Obsolete

·M·C·C·™

Micro Commercial Components

RoHS COMPLIANT

Micro Commercial Components
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LLZ2V4 THRU LLZ56

500mW Silicon Zener Diodes

Features

- Hermetically Sealed Glass Package
- Zener Voltage 2.4V to 56V
- For Surface Mount Applications
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates Compliant. See ordering information)

Mechanical Data

- Case: hermetically sealed glass
- Polarity: Cathode indicated by polarity band
- Junction ambient R_{thJA} :500 K/W (Note:2)
- Moisture Sensitivity Level 1

Maximum Ratings (Note:3)

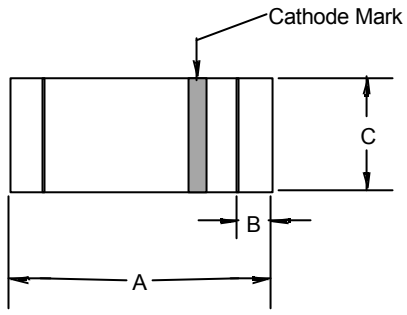
	Symbol	Value	Units
Max. Steady State Power Dissipation at	P_D	500	mW
Junction Temperature	T_J	175	℃
Storage Temperature Range	T_{STG}	-65 to 175	℃

Electrical Characteristics @ 25℃ Unless Otherwise Specified

	Symbol	Value	Unit
Max. Forward Voltage @ I_F=200mA	V_F	1.5	V

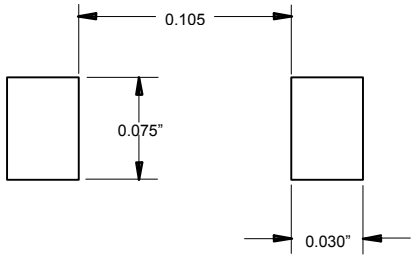
Note:1.Lead in Glass Exemption Applied, see EU Directive Annex 5.
2.On PC Board 50 mm x 50 mm x 1.6 mm
3.Some part number series have lower JEDEC registered ratings.

MINIMELF



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.130	.146	3.30	3.70	
B	.008	.016	.20	.40	
C	.055	.059	1.40	1.50	∅

SUGGESTED SOLDER PAD LAYOUT



Electrical Characteristics (T_L= 30°C Unless Otherwise Noted,

Part-number-group	Part-number	Marking Code	Zener Voltage		Dynamic Resistance		Test Current		Reverse Leakage Current	
			V_Z @ I_{ZT}		Z_Z @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZT}	I_{ZK}	I_R	@ V_R
			V	V	Ω	Ω	mA	mA	µA	V
			min	max	max	max			max	
LLZ2V4	LLZ2V4A	-----	2.33	2.52	100	2000	20	1	70	1
	LLZ2V4B	-----	2.43	2.63	100	2000	20	1	70	1
LLZ2V7	LLZ2V7A	-----	2.54	2.75	100	1000	20	1	50	1
	LLZ2V7B	-----	2.69	2.91	100	1000	20	1	50	1
LLZ3V0	LLZ3V0A	-----	2.85	3.07	80	1000	20	1	50	1
	LLZ3V0B	-----	3.01	3.22	80	1000	20	1	10	1
LLZ3V3	LLZ3V3A	-----	3.16	3.38	70	1000	20	1	10	1
	LLZ3V3B	-----	3.32	3.53	70	1000	20	1	10	1
LLZ3V6	LLZ3V6A	-----	3.455	3.695	60	1000	20	1	5	1
	LLZ3V6B	-----	3.6	3.845	60	1000	20	1	5	1
LLZ3V9	LLZ3V9A	-----	3.74	4.01	50	1000	20	1	3	1
	LLZ3V9B	-----	3.89	4.16	50	1000	20	1	3	1
LLZ4V3	LLZ4V3A	-----	4.04	4.29	40	1000	20	1	3	1
	LLZ4V3B	-----	4.17	4.43	40	1000	20	1	3	1
	LLZ4V3C	-----	4.3	4.57	40	1000	20	1	3	1
LLZ4V7	LLZ4V7A	-----	4.44	4.68	25	900	20	1	10	2
	LLZ4V7B	-----	4.55	4.8	25	900	20	1	6	2
	LLZ4V7C	-----	4.68	4.93	25	900	20	1	3	2
LLZ5V1	LLZ5V1A	-----	4.81	5.07	20	800	20	1	2	2
	LLZ5V1B	-----	4.94	5.2	20	800	20	1	2	2
	LLZ5V1C	-----	5.09	5.37	20	800	20	1	2	2
LLZ5V6	LLZ5V6A	-----	5.28	5.55	13	500	20	1	1	2
	LLZ5V6B	-----	5.45	5.73	13	500	20	1	1	2
	LLZ5V6C	-----	5.61	5.91	13	500	20	1	1	2
LLZ6V2	LLZ6V2A	-----	5.78	6.09	10	300	20	1	3	4
	LLZ6V2B	-----	5.96	6.27	10	300	20	1	3	4
	LLZ6V2C	-----	6.12	6.44	10	300	20	1	3	4
LLZ6V8	LLZ6V8A	-----	6.29	6.63	8	150	20	0.5	2	4
	LLZ6V8B	-----	6.49	6.83	8	150	20	0.5	2	4
	LLZ6V8C	-----	6.66	7.01	8	150	20	0.5	2	4
LLZ7V5	LLZ7V5A	-----	6.85	7.22	8	120	20	0.5	3	6.5
	LLZ7V5B	-----	7.07	7.45	8	120	20	0.5	3	6.73
	LLZ7V5C	-----	7.29	7.67	8	120	20	0.5	3	6.93
LLZ8V2	LLZ8V2A	-----	7.53	7.92	8	120	20	0.5	7.5	7.15
	LLZ8V2B	-----	7.78	8.19	8	120	20	0.5	7.5	7.39
	LLZ8V2C	-----	8.03	8.45	8	120	20	0.5	7.5	7.63
LLZ9V1	LLZ9V1A	-----	8.29	8.73	8	120	20	0.5	0.04	7.88
	LLZ9V1B	-----	8.57	9.01	8	120	20	0.5	0.04	8.14
	LLZ9V1C	-----	8.83	9.3	8	120	20	0.5	0.04	8.39
LLZ10	LLZ10A	-----	9.12	9.59	8	120	20	0.5	0.04	8.66
	LLZ10B	-----	9.41	9.9	8	120	20	0.5	0.04	8.94
	LLZ10C	-----	9.7	10.2	8	120	20	0.5	0.04	9.22
	LLZ10D	-----	9.94	10.44	8	120	20	0.5	0.04	9.44

Part-number-group	Part-number	Marking Code	Zener Voltage		Dynamic Resistance		Test Current		Reverse Leakage Current	
			V_Z @ I_{ZT}		Z_Z @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZT}	I_{ZK}	I_R	@ V_R
			V	V	Ω	Ω	mA	mA	μA	V
			min	max	max	max			max	
LLZ11	LLZ11A	-----	10.18	10.71	10	120	10	0.5	0.04	9.67
	LLZ11B	-----	10.5	11.05	10	120	10	0.5	0.04	9.98
	LLZ11C	-----	10.82	11.38	10	120	10	0.5	0.04	10.28
LLZ12	LLZ12A	-----	11.13	11.71	12	110	10	0.5	0.04	10.6
	LLZ12B	-----	11.44	12.03	12	110	10	0.5	0.04	10.9
	LLZ12C	-----	11.74	12.35	12	110	10	0.5	0.04	11.2
LLZ13	LLZ13A	-----	12.11	12.75	14	110	10	0.5	0.04	11.5
	LLZ13B	-----	12.55	13.21	14	110	10	0.5	0.04	11.9
	LLZ13C	-----	12.99	13.66	14	110	10	0.5	0.04	12.3
LLZ15	LLZ15A	-----	13.44	14.13	16	110	10	0.5	0.04	12.8
	LLZ15B	-----	13.89	14.62	16	110	10	0.5	0.04	13.2
	LLZ15C	-----	14.35	15.09	16	110	10	0.5	0.04	13.6
LLZ16	LLZ16A	-----	14.8	15.57	18	150	10	0.5	0.04	14.1
	LLZ16B	-----	15.25	16.04	18	150	10	0.5	0.04	14.5
	LLZ16C	-----	15.69	16.51	18	150	10	0.5	0.04	14.9
LLZ18	LLZ18A	-----	16.22	17.06	23	150	10	0.5	0.04	15.4
	LLZ18B	-----	16.82	17.7	23	150	10	0.5	0.04	16
	LLZ18C	-----	17.42	18.33	23	150	10	0.5	0.04	16.5
LLZ20	LLZ20A	-----	18.02	18.96	28	200	10	0.5	0.04	17.1
	LLZ20B	-----	18.63	19.59	28	200	10	0.5	0.04	17.7
	LLZ20C	-----	19.23	20.22	28	200	10	0.5	0.04	18.3
	LLZ20D	-----	19.72	20.72	28	200	10	0.5	0.04	18.7
LLZ22	LLZ22A	-----	20.15	21.2	30	200	5	0.5	0.04	19.1
	LLZ22B	-----	20.64	21.71	30	200	5	0.5	0.04	19.6
	LLZ22C	-----	21.08	22.17	30	200	5	0.5	0.04	20
	LLZ22D	-----	21.52	22.63	30	200	5	0.5	0.04	20.4
LLZ24	LLZ24A	-----	22.05	23.18	35	200	5	0.5	0.04	20.9
	LLZ24B	-----	22.61	23.77	35	200	5	0.5	0.04	21.5
	LLZ24C	-----	23.12	24.31	35	200	5	0.5	0.04	22
	LLZ24D	-----	23.63	24.85	35	200	5	0.5	0.04	22.4
LLZ27	LLZ27A	-----	24.26	25.52	45	250	5	0.5	0.04	23
	LLZ27B	-----	24.97	26.26	45	250	5	0.5	0.04	23.7
	LLZ27C	-----	25.63	26.95	45	250	5	0.5	0.04	24.3
	LLZ27D	-----	26.29	27.64	45	250	5	0.5	0.04	25
LLZ30	LLZ30A	-----	26.99	28.39	55	250	5	0.5	0.04	25.6
	LLZ30B	-----	27.7	29.13	55	250	5	0.5	0.04	26.3
	LLZ30C	-----	28.36	29.82	55	250	5	0.5	0.04	26.9
	LLZ30D	-----	29.02	30.51	55	250	5	0.5	0.04	27.6
LLZ33	LLZ33A	-----	29.68	31.22	65	250	5	0.5	0.04	28.2
	LLZ33B	-----	30.32	31.88	65	250	5	0.5	0.04	28.8
	LLZ33C	-----	30.9	32.5	65	250	5	0.5	0.04	29.4
	LLZ33D	-----	31.49	33.11	65	250	5	0.5	0.04	29.9
LLZ36	LLZ36A	-----	32.14	33.79	75	250	5	0.5	0.04	30.5
	LLZ36B	-----	32.79	34.49	75	250	5	0.5	0.04	31.2
	LLZ36C	-----	33.4	35.13	75	250	5	0.5	0.04	31.7
	LLZ36D	-----	34.01	35.77	75	250	5	0.5	0.04	32.3

Part-number-group	Part-number	Marking Code	Zener Voltage		Dynamic Resistance		Test Current		Reverse Leakage Current	
			V_Z @ I_{ZT}		Z_Z @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZT}	I_{ZK}	I_R	@ V_R
			V	V	Ω	Ω	mA	mA	µA	V
			min	max	max	max			max	
LLZ39	LLZ39A	-----	34.68	36.47	85	250	5	0.5	0.04	32.9
	LLZ39B	-----	35.36	37.19	85	250	5	0.5	0.04	33.6
	LLZ39C	-----	36	37.85	85	250	5	0.5	0.04	34.2
	LLZ39D	-----	36.63	38.52	85	250	5	0.5	0.04	34.8
	LLZ39E	-----	37.36	39.29	85	250	5	0.5	0.04	35.5
	LLZ39F	-----	38.14	40.11	85	250	5	0.5	0.04	36.2
	LLZ39G	-----	38.94	40.8	85	250	5	0.5	0.04	37
LLZ43	LLZ43	---	40	45	90	-	5	-	0.04	38
LLZ47	LLZ47	---	44	49	90	-	5	-	0.04	41.8
LLZ51	LLZ51	---	48	54	100	-	5	-	0.04	45.6
LLZ56	LLZ56	---	53	60	100	-	5	-	0.04	50.4

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

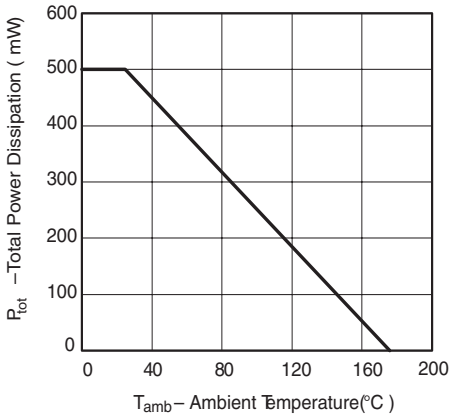


Fig. 1 Total Power Dissipation vs. Ambient Temperature

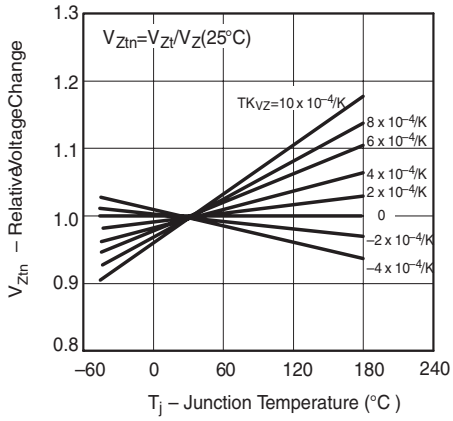


Fig. 3 Typical Change of Working Voltage vs. Junction Temperature

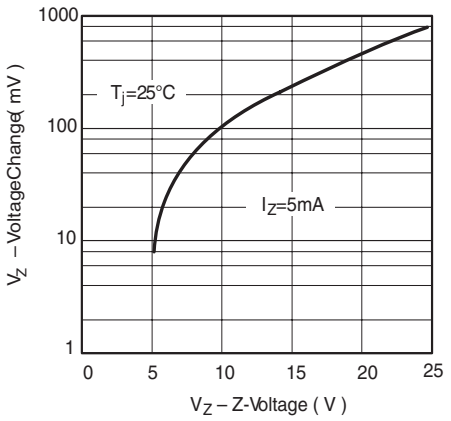


Fig. 2 Typical Change of Working Voltage under Operating Conditions at T_{amb}=25°C

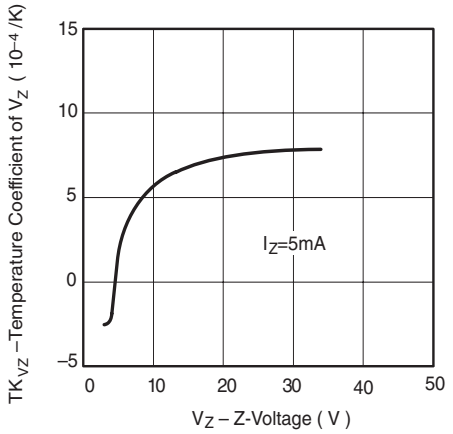


Fig. 4 Temperature Coefficient of Vz vs. Z-Voltage

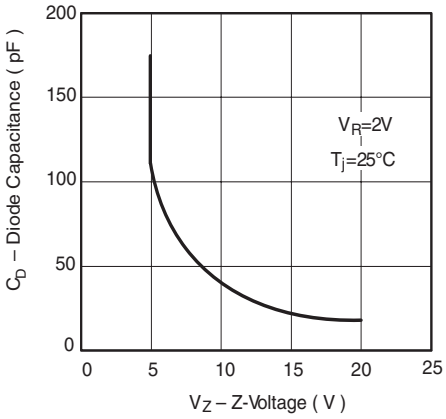


Fig. 5 Diode Capacitance vs. Z-Voltage

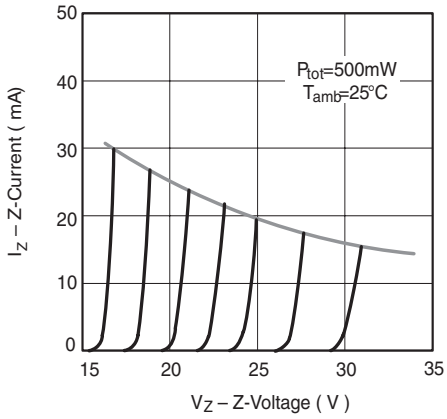


Fig. 8 Z-Current vs. Z-Voltage

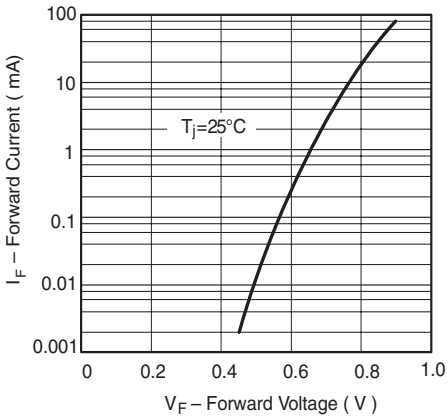


Fig. 6 Forward Current vs. Forward Voltage

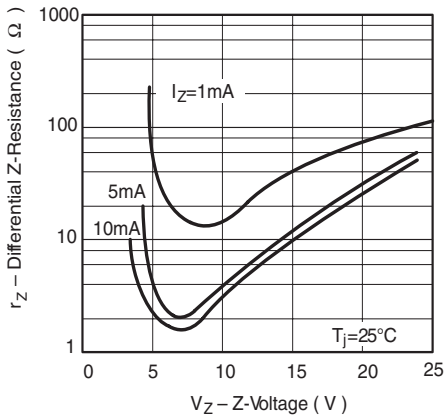


Fig. 9 Differential Z-Resistance vs. Z-Voltage

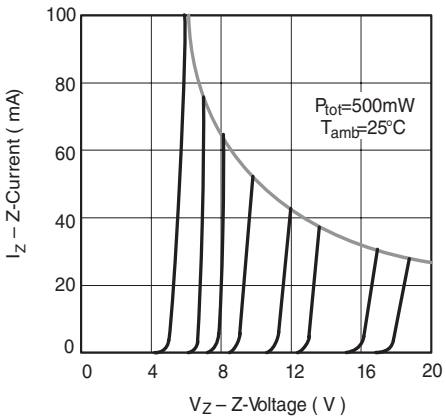


Fig. 7 Z-Current vs. Z-Voltage

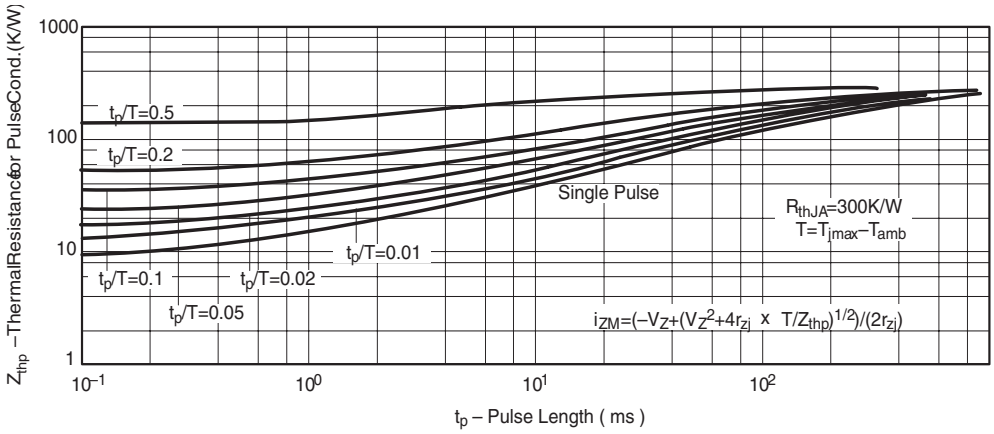


Fig. 10 Thermal Response

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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