500mW Zener Leadless Diode **RLZ Series**

Applications

Constant voltage control

Features

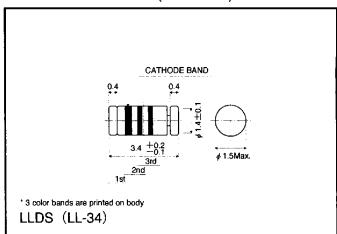
- 1)Designed for mounting on small surface areas (LLDS (LL-34))
- 2) High reliability

Construction

Silicon epitaxial planar

Cathode band colors

External dimensions (Units: mm)



				•			
Туре	1st Color Band	2nd Color Band	3rd Color Band	Type	1st Color Band	2nd Color Band	3rd Color Band
RLZ 2.0	Black	Brown		RLZ 13	Red	Brown	
RLZ 2.2	Black	Red		RLZ 15	Red	Red	
RLZ 2.4	Black	Orange		RLZ 16	Red	Orange	
RLZ 2.7	Black	Yellow		RLZ 18	Red	Yellow	*
RLZ 3.0	Black	Green		RLZ 20	Red	Green	A:Yellow
RLZ 3.3	Black	Blue		RLZ 22	Red	Blue	B:Green
RLZ 3.6	Black	Purple		RLZ 24	Red	Purple	C : Blue
RLZ 3.9	Black	Gray	*	RLZ 27	Red	Gray	D: White
RLZ 4.3	Black	White	A:Yellow	FILZ 30	Red	White	
RLZ 4.7	Brown	Black	B:Green	RLZ 33	Orange	Black]
RLZ 5.1	Brown	Brown	C:Blue	RLZ 36	Orange	Brown]
RLZ 5.6	Brown	Red	D: White	RLZ 39	Orange	Red]
RLZ 6.2	Brown	Orange		RLZ 39 E	Yellow	White	Yellow
RLZ 6.8	Brown	Yellow		RLZ 39 F	Yellow	White	Green
RLZ 7.5	Brown	Green]	RLZ 39 G	Yellow	White	Blue
RLZ 8.2	Brown	Blue		RLZ 43	Orange	Orange	_
RLZ 9.1	Brown	Purple	1	RLZ 47	Orange	Yellow	_
RLZ 10	Brown	Gray]	RLZ 51	Orange	Green	_
RLZ 11	Brown	White		RLZ 56	Orange	Blue	_
RLZ 12	Red	Black					
			WD		A P C and D and	linka al lua a unda u societa in	

**Products are grouped into colors A, B, C, and D, and listed in order within each group. For RLZ2.0A, 3rd color band is yellow.

◆Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limite	Unit	
Power dissipation	Р	500	mW	
Junction temperature	Tj	175	C	
Storage temperature	Tstg	−65~175	°C	

7828999 0015845 2TO !

●Electrical characteristics (Ta=25°C)

RIZ 2.0		Zener voltage)	Operating resistance		Rising operating resistance		Reverse current	
No. Min. Max (III Max Max (III Max M	Type	Donk	Vz (V)		1	Zz (Ω)		Zzκ (Ω)		la (μA)	
RLZ 2.2 B 2 020		Hank	Min.			Max.		Max.		Мах.	
RIZ 24	RLZ 2.0			2.200	20	140	20	2000	1	120	0.5
RIZ 24 B 2.430 2.630 20 100 20 2000 1 120 1.0 RIZ 27 A 2.540 2.750 20 100 20 1000 1 100 1.0 RIZ 3.0 A 2.850 3.970 20 80 20 1000 1 50 1.0 RIZ 3.0 B 3.010 3.220 20 80 20 1000 1 20 1.0 RIZ 3.3 A 3.160 3.380 3.530 20 70 20 1000 1 20 1.0 RIZ 3.6 B 3.600 3.845 20 60 20 1000 1 10 1.0 RIZ 3.9 A 3.74 4.01 20 50 20 1000 1 5 1.0 RIZ 3.9 B 3.89 4.16 20 50 20 1000 1 5 1.0 RIZ 4.3 B 4.17 4.43 20 40 20 1000 1 5 1.0 RIZ 4.3 B 4.17 4.43 20 40 20 1000 1 5 1.0 RIZ 4.3 B 4.17 4.43 20 20 20 20 20 20 20 2	RLZ 2.2	$\overline{}$			20	120	20	2000	1	120	0.7
RLZ 3.0	RLZ 2.4	$\overline{}$			20	100	20	2000	1	120	1.0
RIZ 3.0	RLZ 2.7			2.750	20	100	20	1000	1	100	1.0
RIZ 3.3	RLZ 3.0				20	80	20	1000	1	50	1.0
RIZ 3.6	RLZ 3.3	_	3.160	3.380	20	70	20	1000	1	20	1.0
RLZ 3.9 A 3.74 4.01 B 3.89 4.16 A 4.04 4.29 RLZ 4.3 B 4.17 4.43 C 4.30 4.57 A 4.44 4.68 RLZ 4.7 B 4.94 5.20 C 4.68 4.93 A 4.94 5.20 C 5.09 5.37 C 5.61 5.91 C 5.61 5.91 C 6.61 2.64 A 6.27 C 6.12 6.44 A 6.29 6.63 RLZ 6.8 B 6.49 6.83 C C 6.66 7.01 A 6.65 7.22 RLZ 7.5 B 7.07 7.45 C 7.29 7.67 RLZ 8.2 B 7.78 8.19 C 8.83 9.30 A 9.12 9.59 RLZ 9.1 B 8.85 7.90 1 C 8.83 9.30 A 9.12 9.59 RLZ 10 B 9.94 10.94 RLZ 11 B 10.50 11.05 C 10.08 RLZ 11.38 RLZ 11.3 B 10.55 11.01 10 10 110 0.5 0.2 10 RLZ 11 RLZ 11 B 10.50 11.05 C 11.74 12.35 RLZ 13 B 11.44 12.03 C 11.74 12.35 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10	RLZ 3.6		3.455	3.695	20	60	20	1000	1	10	1.0
RLZ 4.3 B 4.17 4.43 20 40 20 1000 1 5 1.0 RLZ 4.7 B 4.44 4.68 RLZ 4.7 B 4.55 4.80 20 25 20 900 1 5 1.0 RLZ 4.7 B 4.94 5.20 C 4.68 4.93 A 4.81 5.07 RLZ 5.1 B 4.94 5.20 20 20 20 800 1 5 1.5 RLZ 5.6 B 5.45 5.73 C 5.09 5.37 A 5.28 5.55 RLZ 5.6 B 5.45 5.73 20 13 20 500 1 5 2.5 RLZ 6.2 B 5.96 6.27 C 6.12 6.44 A 6.29 6.63 RLZ 6.8 B 6.49 6.83 20 8 20 150 0.5 2 3.5 RLZ 7.5 B 7.07 7.45 C 7.29 7.67 RLZ 8.2 B 7.78 8.19 C 8.03 8.45 RLZ 9.1 B 8.57 9.01 C 8.03 8.45 RLZ 9.1 B 8.57 9.01 C 8.03 8.45 RLZ 10 C 9.70 10.20 D 9.94 1 0.44 RLZ 11 B 10.50 11.05 C 10.82 11.38 RLZ 12 B 11.44 12.03 C 11.74 12.35 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10	RLZ 3.9	Α	3.74	4.01	20	50	20	1000	1	5	1.0
RLZ 4.7 B 4.55 4.80 20 25 20 900 1 5 1.0	BLZ 4 3	Α	4.04	4.29	20	4∩	20	1000	1	5	10
RLZ 4.7 B 4.55 4.80 C 4.68 4.93 A 4.81 5.07 RLZ 5.1 B 4.94 5.20 20 20 20 800 1 5 1.5 RLZ 5.6 B 5.95 5.73 RLZ 5.6 B 5.45 5.73 20 13 20 500 1 5 2.5 RLZ 6.2 B 5.96 6.27 20 10 20 300 1 5 3.0 RLZ 6.2 B 5.96 6.27 20 10 20 300 1 5 3.0 RLZ 6.8 B 6.49 6.83 20 8 20 150 0.5 2 3.5 RLZ 7.5 B 7.07 7.45 20 8 20 150 0.5 2 3.5 RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 RLZ 9.1 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 RLZ 10 B 9.41 9.90 C 8.83 9.30 RLZ 11 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 RLZ 12 B 11.44 12.03 10 14 10 110 0.5 0.2 10		С	4.30	4.57			20	1000	<u>'</u>		1.0
RLZ 5.1 A 4.81 5.07 20 20 20 800 1 5 1.5 RLZ 5.6 B 4.94 5.20 20 20 20 800 1 5 1.5 RLZ 5.6 B 5.45 5.73 20 13 20 500 1 5 2.5 C 5.61 5.91 20 10 20 300 1 5 2.5 RLZ 6.2 B 5.96 6.27 20 10 20 300 1 5 3.0 RLZ 6.8 B 6.49 6.63 20 8 20 150 0.5 2 3.5 RLZ 7.5 B 7.07 7.45 20 8 20 120 0.5 0.5 4.0 RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 6.0 RLZ 9.1 B 8.97 <th< td=""><td>RLZ 4.7</td><td>В</td><td>4.55</td><td>4.80</td><td>20</td><td>25</td><td>20</td><td>900</td><td>1</td><td>5</td><td>1.0</td></th<>	RLZ 4.7	В	4.55	4.80	20	25	20	900	1	5	1.0
RLZ 5.1 B 4.94 5.20 20 20 800 1 5 1.5 RLZ 5.6 B 5.28 5.55		_			20	<u>. </u>			1	5	1.5
RLZ 5.6 B 5.45 5.73	RLZ 5.1	В	4.94	5.20		20	20	800			
RLZ 5.6 B 5.45 5.73											
RLZ 6.2	RLZ 5.6	В	5.45	5.73	20	13	20	500	1	5	2.5
RLZ 6.2 B 5.96 6.27 20 10 20 300 1 5 3.0 RLZ 6.8 A 6.29 6.63											
RLZ 6.8	RLZ 6.2	В	5.96	6.27	20	10	20	300	1	5	3.0
RLZ 6.8 B 6.49 6.83 20 8 20 150 0.5 2 3.5 RLZ 7.5 B 7.07 7.45 20 8 20 120 0.5 0.5 4.0 C 7.29 7.67 A 7.53 7.92 RLZ 8.2 B 7.78 8.19 C 8.03 8.45 C 8.03 8.45 C 8.03 8.45 C 8.83 9.30 RLZ 10 B 9.41 9.90 C 9.70 10.20 D 9.94 10.44 A 10.18 10.71 RLZ 11 B 10.50 11.05 C 10.82 11.38 RLZ 12 B 11.44 12.03 C 11.74 12.35 A 12.11 12.75 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10		-									
RLZ 7.5 A 6.85 7.22 20 8 20 120 0.5 0.5 4.0 RLZ 8.2 B 7.07 7.45 20 8 20 120 0.5 0.5 4.0 RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 RLZ 9.1 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 RLZ 9.1 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 RLZ 10 B 9.41 9.90 20 8 20 120 0.5 0.2 7.0 RLZ 11 B 10.18 10.71 10 10 10 120 0.5 0.2 8.0 RLZ 12 B 11.44 12.03 10 10 10 10 10 0.5 0.2 9.0 RLZ 13 B 12.55 13.21 10 <td>RLZ 6.8</td> <td>_</td> <td></td> <td></td> <td>20</td> <td>8</td> <td>20</td> <td>150</td> <td>0.5</td> <td>2</td> <td>3.5</td>	RLZ 6.8	_			20	8	20	150	0.5	2	3.5
RLZ 7.5 B 7.07 7.45 20 8 20 120 0.5 0.5 4.0 C 7.29 7.67 A 7.53 7.92 RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 C 8.03 8.45 A 8.29 8.73 RLZ 9.1 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 C 8.83 9.30 A 9.12 9.59 B 9.41 9.90 C 9.70 10.20 D 9.94 10.44 A 10.18 10.71 RLZ 11 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10		_		7.01							
C 7.29 7.67 A 7.53 7.92 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 C 8.03 8.45 8.73 8.73 8.829 8.73 8.83 9.90 9.90 9.90 9.90 9.99	BI 7.75				20	Ω	20	120	Λ.Ε	50 20 10 5 5 5 5 5 5 0.5 0.5 0.2 0.2	4 ^
RLZ 8.2 B 7.78 8.19 20 8 20 120 0.5 0.5 5.0 C 8.03 8.45 A 8.29 8.73 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 C 8.83 9.30 A 9.12 9.59 B 9.41 9.90 C 9.70 10.20 D 9.94 10.44 A 10.18 10.71 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 C 10.82 11.38 A 11.13 11.71 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10		 1			20	-	20	120	0.5	0.5	4.0
C 8.03 8.45 A 8.29 8.73 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 C 8.83 9.30 9.12 9.59 9.99 0.5 0.2 7.0 B 9.41 9.90 20 8 20 120 0.5 0.2 7.0 C 9.70 10.20 0.99 10.44 0.5 0.2 7.0 RLZ 11 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10	BLZ 8.2				20	8	20	120	0.5	0.5	5.0
RLZ 9.1 B 8.57 9.01 20 8 20 120 0.5 0.5 6.0 RLZ 10 A 9.12 9.59 B 9.41 9.90 C 9.70 10.20 D 9.94 10.44 RLZ 11 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 C 10.82 11.38 A 11.13 11.71 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10		С	8.03	8.45				.20	J.J		
C 8.83 9.30 A 9.12 9.59 B 9.41 9.90 C 9.70 10.20 D 9.94 10.44 A 10.18 10.71 B 10.50 11.05 10 C 10.82 11.38 A 11.13 11.71 RLZ 12 B 11.44 12.03 10 C 11.74 12.35 A 12.11 12.75 B 12.55 13.21 10 14 10 110 0.5 0.2 10	BI 7 9 1				20	ρ	20	120	0.5	n s	6 Λ
RLZ 10 B 9.41 9.90 C 9.70 10.20 20 8 20 120 0.5 0.2 7.0 D 9.94 10.44							20	120	0.5	0.5	0.0
RLZ 10 C 9.70 10.20 20 8 20 120 0.5 0.2 7.0 D 9.94 10.44 A 10.18 10.71 B 10.50 11.05 10 10 10 120 0.5 0.2 8.0 C 10.82 11.38 A 11.13 11.71 RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 C 11.74 12.35 A 12.11 12.75 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10				9.59				**-			
D 9.94 10.44	RLZ 10				20	8	20	120	0.5	0.2	7.0
RLZ 11						ĺ					
C 10.82 11.38 A 11.13 11.71 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 C 11.74 12.35 12.75 A 12.11 12.75 B 12.55 13.21 10 14 10 110 0.5 0.2 10					10	10	10	120	0.5	0.2	8.0
A 11.13 11.71 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 C 11.74 12.35 A 12.11 12.75 BLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10	RLZ 11	_									
RLZ 12 B 11.44 12.03 10 12 10 110 0.5 0.2 9.0 C 11.74 12.35 A 12.11 12.75 BLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10		_									
A 12.11 12.75 RLZ 13 B 12.55 13.21 10 14 10 110 0.5 0.2 10	RLZ 12	В	11.44	12.03	10	12	10	110	0.5	0.2	9.0
	BLZ 13	Α	12.11	12.75	10	14	10	110	0.5	0.2	10
U 12.99 13.00		С	12.99	13.66					0.0	U.Z.	

●Electrical characteristics (Ta=25°C)

	Zener voltage				Operating resistance		Rising operating resistance		Reverse current	
Type			Vz (V)		Zz (Ω)		Zzκ (Ω)		In (μA)	
	Rank	Min.	Max.	lz (mA)	Max.	lz (mA)	Max.	lz (mA)	Мах.	V _R (V)
	Α	13.44	14.13							
RLZ 15	В	13.89	14.62	10	16	10	110	0.5	0.2	11
-	С	14.35	15.09							
	Α	14.80	15.57							
RLZ 16	В	15.25	16.04	10	18	10	150	0.5	0.2	12
	С	15.69	16.51							
	Α	16.22	17.06							
RLZ 18	В	16.82	17.70	10	23	10	150	0.5	0.2	13
	С	17.42	18.33							
	Α	18.02	18.96						0.2 0.2 0.2 0.2 0.2	
RLZ 20	В	18.63	19.59	10	28	10	200	0.5	0.2	15
	С	19.23	20.22			'0			0.2	13
	D	19.72	20.72	•					· · · · · · · · · · · · · · · · · · ·	
	Α	20.15	21.20							
RLZ 22	В	20.64	21.71	5	30	5	200	0.5	0.2	17
	С	21.08	22.17							
	D	21.52	22.63							
	Α	22.05	23.18			5	200	0.5	0.2	19
RLZ 24	В	22.61	23.77	5	35					
	С	23.12	24.31	Ü	55					
	D	23.63	24.85							
	Α	24.26	25.52	5	45	5	250	0.5	0.2	21
RLZ 27	В	24.97	26.26							
	С	25.63	26.95							
	D	26.29	27.64							
	<u>A</u>	26.99	28.39	5		5	250	0.5	0.2	23
RLZ 30	В	27.70	29.13		55					
	C	28.36	29.82							
	D	29.02	30.51							
	A	29.68	31.22							
RLZ 33	В	30.32	31.88	5	65	5	250	0.5	0.2	25
	C	30.90	32.50							
	D	31.49	33.11							
	A	32.14	33.79	5	75	5	250	0.5	0.2	27
RLZ 36	В	32.79	34.49							
	-	33.40	35.13							
	D	34.01	35.77							
	A	34.68	36.47	5		_	250	0.5		
RLZ 39 Note(3)	В	35.36	37.19							
	CD	36.00	37.85		05				١ , ,	20
	E	36.63 37.36	38.52		85	5		0.5	0.2	30
	F	38.14	40.11						İ	
		 	!							
RLZ 43	G	38.94	40.80	<i>E</i>	00		 		0.0	20
	+=	40.00	45.00	5	90	5	$+\overline{-}$	-	0.2	33
RLZ 47 RLZ 51	$+ \equiv$	44.00	49.00 54.00	5	90	5 5	$\vdash \equiv$	<u> </u>	0.2	36
RLZ 56	+-	48.00 53.00	60.00	5 5	100	5	+=	-	0.2	39 43
				<u>. </u>	er power is	·			U.Z	4-5

The Zener voltage is measured 40 ms after power is supplied.
 For the Zener voltage subdivisions, the free ranks (A, B, or C) or recommended when ordering.
 Zener voltages between 43 and 56 are grouped together in no particular order. 39E and above are available only on special order.

Zener characteristic curves

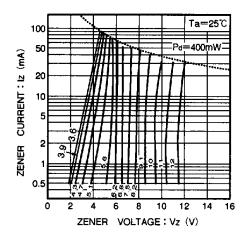


Fig. 1 RLZ3.9 ~ RLZ12 Zener characteristic

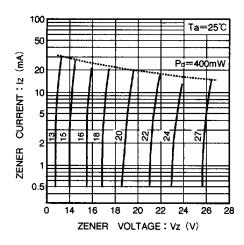


Fig. 2 RLZ13 ~ RLZ27 Zener characteristic

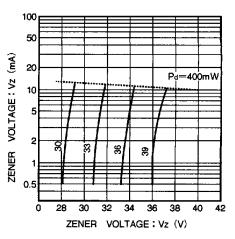


Fig. 3 RLZ30 ~ RLZ39 Zener characteristic

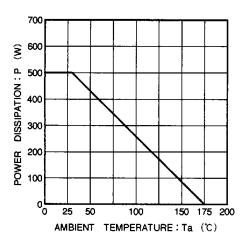


Fig. 4 Derating curve

174