RUGGEDIZED

CMLSH05-4-RZ

SURFACE MOUNT SILICON LOW V_F SCHOTTKY DIODE RUGGEDIZED PACKAGING

SOT-563 CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLSH05-4-RZ is a 40 Volt Schottky diode packaged in a space saving SOT-563 surface mount case. This device has been designed for applications requiring a low forward voltage drop. It features a robust design manufactured specifically for operation in harsh environments where temperature and moisture may contribute to degraded performance and reliability.

UNIQUE DEVICE CONSTRUCTION FEATURES:

- Alloy 42 or pure copper lead frame
- Eutectic die attach
- Gold wire bond
- Pb/Sn lead plating available

MARKING CODE: C54

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**		**UNITS**
Peak Repetitive Reverse Voltage	V_{RRM}	40	V
Continuous Forward Current	I_F	500	mA
Peak Repetitive Forward Current, tp≤1.0ms	I_{FRM}	3.5	A
Peak Forward Surge Current, tp=8.0ms	I_{FSM}	10	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=10V		30	μA
I_R	V_R=30V		100	μA
BV_R	I_R=500μA	40		V
V_F	I_F=100μA		0.13	V
V_F	I_F=1.0mA		0.21	V
V_F	I_F=10mA		0.27	V
V_F	I_F=100mA		0.35	V
V_F	I_F=500mA		0.47	V
C_J	V_R=1.0V, f=1.0MHz		50	pF

R0 (16-April 2026)

CMLSH05-4-RZ

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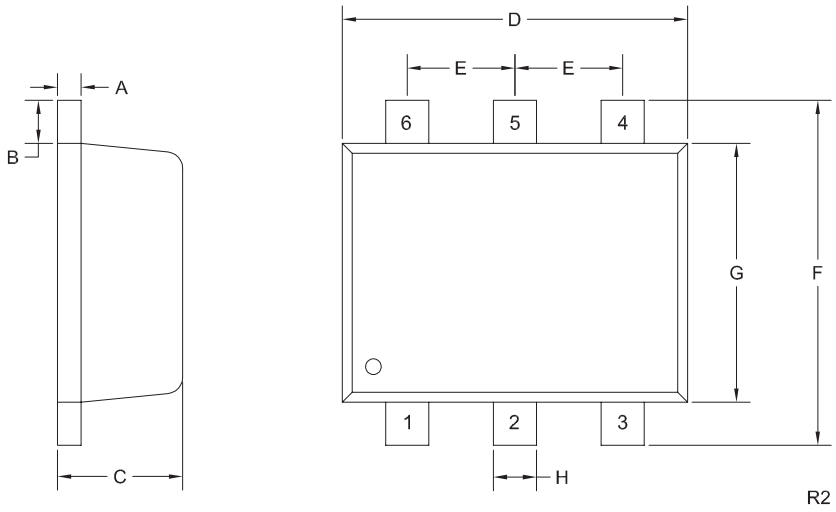
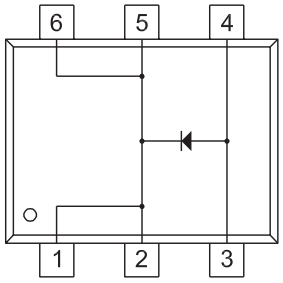
SCHOTTKY DIODE
RUGGEDIZED PACKAGING

SOT-563 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.0027	0.007	0.07	0.18
B	0.008		0.20	
C	0.017	0.024	0.45	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.059	0.067	1.50	1.70
G	0.043	0.051	1.10	1.30
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R2)

LEAD CODE:
1) Cathode
2) Cathode
3) Anode
4) Anode
5) Cathode
6) Cathode

MARKING CODE: C54

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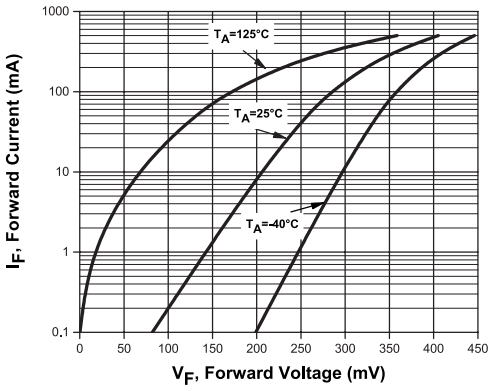
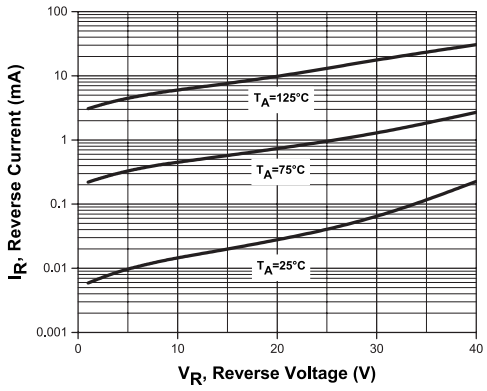
TYPICAL ELECTRICAL CHARACTERISTICS

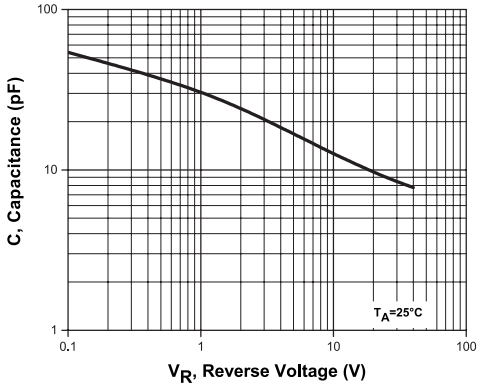
Forward Voltage



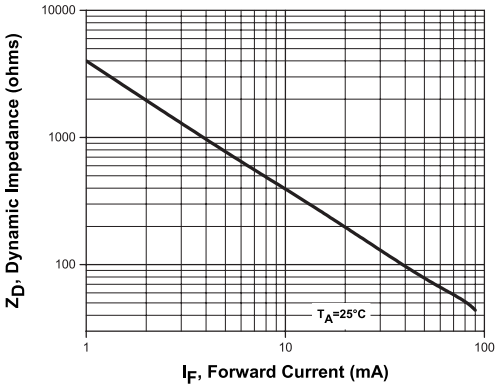
Leakage Current



Capacitance



Forward Dynamic Impedance



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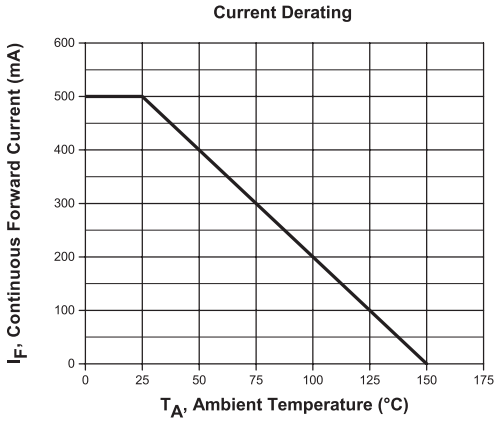
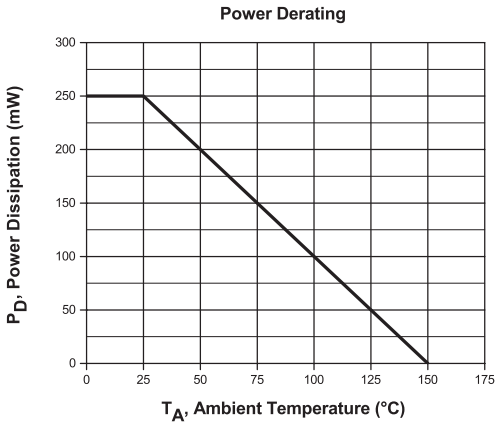
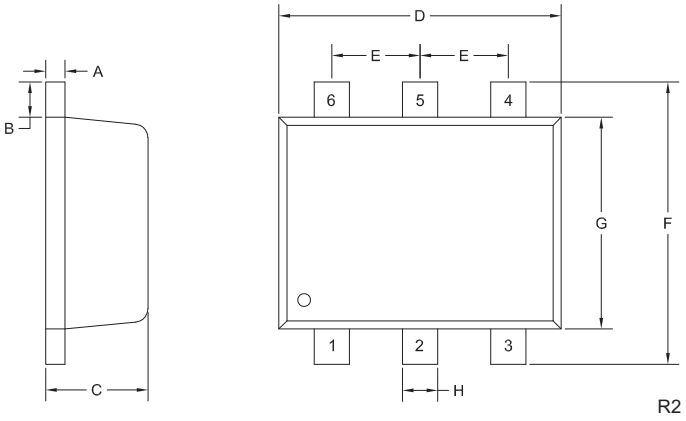




R0 (16-April 2026)

Package Details
SOT-563 Case

Mechanical Drawing



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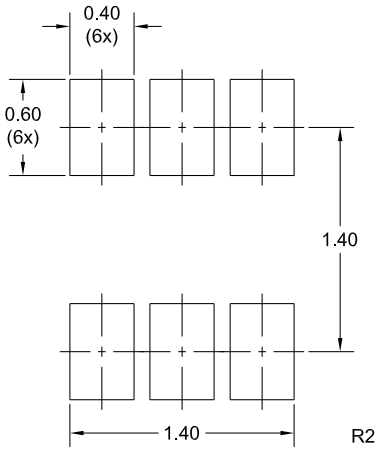
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R2)

Lead Code:
Reference individual device datasheet.

Part Marking: 2-4 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)

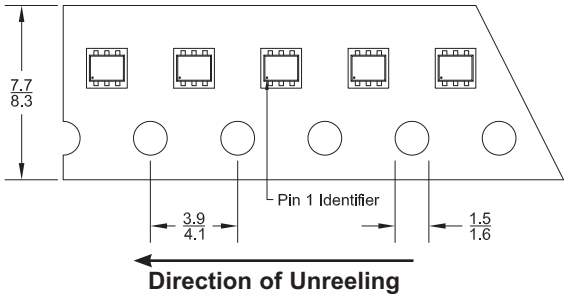


R7 (22-May 2015)

Package Details
SOT-563 Case

Tape Dimensions and Orientation (Dimensions in mm)

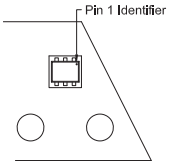
Tape Width: 8mm



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

Optional Orientation

For special orders with devices taped with Pin 1 oriented away from sprocket holes add TRR suffix to part number. Contact Central Semiconductor sales representative for additional information and availability.



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	6	3
	40	120,000	21x9x9	53x23x23	13	6
	108	324,000	27x9x17	69x23x43	34	16

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.

R7 (22-May 2015)

Material Composition Specification

SOT-563 Case

Device average mass . . . . . **2.92 mg**

Fluctuation margin . . . . . **+/-10%**

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	2.74%	0.08	Si	7440-21-3	2.74%	0.08	27,397
bond wire	gold or copper	0.68%	0.02	Au	7440-57-5	0.68%	0.02	6,849
				Cu	7440-50-8			
leadframe	Cu alloy w/ silver plating	40.41%	1.18	Cu	7440-50-8	34.93%	1.02	349,315
				Ni	7440-02-0	3.42%	0.10	34,247
				Sn	7440-31-5	1.03%	0.03	10,274
				Ag	7440-22-4	1.03%	0.03	10,274
	Alloy 42 w/ silver plating	40.41%	1.18	Fe	7439-89-6	20.89%	0.61	208,904
				Ni	7440-02-0	18.49%	0.54	184,932
				Ag	7440-22-4	1.03%	0.03	10,274
encapsulation*	EMC	54.11%	1.58	silica	7631-86-9	39.04%	1.14	390,411
				epoxy resin	Proprietary	13.36%	0.39	133,562
				Sb_2O_3	1309-64-4	1.03%	0.03	10,274
				TBBA	79-94-7	0.34%	0.01	3,425
				carbon black	1333-86-4	0.34%	0.01	3,425
	EMC GREEN	54.11%	1.58	silica	60676-86-0	35.96%	1.05	359,589
				epoxy resin	29690-82-2	6.16%	0.18	61,644
				phenol resin	9003-35-4	6.16%	0.18	61,644
				carbon black	1333-86-4	0.34%	0.01	3,425
				metal hydroxide	1309-42-8	5.48%	0.16	54,795
plating**	tin/lead process	2.05%	0.06	Sn	7440-31-5	1.71%	0.05	17,123
				Pb	7439-92-1	0.34%	0.01	3,425
	matte tin	2.05%	0.06	Sn	7440-31-5	2.05%	0.06	20,548

*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.

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