

## Double Flasher

### Description

The bipolar circuit, U880B, is designed as a double flasher for wide range of applications. It has polarity and short-circuit protected stages for timely coupled outputs.

### Features

- Integrated oscillator
- $f_{\text{nominal}} = 3.3 \text{ Hz}$
- Supply voltage range: 4.75 to 20.4 V
- Polarity protected
- Two protected power stages
- Output current, 55 mA nominal

### Applications

- Toys
- Roboter
- LED switching

Case: TO 50

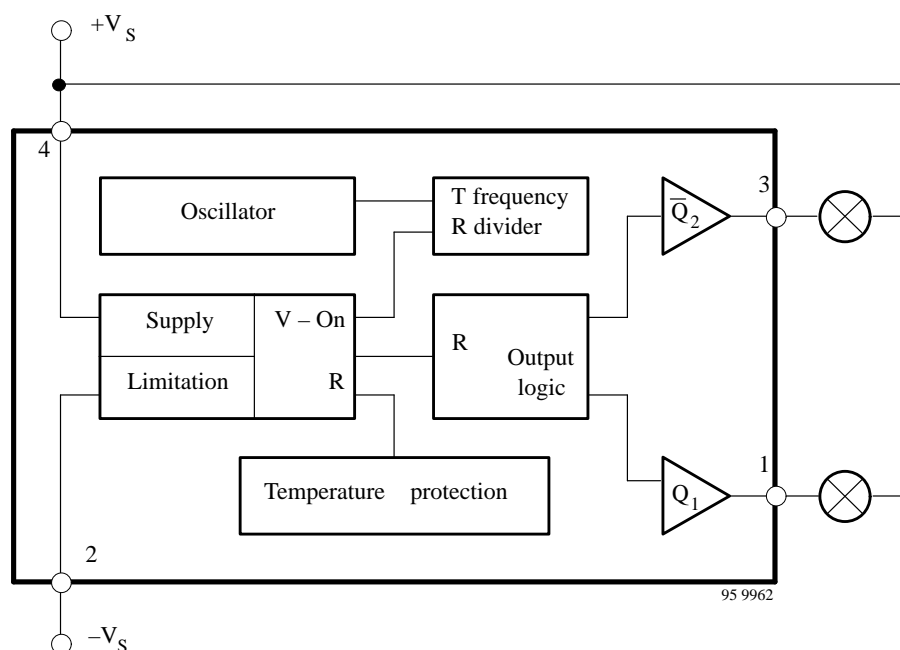


Figure 1. Block diagram with application

### Pin Description

Pin	Symbol	Function
Pin 1	$O_1$	Output $O_1$
Pin 3	$\overline{O}_2$	Output $\overline{O}_2$

Pin	Symbol	Function
Pin 2	$-V_S$	Supply, GND
Pin 4	$V_S$	Supply

## Absolute Maximum Ratings

Reference point Pin 2, unless otherwise specified

Parameters	Symbol	Value	Unit
Supply current	Pin 4 $I_S$	30	mA
Peak supply current $t \leq 10 \mu s$	Pin 4 $I_S$	150	mA
Supply voltage	Pin 4 $\pm V_S$	20.4	V
Output stage	Pin 1, 3 $V_O$	20.4	V
Peak current $t \leq 1 \text{ ms}; P_{\text{tot}} \leq 200 \text{ mW}$	Pin 1, 3 $I_O$	100	mA
	$-I_O$	150	
Power dissipation $T_{\text{amb}} = 45 \text{ }^\circ\text{C}$ $T_{\text{amb}} = 100 \text{ }^\circ\text{C}$	$P_{\text{tot}}$	200	mW
		80	
Storage temperature range	$T_{\text{stg}}$	-40 to +125	$^\circ\text{C}$
Ambient temperature range	$T_{\text{amb}}$	-10 to +100	$^\circ\text{C}$

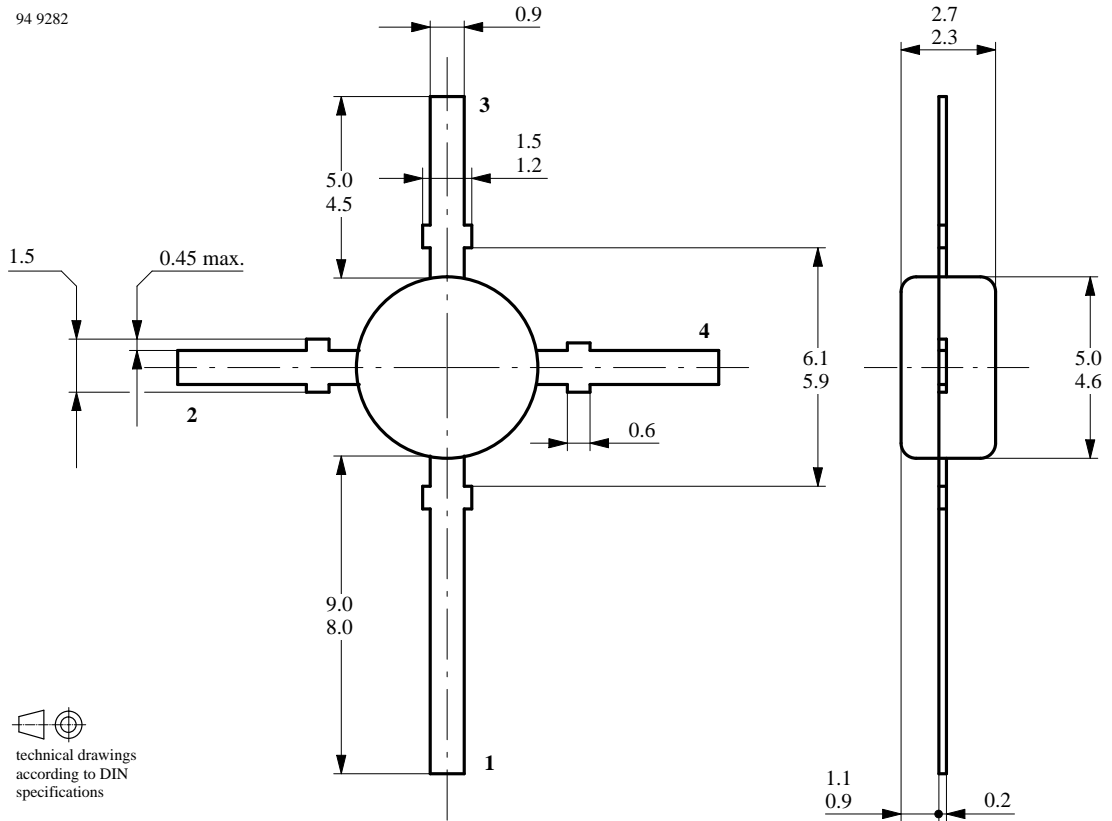
## Electrical Characteristics

Reference point Pin 2,  $V_S = 9$ ,  $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min	Typ	Max	Unit
Supply current	Pin 4					
	$V_{4 \text{ min}} = 4.75 \text{ V}$	$I_S$		3.2	4.9	mA
	$V_4 = 9.0 \text{ V}$			3.3	5.0	
$V_{4 \text{ max}} = 20.4 \text{ V}$			3.8	6.5		
Supply voltage limitation	$I_4 = 10 \text{ mA}$ Pin 4	$V_4$	20.8		24.2	V
<b>Voltage monitoring</b> Pin 4						
ON-Threshold		$V_4$		4.2	4.75	V
OFF-Threshold		$V_4$		3.0		V
Output stage	Switched off	$V_4$		3.8		V
Temperature coefficient		TC		0.025		%/K
<b>Oscillator</b>						
Clock frequency	Pins 1 and 3	f	2.0		4.0	Hz
Temperature coefficient		TC		0.025		%/K
Voltage coefficient	$T_j = 45 \text{ }^\circ\text{C}$	VC		0.5		%/V
	$T_j = 100 \text{ }^\circ\text{C}$			1.0		
<b>Output stage</b> Pins 1 and 3						
Saturation voltage	$V_4 = 6.0 \text{ V}; I_o = 25 \text{ mA}$	$V_O$	250		700	mV
Current limitation	$V_4 = 8 \text{ V}; V_{1,3} = 7.5 \text{ V}$	$I_O$		55	80	mA
	$V_4 = 9 \text{ V}; V_{1,3} = 2.0 \text{ V}$		35	50		
Temperature coefficient		TC		0.5		%/K
Voltage limitation	$-I_O = 1 \text{ mA}$	$V_O$	20.4		24.2	V
	$I_O = 30 \text{ mA}$		-1.1		-0.4	
Leakage current	$V_{1,3} = 10 \text{ V}$ Pin 1, 3	$I_O$			20	$\mu\text{A}$
Over temperature limitation	$V_4 = 5 \text{ V}$	$T_j$		130		$^\circ\text{C}$
	$V_4 = 9 \text{ V}$			145		

**Dimensions in mm**

Package: JEDEC TO 50



## 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.**

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