

CMOD3003-TM
**TIN WHISKER MITIGATED
SURFACE MOUNT LOW LEAKAGE
SILICON SWITCHING DIODE**
ULTRAmini™

SOD-523 CASE
DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMOD3003-TM type is a silicon switching diode manufactured by the epitaxial planar process, epoxy molded in a ULTRAmini™ surface mount package, designed for switching applications requiring a extremely low leakage diode. The devices have undergone AEM's proprietary Pb electroplating process to mitigate tin whisker growth.

MARKING CODE: 3C
FEATURES:

- Minimum of 5% Pb content guaranteed
- No change to mechanical dimensions following plating process
- No change to package coplanarity following plating process
- Components are not exposed to damaging high temperatures during processing

MAXIMUM RATINGS: (T_A=25°C)

	SYMBOL		UNITS
Continuous Reverse Voltage	V _R	180	V
Average Rectified Current	I _O	200	mA
Continuous Forward Current	I _F	600	mA
Peak Repetitive Forward Current	I _{FRM}	700	mA
Peak Forward Surge Current, tp=1.0μs	I _{FSM}	2.0	A
Peak Forward Surge Current, tp=1.0s	I _{FSM}	1.0	A
Power Dissipation	P _D	250	mW
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +150	°C
Thermal Resistance	Θ _{JA}	500	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

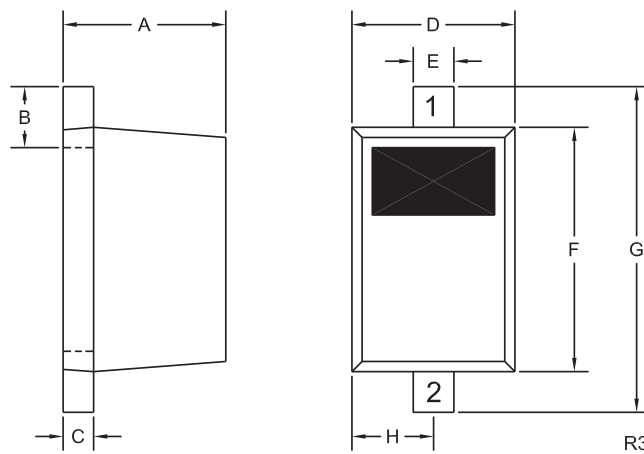
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I _R	V _R =125V		1.0	nA
I _R	V _R =125V, T _A =150°C		3.0	μA
I _R	V _R =180V		10	nA
I _R	V _R =180V, T _A =150°C		5.0	μA
BV _R	I _R =5.0μA	200		V
V _F	I _F =1.0mA	0.62	0.72	V
V _F	I _F =10mA	0.72	0.83	V
V _F	I _F =50mA	0.80	0.89	V
V _F	I _F =100mA	0.83	0.93	V
V _F	I _F =200mA	0.87	1.10	V
V _F	I _F =300mA	0.90	1.15	V
C _T	V _R =0, f=1.0MHz		4.0	pF

R0 (17-September 2025)

CMOD3003-TM

**TIN WHISKER MITIGATED
SURFACE MOUNT LOW LEAKAGE
SILICON SWITCHING DIODE**

SOD-523 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Cathode
- 2) Anode

MARKING CODE: 3C

DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	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)

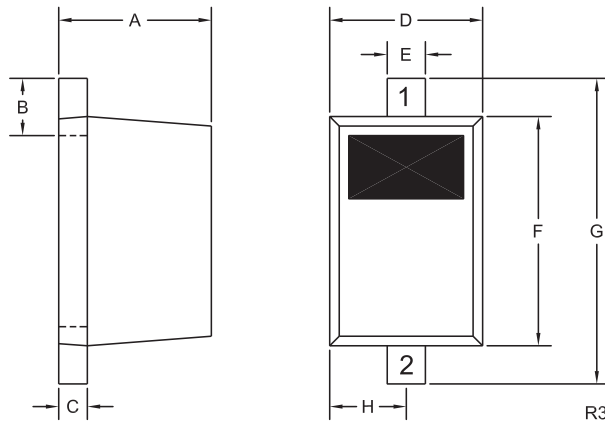
R0 (17-September 2025)

Package Details

SOD-523 Case



Mechanical Drawing



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	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	

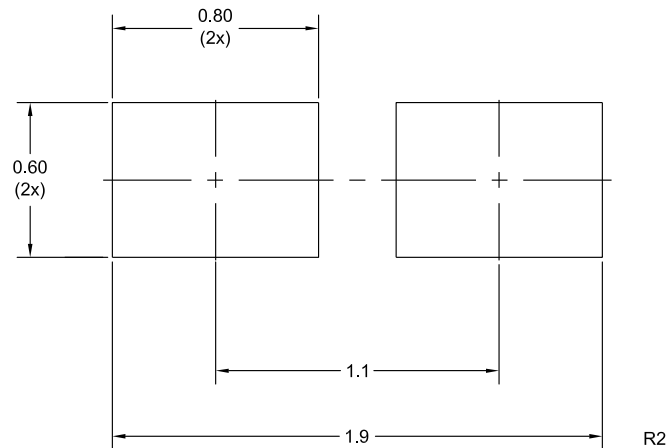
SOD-523 (REV: R3)

Lead Code:

- 1) Cathode
- 2) Anode

Part Marking: 2-3 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)



R6 (11-April 2011)

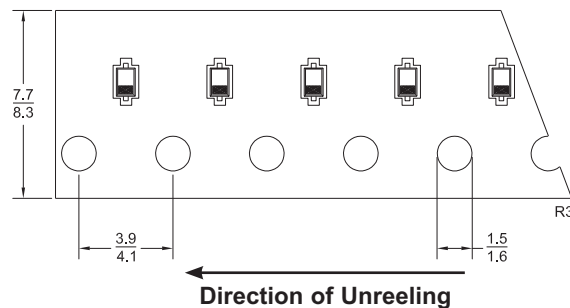
Package Details

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.

R6 (11-April 2011)

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 ₂ O 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)

www.centalsemi.com

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 ₂ O 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)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centrasemi.com

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: www.centrasemi.com/terms