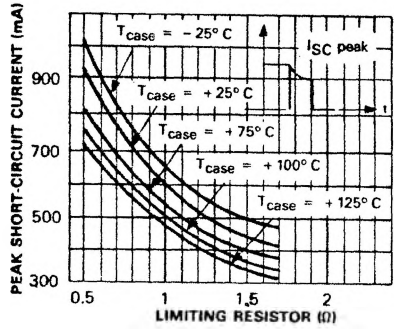
TYPICAL APPLICATION -



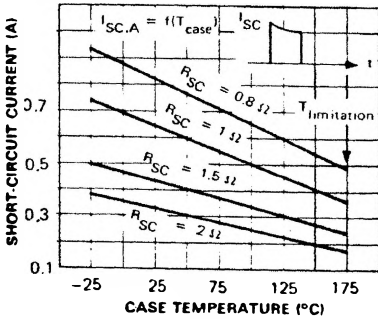
Available output current versus limiting resistors



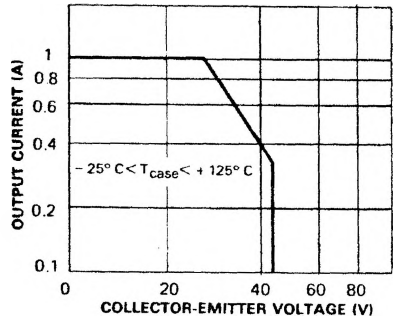
Peak short-circuit current versus limiting resistor



Short-circuit current versus case temperature



Safe operating area (non repetitive overload)



Saturation voltage versus output current

