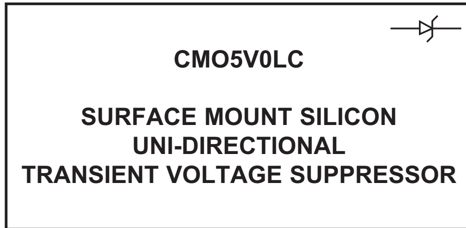
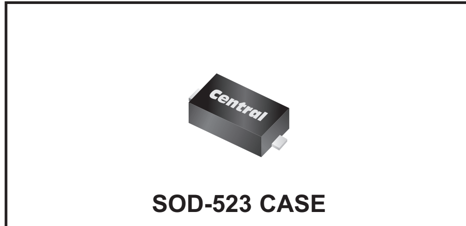


CMO5V0LC

SURFACE MOUNT SILICON
UNI-DIRECTIONAL
TRANSIENT VOLTAGE SUPPRESSOR

www.centralsemi.com



SOD-523 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMO5V0LC is an ultra low capacitance, low leakage, fast response TVS in the space saving SOD-523 surface mount package. This device is designed to protect sensitive equipment against ESD damage.

MARKING CODE: DD

APPLICATIONS:

- High speed data line protection
- User interface protection
- Charging/power port protection

FEATURES:

- Space saving SOD-523 package
- Ultra low capacitance
- Low leakage current

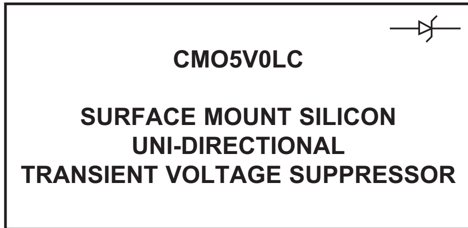
MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Peak Power Dissipation (8x20μs)	P_{PK}	12	W
Electrical Fast Transient (IEC 61000-4-4) (5x50ns)	EFT	40	A
ESD Voltage (IEC 61000-4-2, Air)	V_{ESD}	15	kV
ESD Voltage (IEC 61000-4-2, Contact)	V_{ESD}	10	kV
Operating Junction Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C) V_F=1.0V MAX @ I_F=10mA

Maximum Reverse Stand-off Voltage V_{RWM}	Minimum Breakdown Voltage V_{BR} @ I_T	Test Current I_T	Maximum Reverse Leakage Current I_R @ V_{RWM}	Maximum Clamping Voltage (8x20μs) V_C	@ I_{PP}	Typical TLP Clamping Voltage (Note 1) V_{CL}	@ I_{PP}	Typical Dynamic Resistance (Note 1) R_{DYN}	Maximum Junction Capacitance @ 0V Bias C_J
V	**V**	**mA**	**μA**	**V**	**A**	**V**	**A**	**Ω**	**pF**
5.0	6.0	1.0	1.0	12	1.0	5.0	4.0	0.96	0.9
						10	9.2		

Note 1: Transmission Line Pulse (TLP) conditions: Z_0=50Ω, tp=100ns

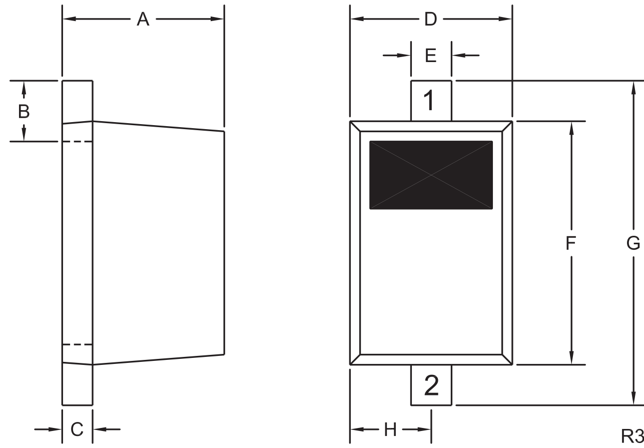
R4 (20-October 2015)



CMO5V0LC

SURFACE MOUNT SILICON
UNI-DIRECTIONAL
TRANSIENT VOLTAGE SUPPRESSOR

SOD-523 CASE - MECHANICAL OUTLINE



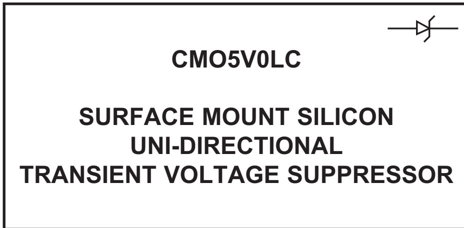
LEAD CODE:
1) Cathode
2) Anode

MARKING CODE: DD

DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.020	0.031	0.50	0.80
B	0.008	0.016	0.20	0.40
C	0.002	0.008	0.05	0.20
D	0.028	0.035	0.70	0.90
E	0.008	0.014	0.20	0.35
F	0.039	0.055	1.00	1.40
G	0.055	0.071	1.40	1.80
H	0.016		0.40	

SOD-523 (REV: R3)

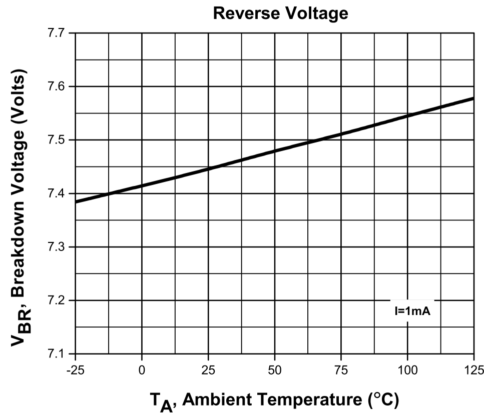
R4 (20-October 2015)

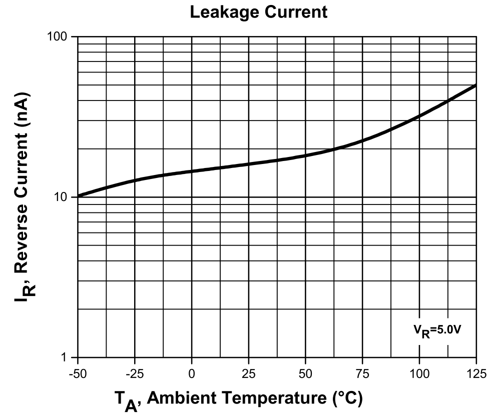


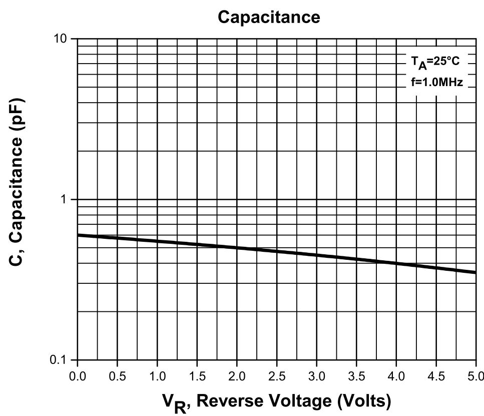
CMO5V0LC

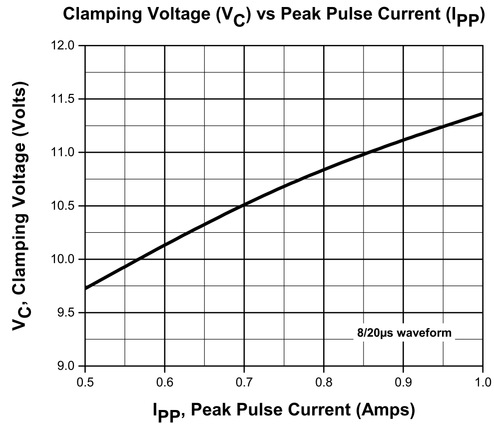
SURFACE MOUNT SILICON UNI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

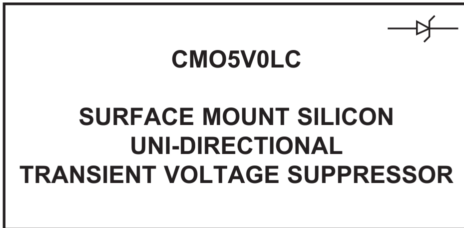
TYPICAL ELECTRICAL CHARACTERISTICS







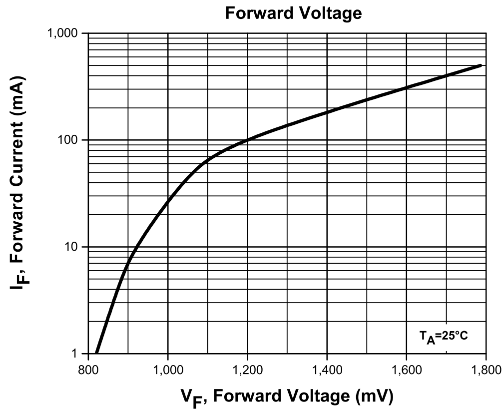


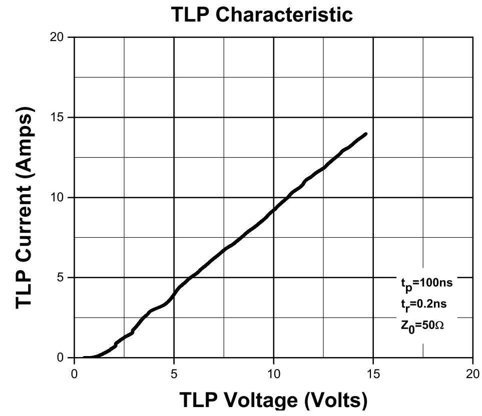


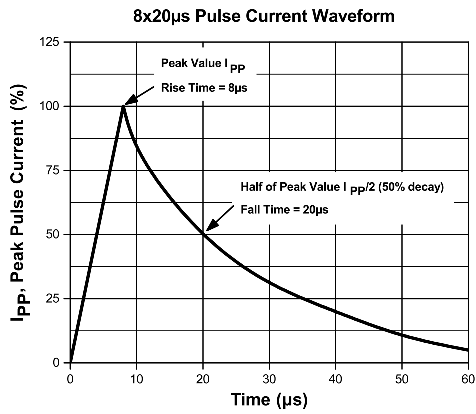
CMO5V0LC

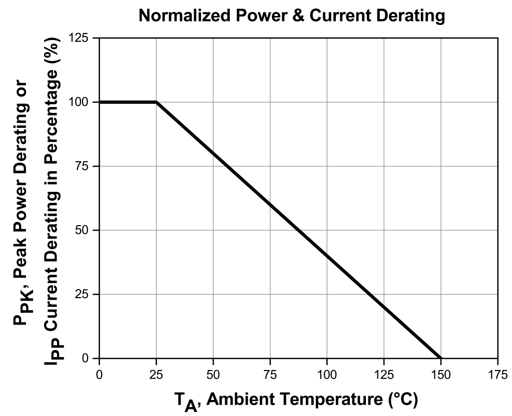
SURFACE MOUNT SILICON UNI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

TYPICAL ELECTRICAL CHARACTERISTICS







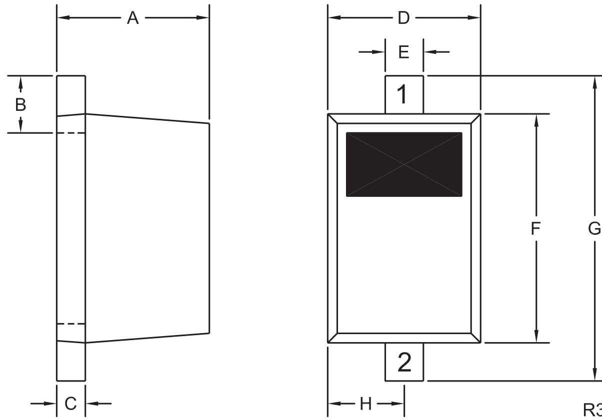


R4 (20-October 2015)

Package Details

SOD-523 Case

Mechanical Drawing



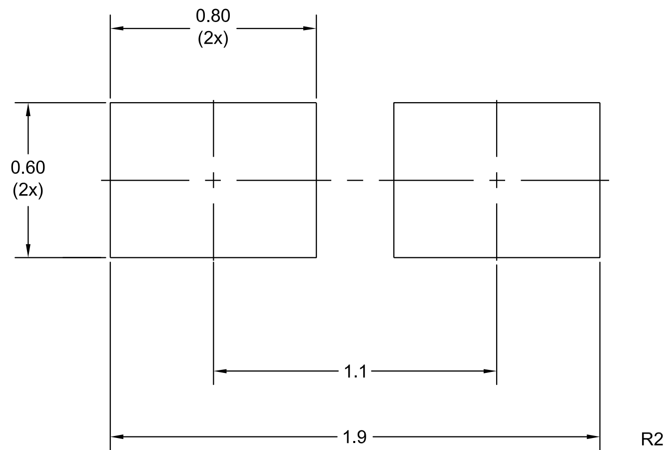
DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.020	0.031	0.50	0.80
B	0.008	0.016	0.20	0.40
C	0.002	0.008	0.05	0.20
D	0.028	0.035	0.70	0.90
E	0.008	0.014	0.20	0.35
F	0.039	0.055	1.00	1.40
G	0.055	0.071	1.40	1.80
H	0.016		0.40	

SOD-523 (REV: R3)

Lead Code:
1) Cathode
2) Anode

Part Marking: 2-3 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

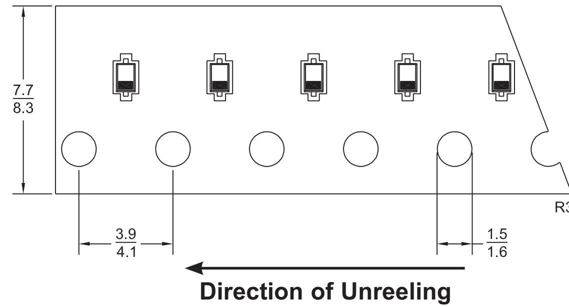


R6 (11-April 2011)

Package Details
SOD-523 Case

Tape Dimensions and Orientation (Dimensions in mm)

Tape Width: 8mm



Devices are taped in accordance with Electronic Industries Association Standard EIA-481-1-A

Packaging Base

7” Reel = 3,000 pcs.

Reel Labeling Information

Each reel is labeled with the following information:
Central Part Number, Customer Part Number, Purchase Order Number, Quantity, Lot Number, Date Code, Ship Date and Marking Code.

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
7”	9	27,000	9x9x5	23x23x13	3	2
	18	54,000	9x9x9	23x23x23	5	3
	40	120,000	21x9x9	53x23x23	11	5
	108	324,000	27x9x17	69x23x43	30	14

Ordering Information

- For devices taped and reeled on 7” reels, add TR suffix to part number.
- All SMDs are available in small quantities for prototype and manual placement applications.

Material Composition Specification

SOD-523 Case

Device average mass . . . . 1.37 mg
Fluctuation margin . . . . +/-10%

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	5.11%	0.07	Si	7440-21-3	5.11%	0.07	51,095
bond wire	gold or copper	0.44%	0.01	Au	7440-57-5	0.44%	0.006	4,380
				Cu	7440-50-8			
leadframe	alloy 42 w/ silver plating	32.26%	0.44	Fe	7439-89-6	18.69%	0.256	186,861
				Ni	7440-02-0	12.99%	0.178	129,927
				Ag	7440-22-4	0.58%	0.008	5,839
encapsulation*	EMC	60.74%	0.83	silica	7631-86-9	43.8%	0.6	437,956
				epoxy resin	Proprietary	15.26%	0.209	152,555
				Sb_2O_3	1309-64-4	1.24%	0.017	12,409
				TBBA	79-94-7	0.29%	0.004	2,920
				carbon	1333-86-4	0.15%	0.002	1,460
	EMC GREEN	60.74%	0.83	silica	60676-86-0	40.59%	0.556	405,915
				epoxy resin	29690-82-2	9.22%	0.126	92,196
				phenol resin	9003-35-4	4.63%	0.063	46,255
				carbon black	1333-86-4	0.31%	0.004	3,147
				metal hydroxide	1309-42-8	5.98%	0.082	59,786
plating**	tin/lead process	1.46%	0.02	Sn	7440-31-5	1.17%	0.016	11,679
				Pb	7439-92-1	0.29%	0.004	2,920
	matte tin	1.46%	0.02	Sn	7440-31-5	1.46%	0.02	14,599

*EMC GREEN molding compound is Halogen-Free.
**For Lead Free plating, add suffix “PB FREE” to part number.
For Tin/Lead plating, add suffix “TIN/LEAD” to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer
The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

R8 (16-July 2018)

Material Composition Specification

SOD-523 Case

Device average mass . . . . 1.37 mg

Fluctuation margin . . . . +/-10%

Component	Material	Material (%wt)	Material (mg)	Substance	CAS No.	Substance (%wt)	Substance (mg)	Substance (ppm)
active device	doped Si	5.11%	0.07	Si	7440-21-3	5.11%	0.07	51,095
bond wire	gold or copper	0.44%	0.01	Au	7440-57-5	0.44%	0.006	4,380
				Cu	7440-50-8			
leadframe	alloy 42 w/ silver plating	32.26%	0.44	Fe	7439-89-6	18.69%	0.256	186,861
				Ni	7440-02-0	12.99%	0.178	129,927
				Ag	7440-22-4	0.58%	0.008	5,839
encapsulation*	EMC	60.74%	0.83	silica	7631-86-9	43.8%	0.6	437,956
				epoxy resin	Proprietary	15.26%	0.209	152,555
				Sb_2O_3	1309-64-4	1.24%	0.017	12,409
				TBBA	79-94-7	0.29%	0.004	2,920
				carbon	1333-86-4	0.15%	0.002	1,460
	EMC GREEN	60.74%	0.83	silica	60676-86-0	40.59%	0.556	405,915
				epoxy resin	29690-82-2	9.22%	0.126	92,196
				phenol resin	9003-35-4	4.63%	0.063	46,255
				carbon black	1333-86-4	0.31%	0.004	3,147
				metal hydroxide	1309-42-8	5.98%	0.082	59,786
plating**	tin/lead process	1.46%	0.02	Sn	7440-31-5	1.17%	0.016	11,679
				Pb	7439-92-1	0.29%	0.004	2,920
	matte tin	1.46%	0.02	Sn	7440-31-5	1.46%	0.02	14,599

*EMC GREEN molding compound is Halogen-Free.

**For Lead Free plating, add suffix "PB FREE" to part number.
For Tin/Lead plating, add suffix "TIN/LEAD" to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer
The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.