

## SIOV Metal Oxide Varistors

### SMD Varistors (Automotive; MLV Series)



#### Automotive

#### Construction

- Multilayer technology
- Termination: nickel barrier or silver palladium
- No plastic or epoxy packaging assures better than UL 94 V-0 flammability rating

#### Features

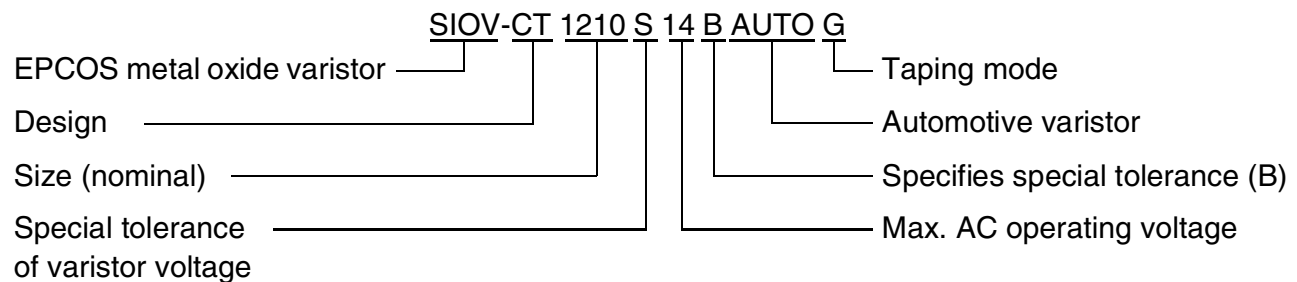
- Sizes 0603 ... 2220
- High energy absorption, particularly in case of load dump
- Stable protection level, minimum leakage current
- High resistance to cyclic temperature stress
- Wide range of operating temperature
- Low inductance (suitable for ESD protection)
- PSpice models
- Bidirectional clamping

#### Taping

- Supply on 8/12-mm tape, for tape dimensions [see page 155](#), for reel dimensions and packing units [see page 157](#)

#### Type designation

Detailed description of coding system [on page 39](#)



#### General technical data

Climatic category	55/125/56	in accordance with IEC 60068-1
LCT	- 55 °C	
UCT	+ 125 °C	
Damp heat, steady state (93 % r.h., 40 °C)	56 days	in accordance with IEC 60068-2-3
Operating temperature	- 55 ... + 125 °C	in accordance with CECC 42 000
Storage temperature <sup>1)</sup>	- 55 ... + 150 °C	
Response time	< 0,5 ns	
Solderability	235 °C, 2 s	in accordance with IEC 60068-2-58
Resistance to soldering heat	260 °C, 10 s	in accordance with IEC 60068-2-58

1) for mounted parts (storage conditions for unused parts on reel see [page 38](#) [1.12.4])



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Automotive – Nickel Barrier Termination (availability upon request)

### Maximum ratings ( $T_A = 125\text{ °C}$ )

Type	Ordering code	$V_{RMS}$	$V_{DC}$ <sup>①</sup>	$i_{max}$ <sup>②</sup> 8/20 $\mu$ s	$W_{max}$ <sup>③</sup> (2 ms)	$P_{max}$	$W_{LD}$ (10x)
SIOV-	<b>NEW</b>	V	V	A	J	W	J
12-V supply systems							
CT0603S14BAUTOG	B72500-T1140-S260	14	16	30	0,2	0,003	—
CT0805S14BAUTOG	B72510-T1140-S262	14	16	120	0,3	0,008	1,0
CT1206S14BAUTOG	B72520-T1140-S262	14	16	200	0,6	0,008	1,5
CT1210S14BAUTOG	B72530-T1140-S262	14	16	400	1,6	0,010	3,0
CT1812S14BAUTOG	B72580-T1140-S262	14	16	800	2,4	0,015	6,0
CT2220S14BAUTOG	B72540-T1140-S262	14	16	1200	5,8	0,030	12,0
CT2220S14BAUTOE2G2	B72540-T3140-S272	14	16	1200	5,8	0,030	25,0
24-V supply systems							
CT2220K25AUTOE2G2	B72540-T3250-K072	25	31	1200	9,6	0,030	25,0
CT2220K30AUTOG	B72540-T1300-K062	30	34	1200	12,0	0,030	12,0
CT2220K30AUTOE2G2	B72540-T3300-K072	30	34	1200	12,0	0,030	25,0

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

Type	$V_{Jump}$ (5 min)	$V_V$ <sup>④</sup> (1 mA)	$\Delta V_V$ (1 mA)	Max. clamping voltage		$C_{typ}$ (1 kHz)	$L_{typ}$	Der. curve	V/I char.
				v	i				
SIOV-	V	V	%	V	A	nF	nH	Page	Page
12-V supply systems									
CT0603S14BAUTOG	24,5	22	+23/-0	42	1,0	0,12	1,0	<a href="#">238</a>	<a href="#">276</a>
CT0805S14BAUTOG	24,5	22	+23/-0	42	1,0	0,4	1,5	<a href="#">239</a>	<a href="#">276</a>
CT1206S14BAUTOG	24,5	22	+23/-0	40	1,0	0,8	1,8	<a href="#">240</a>	<a href="#">276</a>
CT1210S14BAUTOG	24,5	22	+23/-0	40	2,5	1,7	1,8	<a href="#">242</a>	<a href="#">276</a>
CT1812S14BAUTOG	24,5	22	+23/-0	40	5,0	5,6	2,5	<a href="#">244</a>	<a href="#">276</a>
CT2220S14BAUTOG	24,5	22	+23/-0	40	10,0	9,5	3,0	<a href="#">245</a>	<a href="#">276</a>
CT2220S14BAUTOE2G2	24,5	22	+23/-0	40	10,0	15,0	3,0	<a href="#">245</a>	<a href="#">276</a>
24-V supply systems									
CT2220K25AUTOE2G2	40,0	39	$\pm 10$	65	10,0	10,0	3,0	<a href="#">245</a>	<a href="#">275</a>
CT2220K30AUTOG	45,0	47	$\pm 10$	77	10,0	4,0	3,0	<a href="#">245</a>	<a href="#">275</a>
CT2220K30AUTOE2G2	45,0	47	$\pm 10$	77	10,0	10,0	3,0	<a href="#">245</a>	<a href="#">275</a>

Also called: ① working voltage; ② peak current; ③ transient energy ④ breakdown voltage

### Notes

New ordering codes implemented ([refer to chapter Varistor Type Cross-Reference List](#))

- 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.  
(Note: The load dump time constant  $t_d$  differs from the time constant of the energy input)


**Maximum ratings ( $T_A = 125\text{ °C}$ )**

Type	Ordering code	$V_{RMS}$	$V_{DC}$ <sup>①</sup>	$i_{max}$ <sup>②</sup> 8/20 $\mu$ s	$W_{max}$ <sup>③</sup> (2 ms)	$P_{max}$	$W_{LD}$ (10x)
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CN1206S14BAUTOG	24,5	22	+23/-0	40	1,0	0,8	1,8	<a href="#">240</a>	<a href="#">276</a>
CN1210S14BAUTOG	24,5	22	+23/-0	40	2,5	1,7	1,8	<a href="#">242</a>	<a href="#">276</a>
CN1812S14BAUTOG	24,5	22	+23/-0	40	5,0	5,6	2,5	<a href="#">244</a>	<a href="#">276</a>
CN2220S14BAUTOG	24,5	22	+23/-0	40	10,0	9,5	3,0	<a href="#">245</a>	<a href="#">276</a>
CN2220S14BAUTOE2G2	24,5	22	+23/-0	40	10,0	15,0	3,0	<a href="#">245</a>	<a href="#">276</a>
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**Marketing Kommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND**

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