

Driver For IR Transmitter Diodes (Current Sink)

Technology: Bipolar

Features

- Constant current for IR signal 320 mA
- Undervoltage control with indicator driver
- Constant current output for control LED 100 mA
- Current stabilisation starts at $V_{CE} = 1\text{ V}$
- Control voltage $V_4 = 2\text{ to }13.2\text{ V}$
- Minimum driver current $I_4 = 0.4\text{ mA}$
- Additional switching transistor $I_C = 20\text{ mA}$

Package: SO8

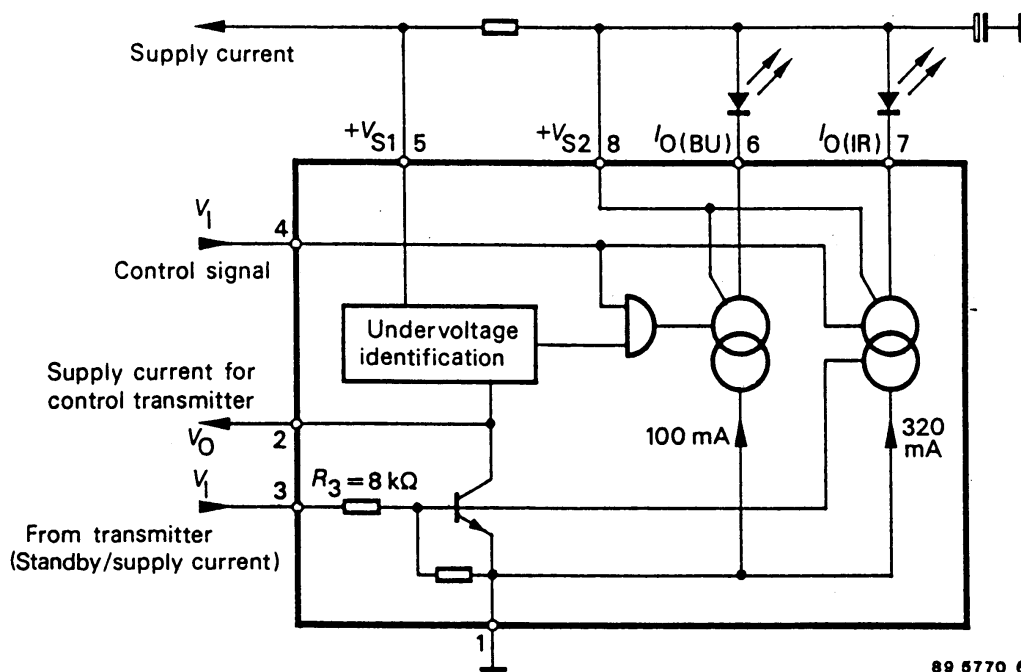


Figure 1. Block diagram

Pin Description

Pin	Symbol	Function
1	Ground	Negative supply terminal
2	V_O	Switching output (standby/ operation)
3	V_I	Control input (standby/ operation)
4	V_I	Signal input to drive the current source

Pin	Symbol	Function
5	V_{S1}	Positive supply voltage terminal
6	I_O	Undervoltage indicator output (battery control)
7	I_O	IR diode output signal
8	V_{S2}	Supply voltage for the control stages of constant current outputs

Absolute Maximum Ratings

Reference point Pin 1

Parameters	Symbol	Value	Unit
Supply voltage Pins 5 and 8	$+V_{S1, S2}$	≤ 14	V
Input voltage Pins 3 and 4	V_I	≤ 14	V
Output voltage Pins 2, 6 and 7	V_O	≤ 14	V
Collector current Pin 2	I_C	25	mA
Power dissipation $T_{amb} = 80^\circ\text{C}$	P_{tot}	150	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Ambient temperature range	T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to +125	$^\circ\text{C}$

Thermal Resistance

Parameters	Symbol	Value	Unit
Junction ambient	R_{thJA}	160	K/W

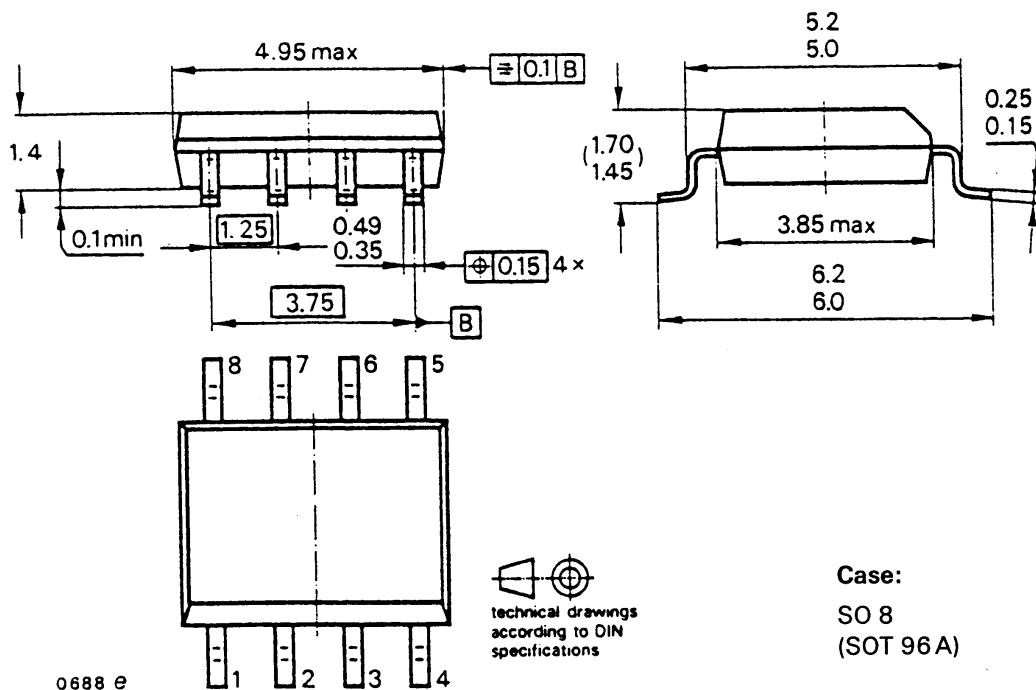
Electrical Characteristics

$V_{S1} = V_{S2} = 9\text{ V}$, $T_{amb} = 80^\circ\text{C}$, reference point Pin 1, unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 5	V_{S1}	2.8		13.2	V
	Pin 8	V_{S2}	2		13.2	V
Battery voltage control						
Switching threshold	U429B-FP Pin 5	V_{S1}	6.35	6.7	7.15	V
Regulated pulse output current						
IR-signal, $V_7 = 7\text{ V}$	Pin 7	I_O	240	320	400	mA
Undervoltage indicator						
$V_6 = 4\text{ V}$, @ $V_{S1} = V_{S2} = 4.5\text{ V}$	Pin 6	I_O	71	100	125	mA
IR-signal						
$V_7 = 3\text{ V}$, @ $V_{S1} = V_{S2} = 5\text{ V}$	Pin 7	I_O	192	250	328	mA
Undervoltage indicator						
$V_6 = 3\text{ V}$, @ $V_{S1} = V_{S2} = 4.5\text{ V}$	Pin 6	I_O	71	95	118	mA
Collector saturation voltage						
IR-signal $i_7 = 200\text{ mA}$	Pin 7	V_O			0.8	V
Undervoltage indicator						
$i_6 = 60\text{ mA}$, $V_{S1} = V_{S2} = 4.5\text{ V}$	Pin 6	V_O			0.8	V
Switching transistor						
$I_2 = 10\text{ mA}$, $V_3 = 4\text{ V}$	Pin 2	V_O			100	mV
$I_2 = 20\text{ mA}$, $V_3 = 7\text{ V}$	Pin 2	V_O			500	mV

Parameters	Test Conditions / Pin	Symbol	Min.	Typ.	Max.	Unit
Collector leakage current						
IR-signal	Pin 7	I_{CEO}			1	μA
Undervoltage indicator	Pin 6	I_{CEO}			0.5	μA
Switching transistor	Pin 2	I_{CEO}			0.3	μA
Driver	Pin 8	I_O			0.3	μA
Switching transistor, internal	Pin 5	I_O			0.3	μA
Control voltage range						
	Pin 3	V_I	2.5		13.2	V
	Pin 4	V_I	2.5		13.2	V
Control current						
	Pin 3	I_I	0.25			mA
	Pin 4	I_I	0.15			mA
Input resistance						
	Pin 3	R_I	3	6	9	$k\Omega$
	Pin 4	R_I	4	8	12	$k\Omega$

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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