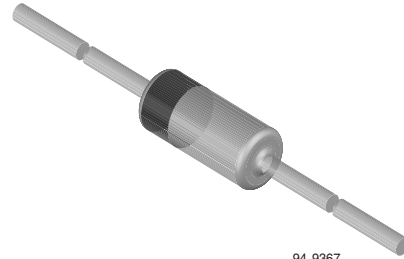


## Voltage Stabilizers

### Features

- Temperature-Compensated Stabilizing Circuits
- Monolithic linear integrated circuits with extremely short thermal run-in time producing a constant temperature-compensated voltage. They are particularly suitable for stabilizing the tuning voltage in radio and TV tuners employing voltagevariable capacitance diodes.



94 9367

### Mechanical Data

**Case:** DO-35 Glass Case

**Weight:** approx. 0.13 g

**Packaging codes/options:**

TR/ 10K per 13 " reel (52 mm tape), 30 K/box

TAP/ 10K per Ammo tape, (52 mm tape), 30 K/box

### Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Operating Current (see Table "Characteristics")				
Junction temperature		$T_J$	150	$^{\circ}\text{C}$
Storage temperature range		$T_S$	- 20 to + 150	$^{\circ}\text{C}$

### Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Min	Typ.	Value	Unit
Temperature Coefficient of the operating voltage	$I_Z = 5\text{ mA} \pm 0.5$ in the range of $T_{amb} = 20$ to $60\text{ }^{\circ}\text{C}$	$\alpha_{V_Z}$	- 10	- 2	+ 5 <sup>1)</sup>	$10^{-5}/^{\circ}\text{C}$
Thermal Run-in-Time		$t_{th}$		- 20 <sup>2)</sup>		s
Thermal resistance junction to ambient air		$T_{\theta JA}$			400	$^{\circ}\text{C}/\text{W}$

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case

<sup>2)</sup> At the end of this time  $\Delta V_Z$  has reached 90 % of its final value  $\Delta V_Z \text{ max}$ .  $\Delta V_Z \text{ max} = V_Z(a) - V_Z(0)$ , where  $V_Z(0) = V_Z$  in the instant of turn-on and  $V_Z(a) = V_Z$  at thermal equilibrium

## Electrical Characteristics

Partnumber	Operating Voltage $V_Z @ I_Z = 5 \text{ mA}^{(3)}$	Dynamic resistance $r_{zj} @ I_Z = 5 \text{ mA}$	Permissible operating $I_{Zmax} @ T_{amb} = 25 \text{ }^\circ\text{C}^{(4)}$
	V	W	$\Omega$
ZTK6.8	6.4 to 7.1	10(<25)	36
ZTK9	8 to 10	10(<25)	27
ZTK11	10 to 12	10(<25)	1
ZTK18	16 to 20	11(<25)	13
ZTK22	20 to 24	11(<25)	1
ZTK27	24 to 30	12(<25)	8
ZTK33A	30 to 32	12(<25)	7
ZTK33B	32 to 34	12(<25)	7
ZTK33C	34 to 36	12(<25)	7

<sup>3)</sup> Tested with pulses  $t_p = 5 \text{ ms}$

<sup>4)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.

## Typical Characteristics ( $T_{amb} = 25 \text{ }^\circ\text{C}$ unless otherwise specified)

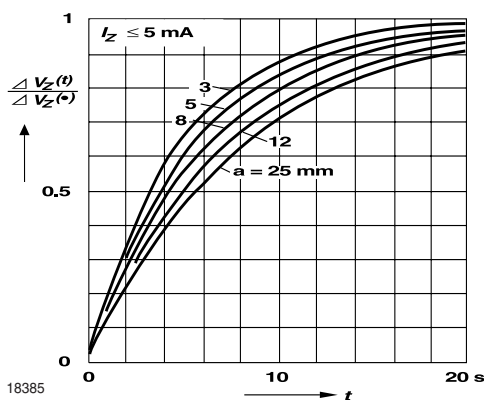


Figure 1. Time dependence

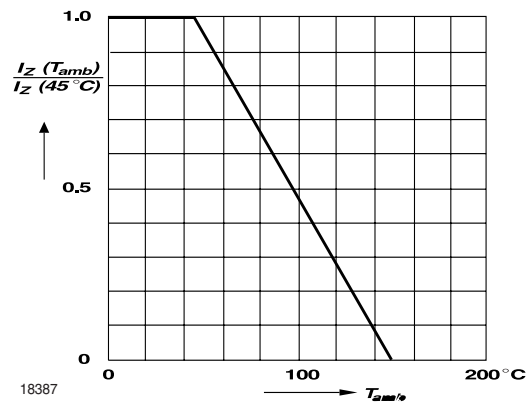


Figure 3. Permissible operating current versus ambient temperature

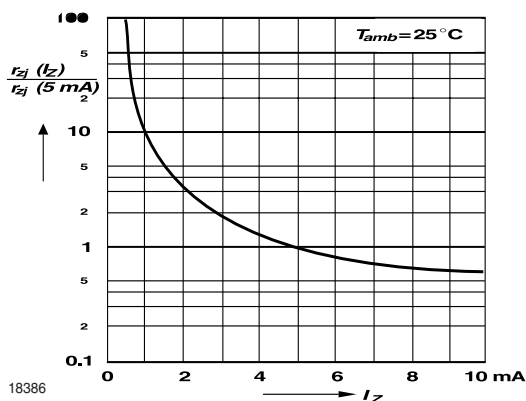


Figure 2. Dynamic resistance versus operating current

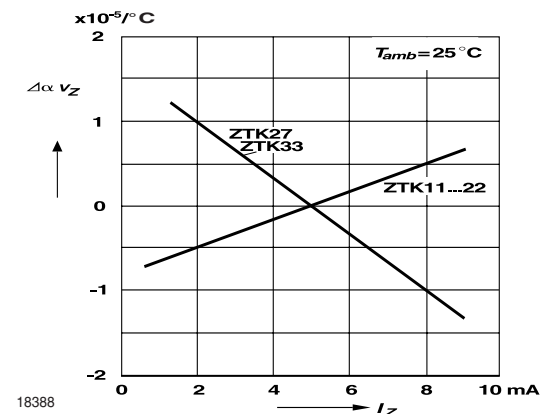


Figure 4. Change of temperature coefficient versus operating current

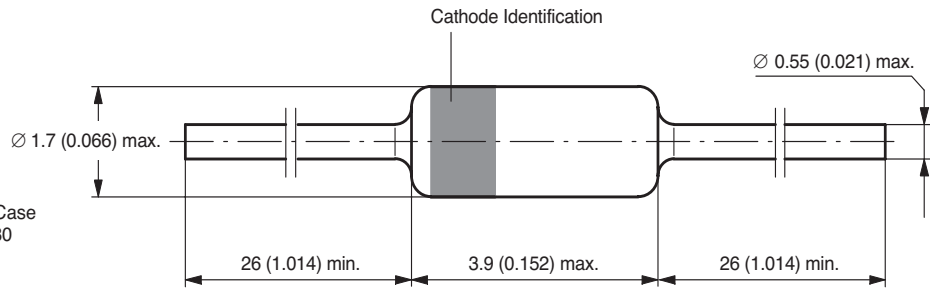
## Package Dimensions in mm (Inches)



technical drawings  
according to DIN  
specifications

94 9366

Standard Glass Case  
54 A 2 DIN 41880  
JEDEC DO 35



### Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor 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.

**Vishay Semiconductor GmbH** 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.

**Vishay Semiconductor GmbH** 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 Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors 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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany  
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423