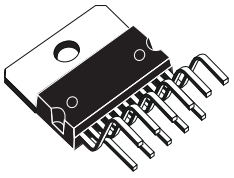
TDF1779A

DUAL 2-A SOURCE DRIVER

- OUTPUT CURRENT UP TO 2.5 A
- WIDE RANGE OF SUPPLY VOLTAGE : + 8 V TO + 26 V
- CAN WITHSTAND OVERVOLTAGES OF AS HIGH AS 60 V BETWEEN V_{CC} AND GROUND
- OUTPUT VOLTAGE CAN SWING TO LOWER THAN GROUND
- "SENSE" AND "ALARM" OUTPUTS ARE OPEN COLLECTOR OUTPUTS

MULTIWATT-11



ORDERING NUMBER : TDE 1779ASP

DESCRIPTION

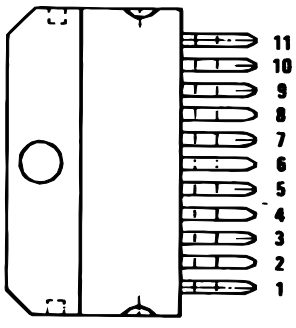
The TDF1779A is a dual source driver delivering hihg output currents and the capability to drive highly inductive loads (Electrovalves, contractors, relays...).

This device is essentially blow-out proof, each output is protected against short-circuits. If internal dissipation becomes too high, drivers will shut down to prevent excessive heating. An "ALARM" output is provided to indicate the action of the thermal protection. To reactivate the power outputs, the reset input must be forced to low state.

"SENSE" information of both power outputs are ORed together and then processed internally.

A "STROBE" input is also provided to offer the possibility of disabling the power outputs.

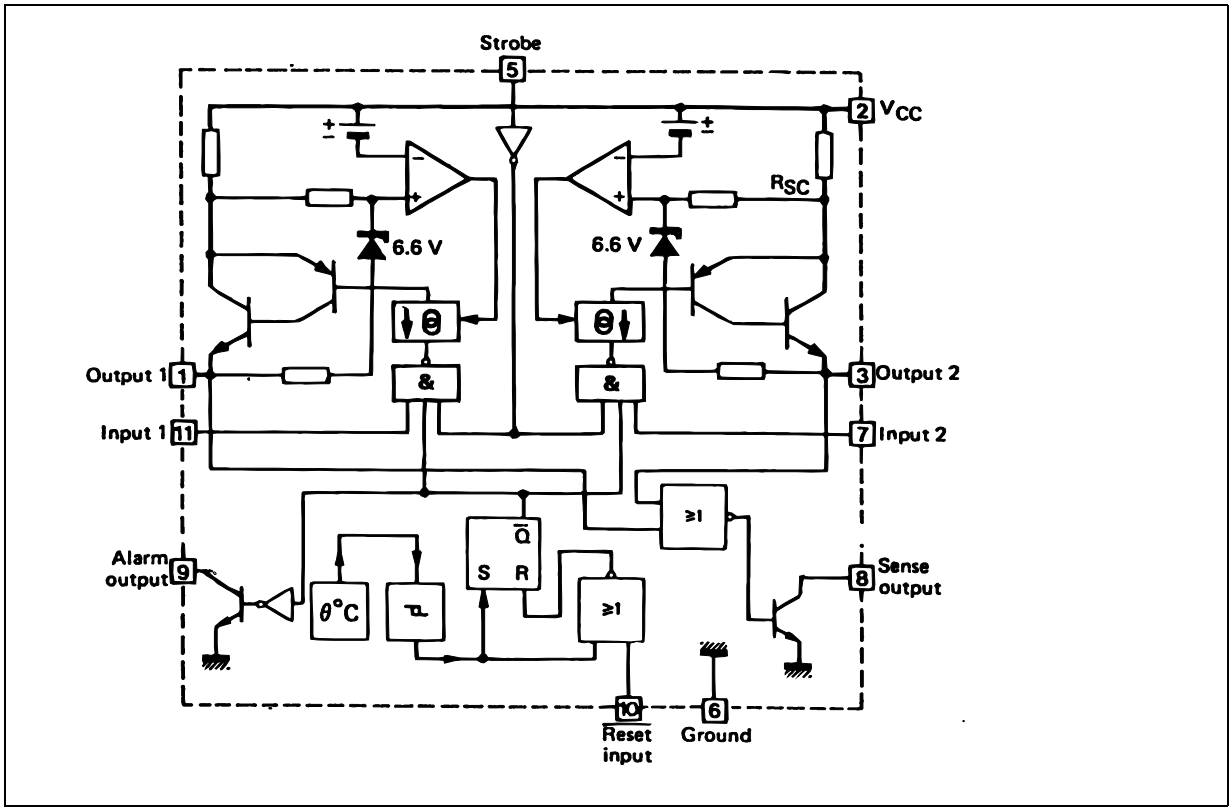
PIN CONNECTION



Tab is connected to pin 6

1 - Output 1
2 - V_{CC}
3 - Output 2
4 - N.C.
5 - Strobe
6 - Ground
7 - Input 2
8 - Sense output
9 - Alarm output
10 - Reset input
11 - Input 1

BLOCK DIAGRAM



MAXIMUM RATINGS

Symbol	arameter	Value	Unit
V_{CC}	Supply Voltage	35 V (60 V/10 ms)	V
V_I, V_{reset}	Input Voltage (Pins 7, 10 and 11)	– 30 to + 50	V
V_{strobe}	Strobe Input Voltage	– 0.5 to V_{CC}	V
I_O	Output Current	Internally Limited	A
P_{tot}	Power Dissipation	Internally Limited	W
T_{oper}	Operating Ambient temperature Range	– 40 to + 85	°C

THERMAL CHARACTERISTICS

Symbol	Parameter		Value	Uni
$R_{th\ (j\text{-}c)}$	Junction-case Thermal Resistance	Max.	3	°C/W
$R_{th\ (j\text{-}a)}$	Junction-ambient Thermal Resistance	Max.	40	°C/W

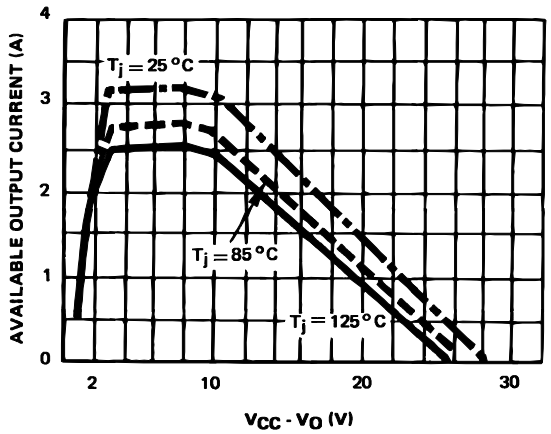
ELECTRICAL OPERATING CHARACTERISTICS

(V_{CC} = + 24V, –40°C < T_j < + 85°C, unless otherwise specified)

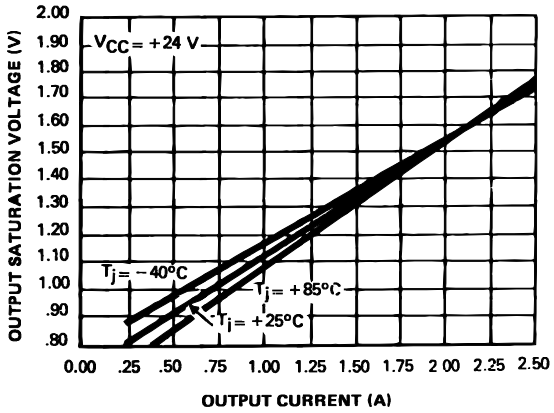
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Power Supply Voltage	8	-	26	V
I_{CC}	Power Supply Current (pin 6), I_{O1} =I_{O2} = 2A	-	-	20	mA
V_{IL} V_{IH}	Logic Input Voltage (pin 7,10,11)	- 2	- -	0.8 -	V
V_I	Logic Input Threshold (pin 5)	-	0.8	-	V
I_{IH}	High Level Input Current (pins 7,10,11) V_I = + 2V	-	20	50	µA
I_{IL}	Low Level Input Current (pins 7,10,11) V_I = + 0.8V	– 5	0	+ 5	µA
-	Off State Output Voltage (pins 8,9) |(8) = |(9) = 2 mA	-	-	0.4	V
$V_{CC} – V_{01}$ $V_{CC} – V_{02}$	Output Saturation Voltage (V(7) high, V(11) High, I_O = 2A)	-	1.5	1.8	V
I_{OL}	Low Level Output Current pins 1,3) V(7) Low, V(11) Low, V_O = 0V	-	400	1000	µA
$V_{CC} – V_{01}$ $V_{CC} – V_{02}$	Switch-off Output Voltage (inductive load) Note 1	-	-	45	V
I_O1, I_{O2}	Available Ouptut Current (pins 1,3), V(7) high, V(11p) high, $V_{CC} – V_O$ = 26V, T_j = 25°C	10	-	-	mA
$I_{O\ Alarme}$	Available "Alarme" Output Current, V(9) = + 4V	4	8	-	mA
$I_{O\ Sense}$	Available "Sense Ouptut Current, V(8) = + 4V	4	8	-	mA
$I_{IH\ Sense}$	Output Sensing high Level Input Current (pins 1,3) V_I = +2V	-	1	2	mA

Note 1 : An external discharge circuit is required for inductive loads

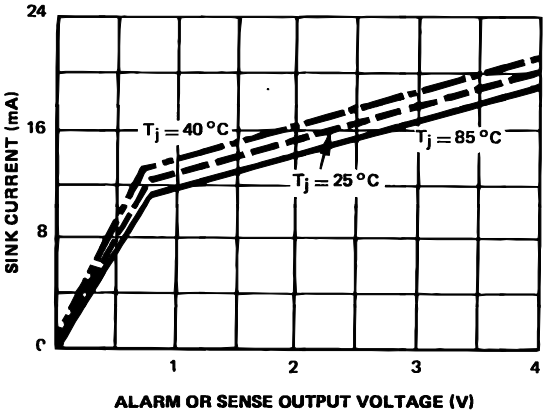
AVAILABLE OUTPUT CURRENT



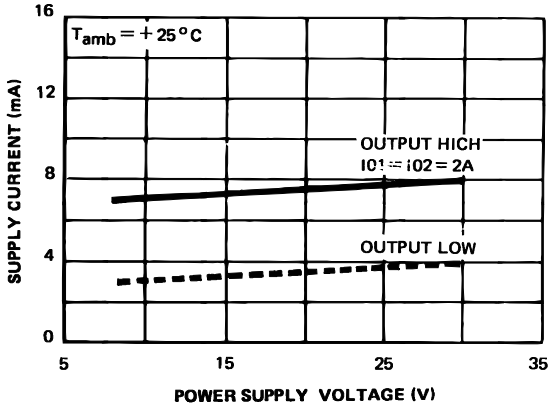
OUTPUT SATURATION VOLTAGE



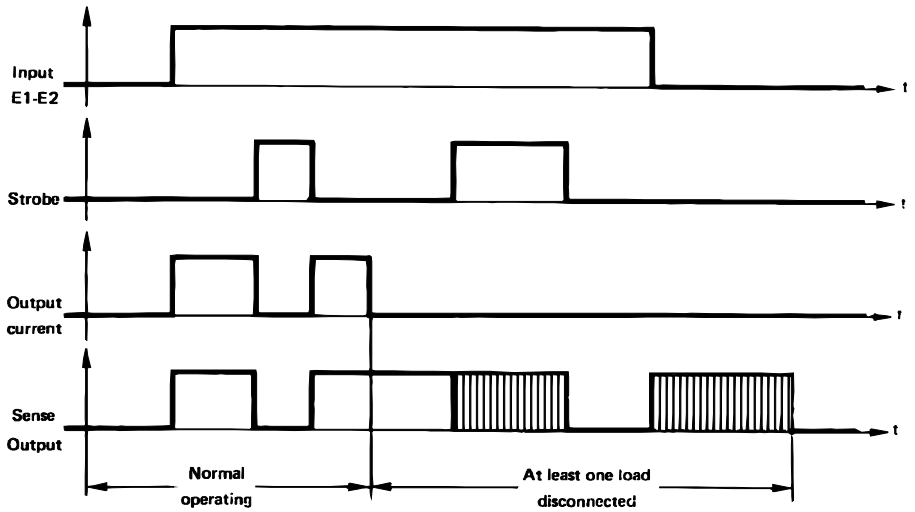
AVAILABLE ALARM OR SENSE OUTPUT CURRENTS



POWER SUPPLY CURRENT

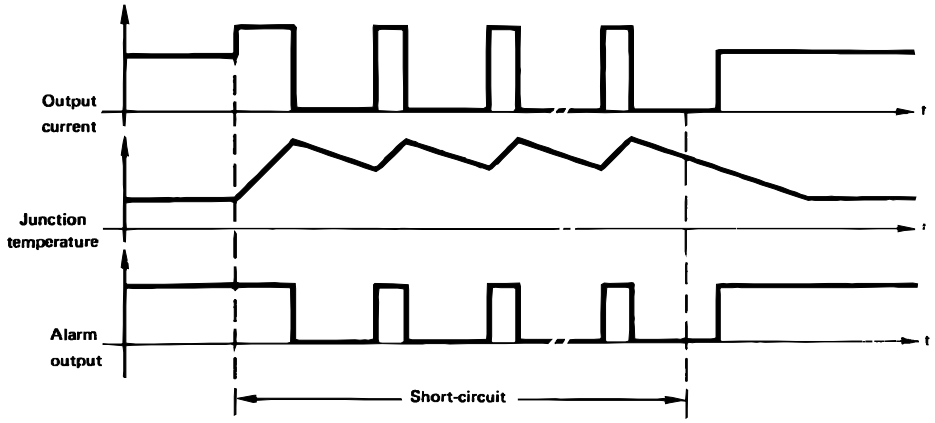


OPEN LOAD DETECTION

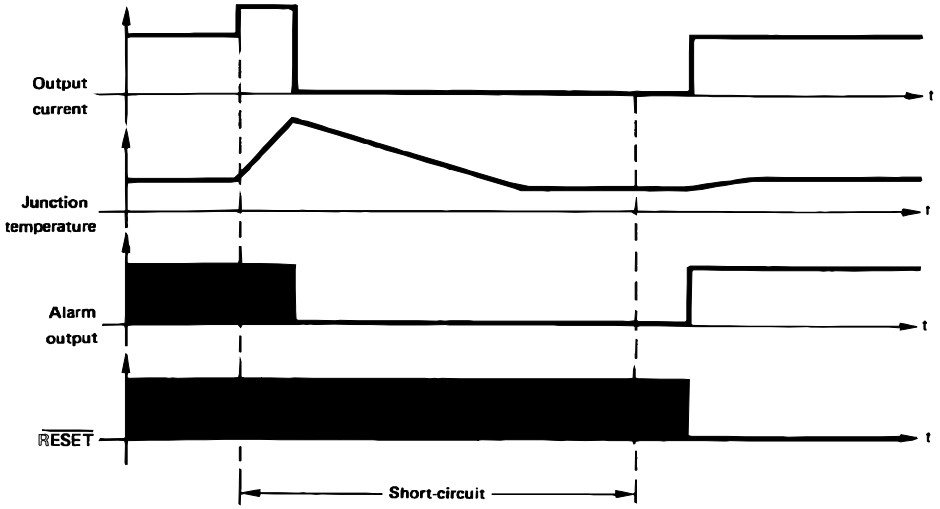


Open load detection is possible during the hachured aeras

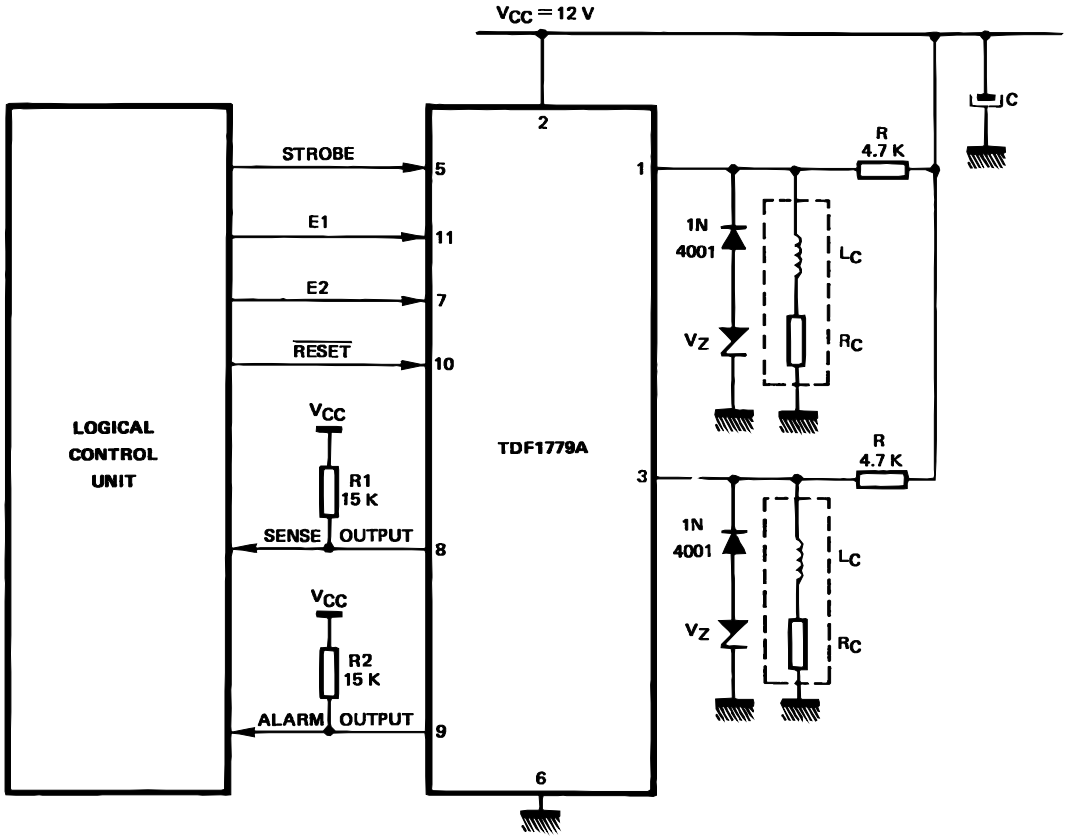
SHORT CIRCUIT CONDITIONS WAVEFORMS WITH AUTOMATIC RESET $\overline{RESET} = 0$



SHORT CIRCUIT CONDITIONS WAVEFORMS WITH CONTROLLED RESET $\overline{RESET} = 1$



TYPICAL APPLICATION WITH TDF1779A TWO LOADS 12 V - 2 A

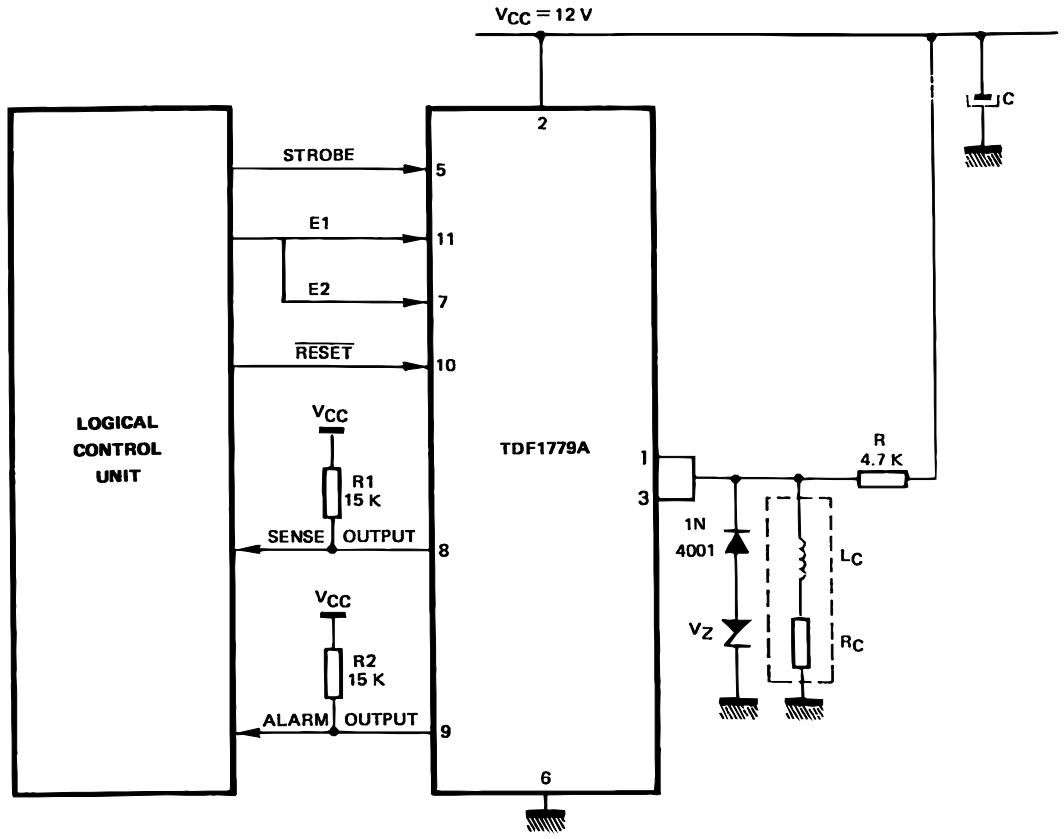


Load : $R_C = 6\ \Omega$
The external Zener diode must dissipate the power stored in the inductance L_C.
$R_1min = V_{CC}/4$ mA, $R_2min = V_{CC}/4$ mA, $Rmax = V_{CC}/1$ mA.

MAIN FEATURES

This application is protected against for short circuit and overload.
The load disconnection is detected when inputs E_1 and E_2 are low and the sense output is high.
When thermal protection is actived the pin 9 is low. Inputs are TTL compatible.
Sense output, Alarm output are open collector.

TDF1779A HIGHT CURRENT APPLICATION WITH LOAD 12 V - 4 A



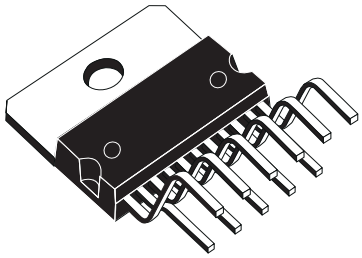
Load : $R_C = 3\ \Omega$
The external Zener diode must dissipate the power stored in the inductance Lc.
$R_1min = V_{CC}/4$ mA, $R_2min = V_{CC}/4$ mA, $Rmax = V_{CC}/2$ mA.

MAIN FEATURES

This application has the same features as the dual 2 A - 12 V application.

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	1.45	1.7	1.95	0.057	0.067	0.077
G1	16.75	17	17.25	0.659	0.669	0.679
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
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	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
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

OUTLINE AND MECHANICAL DATA



Multiwatt11 V