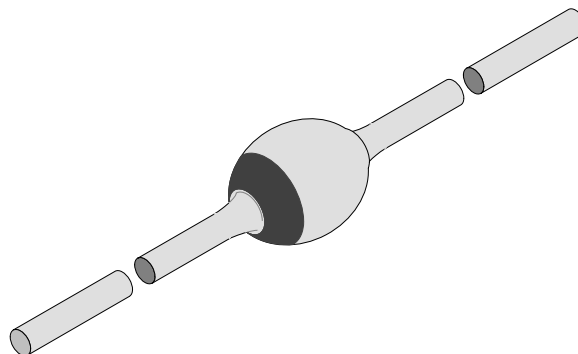


## Silicon Mesa Rectifiers

### Features

- Controlled avalanche characteristics
- Glass passivated junction
- Hermetically sealed package
- Low reverse current
- High surge current loading
- Electrically equivalent diodes:  
 BYW52 – 1N5059    BYW53 – 1N5060  
 BYW54 – 1N5061    BYW55 – 1N5062



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### Applications

Rectifier, general purpose

### Absolute Maximum Ratings

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Reverse voltage, repetitive peak reverse voltage		BYW52	$V_R=V_{RRM}$	200	V
		BYW53	$V_R=V_{RRM}$	400	V
		BYW54	$V_R=V_{RRM}$	600	V
		BYW55	$V_R=V_{RRM}$	800	V
		BYW56	$V_R=V_{RRM}$	1000	V
Peak forward surge current	$t_p=10\text{ms}$		$I_{FSM}$	50	A
Repetitive peak forward current			$I_{FRM}$	12	A
Average forward current	$\phi=180^\circ$		$I_{FAV}$	2	A
Pulse avalanche peak power	$t_p=20\mu\text{s}$ half sinus wave, $T_j=175^\circ\text{C}$		$P_R$	1000	W
Max. pulse energy in the avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R}=1\text{A}$ , $T_j=175^\circ\text{C}$		$E_R$	20	mWs
$i^2*t$ -rating			$i^2*t$	8	$\text{A}^2*\text{s}$
Junction temperature			$T_j$	175	$^\circ\text{C}$
Storage temperature range			$T_{stg}$	-55...+175	$^\circ\text{C}$

### Maximum Thermal Resistance

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	$l=10\text{mm}$ , $T_L=\text{constant}$	$R_{thJA}$	45	K/W
	on PC board with spacing 25mm	$R_{thJA}$	100	K/W

## Characteristics

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=1\text{A}$		$V_F$		0.9	1.0	V
Reverse current	$V_R=V_{RRM}$		$I_R$		0.1	1	$\mu\text{A}$
	$V_R=V_{RRM}, T_j=100^\circ\text{C}$		$I_R$		5	10	$\mu\text{A}$
Breakdown voltage	$I_R=100\mu\text{A}, t_p/T=0.01,$ $t_p=0.3\text{ms}$		$V_{(BR)}$			1600	V
Diode capacitance	$V_R=0, f=0.47\text{MHz}$		$C_D$		50		pF
Reverse recovery time	$I_F=0.5\text{A}, I_R=1\text{A},$ $i_R=0.25\text{A}$		$t_{rr}$			4	$\mu\text{s}$
	$I_F=1\text{A}, di/dt=5\text{A}/\mu\text{s},$ $V_R=50\text{V}$		$t_{rr}$			4	$\mu\text{s}$
Reverse recovery charge	$I_F=1\text{A}, di/dt=5\text{A}/\mu\text{s}$		$Q_{rr}$			200	nC

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

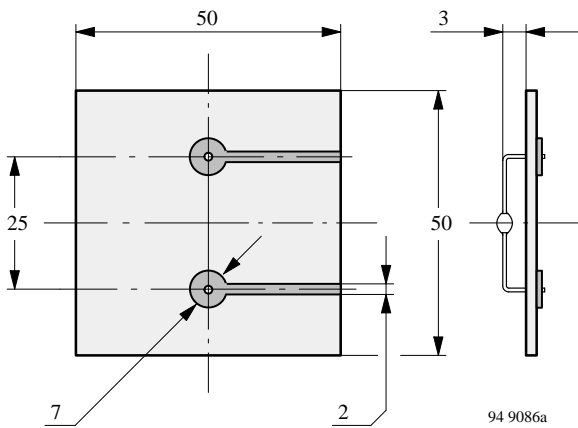


Figure 1. Epoxy glass hard tissue, board thickness 1.5 mm,  
 $R_{thJA} \leq 100 \text{ K/W}$

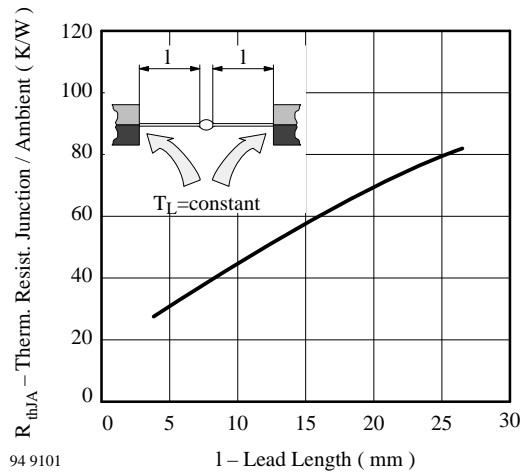


Figure 2. Thermal Resistance vs. Lead Length

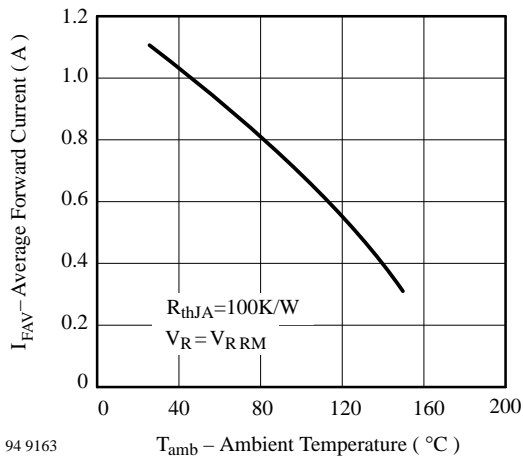


Figure 3. Average Forward Current vs. Ambient Temperature

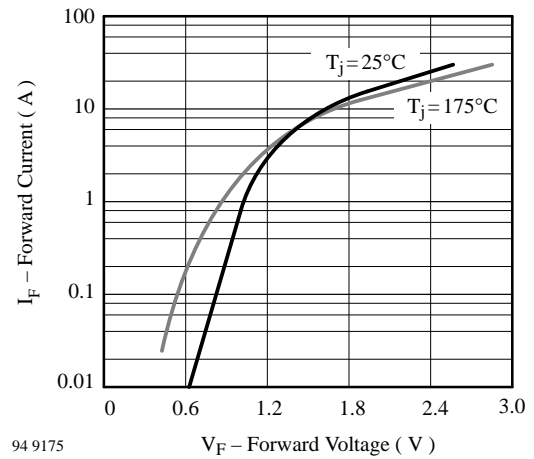


Figure 6. Forward Current vs. Forward Voltage

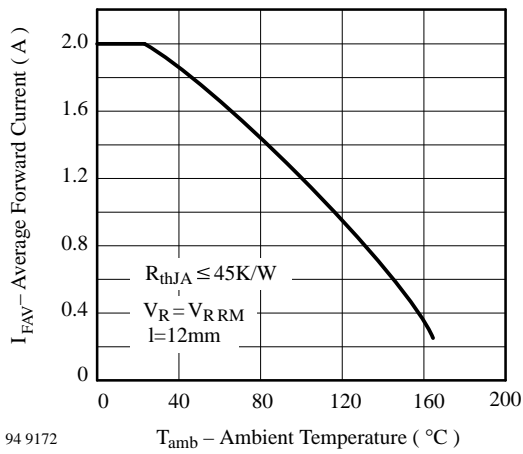


Figure 4. Average Forward Current vs. Ambient Temperature

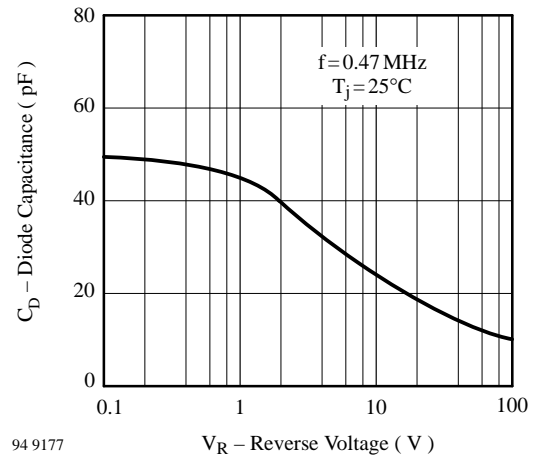


Figure 7. Diode Capacitance vs. Reverse Voltage

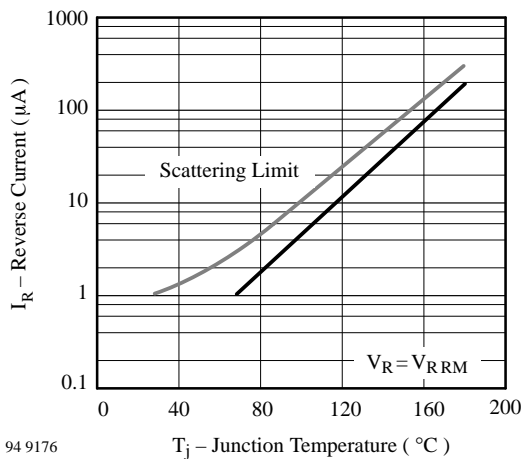


Figure 5. Reverse Current vs. Junction Temperature

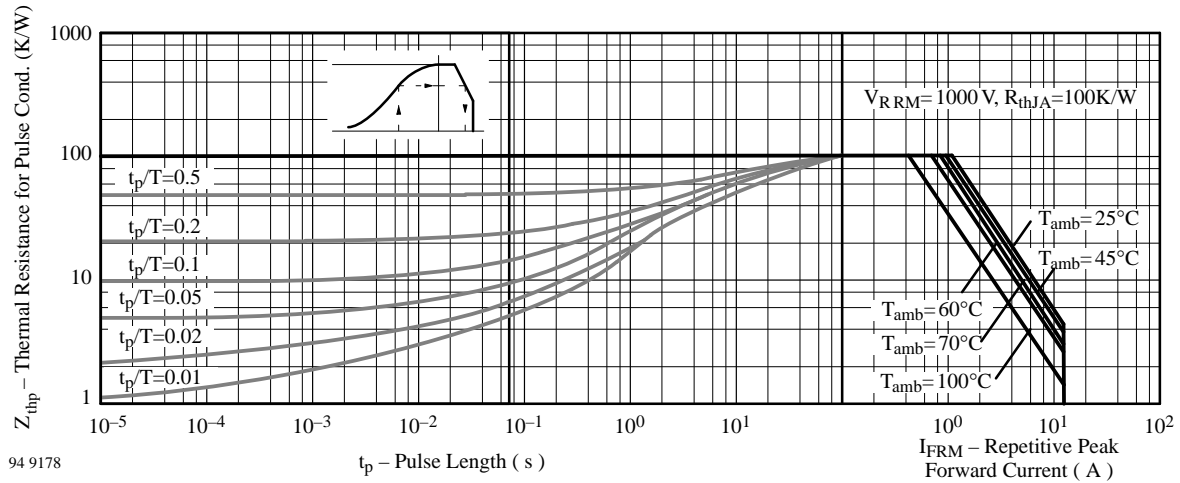



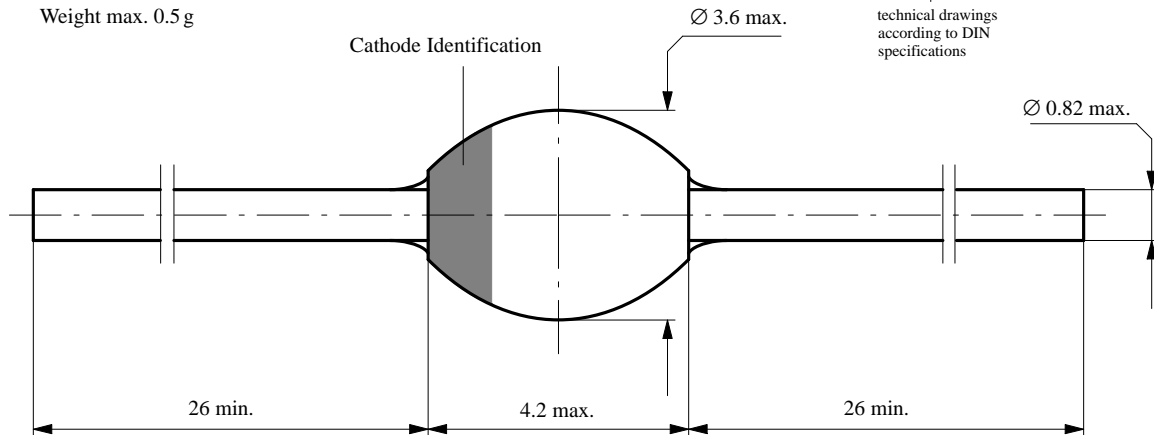
Figure 8. Thermal Response

## Dimensions in mm

Sintered Glass Case  
SOD 57  
Weight max. 0.5 g

 technical drawings according to DIN specifications

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## **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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