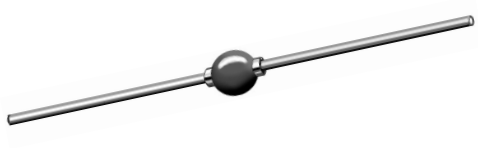
Fast Sinterglass Switching Rectifier

Features

- High temperature metallurgically bonded construction
- Hermetically sealed package
- Cavity-free glass passivated junction
- 1.0 Ampere operation at T_{amb} = 55 °C with no thermal runaway
- Typical I_R less than 0.1 µA
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed: 350 °C/ 10 seconds, 0.375 " (9.5 mm) lead length, 5 lbs. (2.3 kg) tension



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Mechanical Data

Case: JEDEC DO-204AP Solid glass body

Terminals: Solder plated axial leads, solderable per MILSTD- 750, Method 2026

Polarity: Color band denotes cathode end

Mounting Position: Any

Weight: 560 mg

Parts Table

Part	Type differentiation
1N4942	V_{RRM} = 200 V
1N4944	V_{RRM} = 400 V
1N4946	V_{RRM} = 600 V
1N4947	V_{RRM} = 800 V
1N4948	V_{RRM} = 1000 V

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Value	Unit
Maximum repetitive peak reverse voltage		1N4942	V_{RRM}	200	V
		1N4944	V_{RRM}	400	V
		1N4946	V_{RRM}	600	V
		1N4947	V_{RRM}	800	V
		1N4948	V_{RRM}	1000	V
Maximum RMS voltage		1N4942	V_{RMS}	140	V
		1N4944	V_{RMS}	280	V
		1N4946	V_{RMS}	420	V
		1N4947	V_{RMS}	560	V
		1N4948	V_{RMS}	700	V
Maximum DC blocking voltage		1N4942	V_{DC}	200	V
		1N4944	V_{DC}	400	V
		1N4946	V_{DC}	600	V
		1N4947	V_{DC}	800	V
		1N4948	V_{DC}	1000	V
Maximum average forward rectified current	0.375 " (9.5 mm) lead length at T_{amb} = 55 °C		$I_{F(AV)}$	1.0	A
Peak forward surge current	8.3 ms single half sine-wave superimposed on rated load (JEDEC Method)		I_{FSM}	25	A

Maximum Thermal Resistance

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Value	Unit
Typical thermal resistance [1]			R_{θ}	55	°C
Operating junction and storage temperature range			T_J, T_{STG}	- 65 to + 175	°C

[1] Thermal resistance from junction to ambient at 0.375 " (9.5 mm) lead length, P.C.B. mounted

Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Min	Typ.	Max	Unit
Minimum reverse breakdown voltage	I_R = 50 µA	1N4942	$V_{(BR)}$	220			V
	I_R = 50 µA	1N4944	$V_{(BR)}$	440			V
	I_R = 50 µA	1N4946	$V_{(BR)}$	660			V
	I_R = 50 µA	1N4947	$V_{(BR)}$	880			V
	I_R = 50 µA	1N4948	$V_{(BR)}$	1100			V
Maximum instantaneous forward voltage	I_F = 1 A		V_F			1.3	V
	I_F = 2 A, T_{amb} = - 40 °C		V_F			2.5	V
Maximum DC reverse current	at rated DC blocking voltage, T_{amb} = 25 °C		I_R			1.0	µA
	at rated DC blocking voltage, T_{amb} = 175 °C		I_R			500	µA
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 25 A	1N4942	t_{rr}			150	ns
	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 25 A	1N4944	t_{rr}			150	ns
	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 25 A	1N4946	t_{rr}			250	ns
	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 25 A	1N4947	t_{rr}			250	ns
	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 25 A	1N4948	t_{rr}			500	ns
Typical junction capacitance	V_R = 4.0 V, f = 1 MHz		C_J		15		pF

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

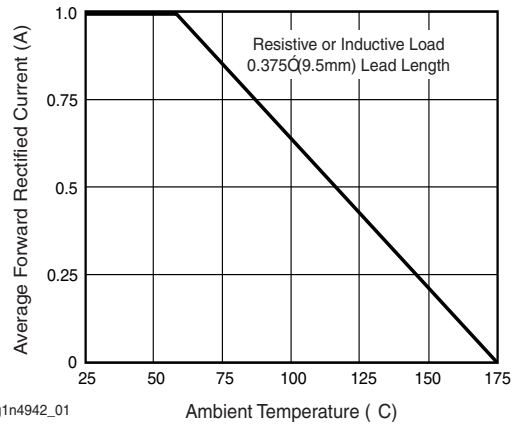


Figure 1. Maximum Forward Current Derating Curve

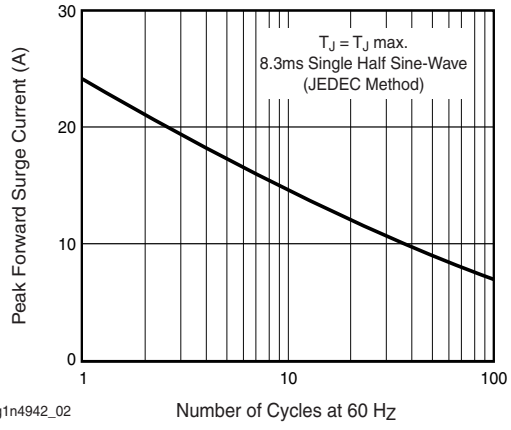


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

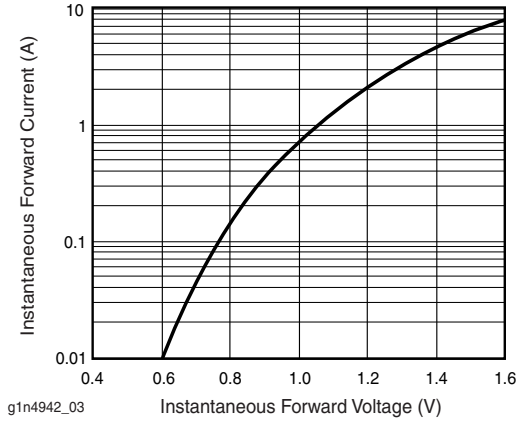


Figure 3. Typical Instantaneous Forward Characteristics

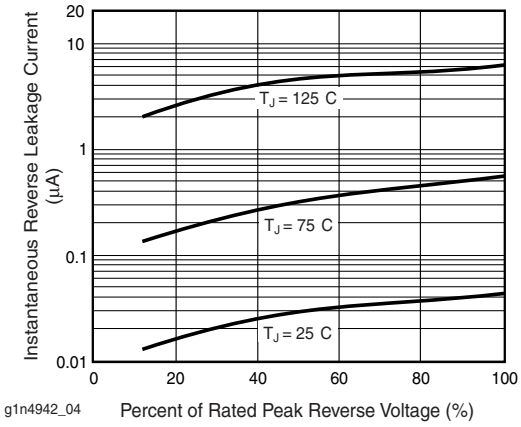


Figure 4. Typical Reverse Leakage Characteristics

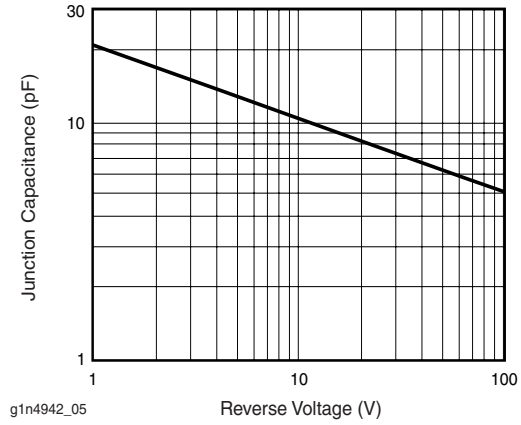
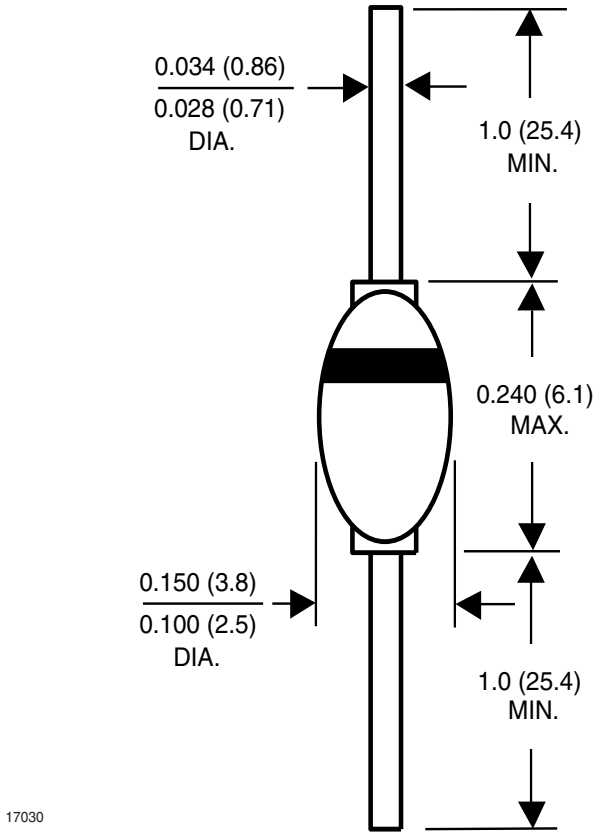


Figure 5. Typical Junction Capacitance

Package Dimensions in mm



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 operatingsystems 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.

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