



Leaded Varistors

Automotive Series

Construction

- Round varistor element, leaded
- Coating: epoxy resin (D1: phenolic resin), flame-retardant to UL 94 V-0
- Terminals: tinned copper wire

Features

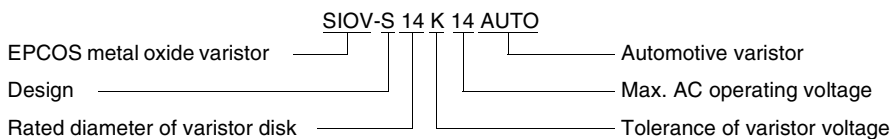
- High energy absorption, particularly in case of load dump
- Jump-start strength
- Stable protection level, minimum leakage current
- High resistance to cyclic temperature stress
- PSpice models
- Types for $T_A = 125\text{ °C}$

Taping

- All types available on tape upon request

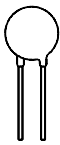
Type designation

Detailed description of coding system on page 39, chapter "General Technical Information"



General technical data

Climatic category	40/85/56 (D1: 40/125/56)	in accordance with IEC 60068-1
LCT	– 40 °C	
UCT	+ 85 °C (D1: + 125 °C)	
Damp heat, steady state (93 % r.h., 40 °C)	56 days	in accordance with IEC 60068-2-3
Operating temperature	– 40 ... + 85 °C (D1: ... + 125 °C)	in accordance with CECC 42 000
Storage temperature	– 40 ... + 125 °C (D1: ... + 150 °C)	
Electric strength	≥ 2,5 kV _{RMS} (not D1)	in accordance with CECC 42 000
Insulation resistance	≥ 10 MΩ (not D1)	in accordance with CECC 42 000
Response time	< 25 ns	



Leaded Varistors
Automotive Series

Maximum ratings ($T_A = 85\text{ °C}$, $T_A = 125\text{ °C}$ for S...D1)

Type (untaped) SIOV-	Ordering code	V_{RMS} V	V_{DC} V	i_{max} 8/20 μ s A	W_{max} (2 ms) J	P_{max} W	W_{LD} (10x) J
12-V supply systems							
S07K14AUTOS2D1	B72207S1140K201	14	16	250	0,9	0,02	12
S10K14AUTO	B72210S1140K102	14	16	500	2,0	0,05	25
S10K14AUTOS5D1	B72210S1140K501	14	16	500	2,0	0,05	25
S14K14AUTO	B72214S1140K102	14	16	1000	4,0	0,10	50
S14K14AUTOS5D1	B72214S1140K501	14	16	1000	4,0	0,10	50
S20K14AUTO	B72220S1140K102	14	16	2000	12,0	0,20	100
S10K17AUTO	B72210S1170K102	17	20	500	2,5	0,05	25
S14K17AUTO	B72214S1170K102	17	20	1000	5,0	0,10	50
S20K17AUTO	B72220S1170K102	17	20	2000	14,0	0,20	100
24-V supply systems							
S20K25AUTO	B72220S1250K102	25	28	2000	22,0	0,20	100
S14K30AUTO	B72214S1300K102	30	34	1000	9,0	0,10	50
S20K30AUTO	B72220S1300K102	30	34	2000	26,0	0,20	100



Leaded Varistors

Automotive Series

Characteristics ($T_A = 25\text{ °C}$)

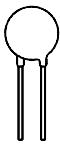
Type (untaped) SIOV-	V_{Jump} (5 min) V	V_V (1 mA) V	ΔV_V (1 mA) %	Max. clamping voltage		C_{typ} (1 kHz) nF	Derating curve Page	V/I char- acteristic Page
				v V	i A			
12-V supply systems								
S07K14AUTOS2D1	25	22	± 10	43	2,5	2,3	246	275
S10K14AUTO	25	22	± 10	43	5,0	5,2	248	276
S10K14AUTOS5D1	25	22	± 10	43	5,0	5,2	248	276
S14K14AUTO	25	22	± 10	43	10,0	10,0	249	277
S14K14AUTOS5D1	25	22	± 10	43	10,0	10,0	249	277
S20K14AUTO	25	22	± 10	43	20,0	19,0	251	278
S10K17AUTO	30	27	± 10	53	5,0	4,4	248	276
S14K17AUTO	30	27	± 10	53	10,0	8,2	249	277
S20K17AUTO	30	27	± 10	53	20,0	15,6	251	278
24-V supply systems								
S20K25AUTO	40	39	± 10	77	20,0	11,1	251	278
S14K30AUTO	45	47	± 10	93	10,0	5,0	249	277
S20K30AUTO	45	47	± 10	93	20,0	9,4	251	278

Notes

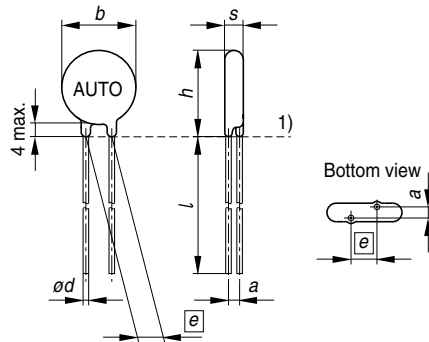
- If the maximum loads specified for load dump and jump start are fully utilized, subsequent polarity reversal of the AUTO varistors is inadmissible.
- If the load remains under the maximum ratings, polarity reversal may be admissible. Contact EPCOS for consultancy on this kind of problem.
- Load dump or jump start can decrease the varistor voltage in load direction by max. 15 %.
- Load dump: min. time of energy input 40 ms, interval 60 s.

Characteristics	Test methods	Specifications
Fast temperature cycling	IEC 60068-2-14, test Na, UCT/LCT, dwell time 15 min 100 cycles: SIOV-S...AUTO 1000 cycles: SIOV-S...AUTOD1	$ \Delta V/V (1\text{ mA}) \leq 10\%$ No visible damage
Damp heat, steady state	Based on IEC 60068-2-3, 85 °C, 85 % r.h., V_{DC} , 1000 h	$ \Delta V/V (1\text{ mA}) ^{(1)} \leq 10\%$ No visible damage
Max. DC operating voltage	MIL STD 202F, method 108A, UCT, V_{DC} , 1000 h	$ \Delta V/V (1\text{ mA}) ^{(1)} \leq 10\%$ No visible damage

1) Measured in load direction



Leaded Varistors
Automotive Series



1) Seating plane in accordance with IEC 60717
VAR0401-Y

Dimensions

Type	$e \pm 1$ mm	$a \pm 1$ mm	b_{max} mm	s_{max} mm	h_{max} mm	l_{min} mm	$d \pm 0,05$ mm
SIOV-S07K14AUTOS2D1	5,0	1,3	9,0	3,5	12,5	30,0	0,6
SIOV-S10K14AUTO	7,5	1,5	13,0	5,0	16,5	30,0	0,8
SIOV-S10K14AUTOS5D1	7,5	1,5	12,0	4,0	16,0	30,0	0,8
SIOV-S14K14AUTO	7,5	1,5	17,0	5,0	20,5	30,0	0,8
SIOV-S14K14AUTOS5D1	7,5	1,5	16,0	4,0	20,0	30,0	0,8
SIOV-S20K14AUTO	10,0	1,6	23,0	5,4	27,5	30,0	1,0
SIOV-S10K17AUTO	7,5	1,6	13,0	5,1	16,5	30,0	0,8
SIOV-S14K17AUTO	7,5	1,7	17,0	5,1	20,5	30,0	0,8
SIOV-S20K17AUTO	10,0	1,6	23,0	5,6	27,5	30,0	1,0
SIOV-S20K25AUTO	10,0	2,9	23,0	6,2	27,5	30,0	1,0
SIOV-S14K30AUTO	7,5	1,8	17,0	5,3	20,5	30,0	0,8
SIOV-S20K30AUTO	10,0	3,2	23,0	6,5	27,5	30,0	1,0

For crimp styles S2 and S5 see page 212

Weight

Size	approx.
S07	0,6 ... 0,8 g
S10	1,0 ... 2,0 g
S14	2,0 ... 4,0 g
S20	3,0 ... 6,0 g

Herausgegeben von EPCOS AG

Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

Published by EPCOS AG

Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.