Surface Mount Zener Diodes

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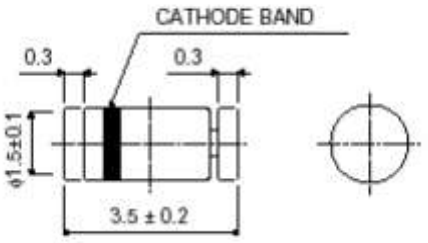
CZRL55C2V4 Thru CZRL55C75

Voltage: 2.4 - 75 Volts
Power: 500 mW

Features

- Silicon Planar Power Zener Diodes
- For use as low voltage stabilizer or voltage reference.
- The Zener voltages are graded according to the international E 24 standard. Higher zener voltages and 1% tolerance available on request.

MiniMELF (SOD-80)



Dimensions in mm

Mechanical data

Case: MiniMELF Glass Case (SOD-80)
Approx. Weight: 0.05 g

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener Current see Table "Characteristics"			
Power Dissipation at T_{flange} = 50°C	P_{tot}	500	mW
Power Dissipation at T_A = 50°C	P_{tot}	400(1)	mW
Junction temperature	T_J	–65 to +200	°C
Storage temperature range	T_S	–65 to +200	°C
Continuous Forward Current	I_F	250	mA
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	0.38(1)	°C/mW
Thermal Resistance Junction to Lead	$R_{\theta JL}$	0.30	°C/mW
Peak reverse power dissipation (non-repetitive) t_p = 100µs	P_{ZSM}	30(2)	W

Notes: (1) Mounted on ceramic substrate 10mm x 10mm x 0.6mm
(2) Tj = 150°C

Maximum Ratings and Electrical Characterics

(TA=25°C unless otherwise noted) Max. V_F = 0.9V at I_F = 10mA

Type y = B for ±2% VZ y = F for ±3% VZ y = C for ±5% VZ	Dynamic Resistance at I_Z = 5mA f = 1kHZ r_{zj} (ohm) max	 at I_Z = 1mA f = 1kHZ r_{zj} (ohm) max	Temperature coefficient of Zener Voltage at I_Z = 5mA α_{VZ} (% / °C) Min	 Max	Reverse leakage current at T_{amb} = 25°C I_R (uA)	 at V_R (V)
CZRL55C2V4	100.0	600	–0.08	–0.06	50	1
CZRL55C2V7	100.0	600	–0.08	–0.06	20	1
CZRL55C3V0	95.0	600	–0.08	–0.06	10	1
CZRL55C3V3	95.0	600	–0.08	–0.05	5	1
CZRL55C3V6	90.0	600	–0.08	–0.04	5	1
CZRL55C3V9	90.0	600	–0.07	–0.03	3	1
CZRL55C4V3	90.0	600	–0.04	–0.01	3	1
CZRL55C4V7	80.0	500	–0.03	+0.01	3	2
CZRL55C5V1	60.0	480	–0.02	+0.05	2	2
CZRL55C5V6	40.0	400	–0.01	+0.06	1	2
CZRL55C6V2	10.0	150	0	+0.07	3	4
CZRL55C6V8	15.0	80	+0.01	+0.08	2	4
CZRL55C7V5	15.0	80	+0.01	+0.09	1	5
CZRL55C8V2	15.0	80	+0.01	+0.09	0.7	5
CZRL55C9V1	15.0	100	+0.02	+0.1	0.5	6
CZRL55C10	20.0	150	+0.03	+0.11	0.2	7
CZRL55C11	20.0	150	+0.03	+0.11	0.1	8
CZRL55C12	25.0	150	+0.03	+0.11	0.1	8
CZRL55C13	30.0	170	+0.03	+0.11	0.1	8
CZRL55C15	30	200	+0.03	+0.11	0.05	10
CZRL55C16	40	200	+0.03	+0.11	0.05	11
CZRL55C18	45	225	+0.03	+0.11	0.05	13
CZRL55C20	55	225	+0.03	+0.11	0.05	14
CZRL55C22	55	250	+0.03	+0.11	0.05	15
CZRL55C24	70	250	+0.04	+0.12	0.05	17
CZRL55C27	80(3)	300(4)	+0.04(3)	+0.12 (3)	0.05	19
CZRL55C30	80(3)	300(4)	+0.04(3)	+0.12 (3)	0.05	21
CZRL55C33	80(3)	325(4)	+0.04(3)	+0.12 (3)	0.05	23
CZRL55C36	90(3)	350(4)	+0.043)	+0.12 (3)	0.05	25
CZRL55C39	130(3)	350(4)	+0.04(3)	+0.12 (3)	0.05	27
CZRL55C43	150(3)	375(4)	+0.04(3)	+0.12 (3)	0.05	30
CZRL55C47	170(3)	375(4)	+0.04(3)	+0.12 (3)	0.05	33
CZRL55C51	180(3)	400(4)	+0.04(3)	+0.12 (3)	0.05	36
CZRL55C56	200(3)	425(4)	typ. +0.1(3)		0.05	39
CZRL55C62	215(3)	450(4)	typ. +0.1(3)		0.05	43
CZRL55C68	240(3)	475(4)	typ. +0.1(3)		0.05	48
CZRL55C75	255(3)	500(4)	typ. +0.1(3)		0.05	53

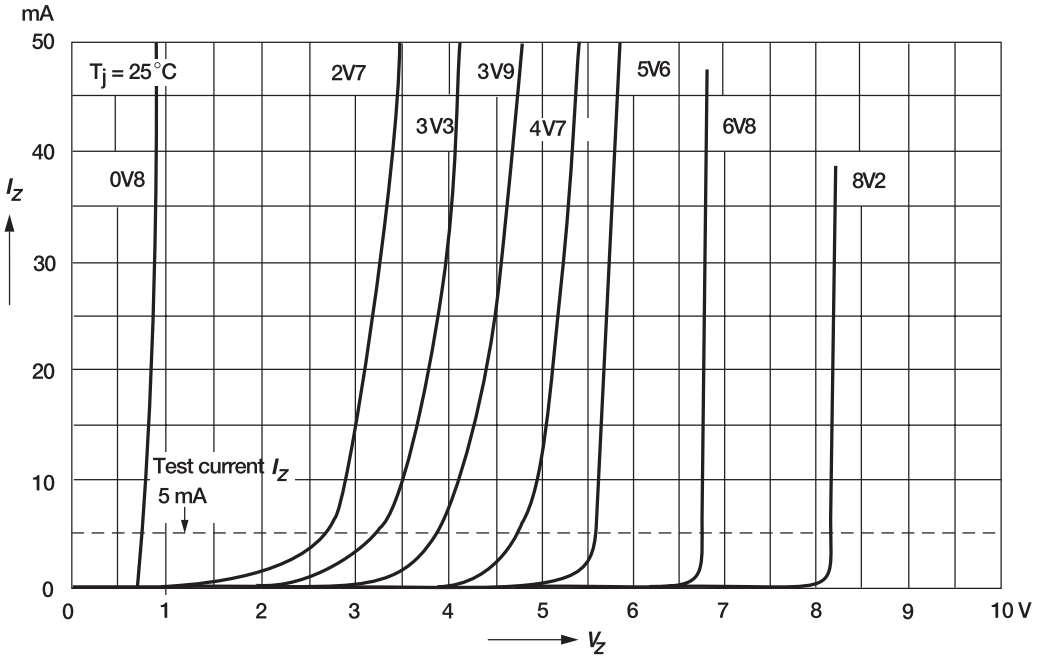
Notes:
(1) Tested with pulses tp = 5 ms.
(2) Valid provided that electrodes are kept at ambient temperature.
(3) at IZ = 2.0 mA
(4) at IZ = 0.5 mA
y = Zener voltage tolerance designator (see next page for VZ specifications)

Rating and Characteristic Curves (CZRL55C2V4 Thru CZRL55C75)

(T_A = 25°C unless otherwise noted)

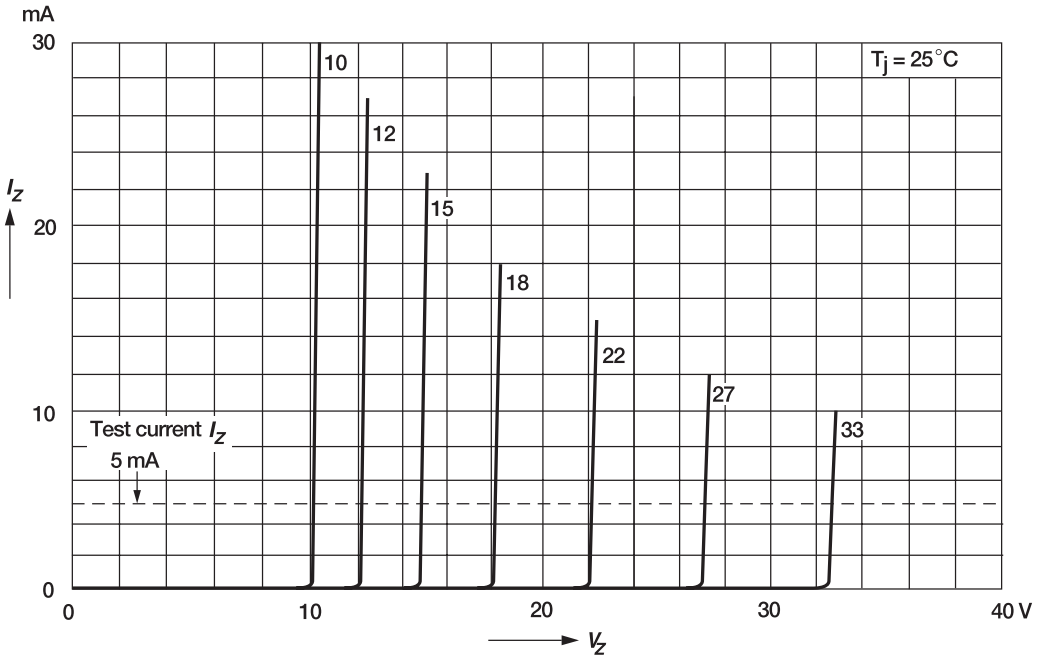
Breakdown characteristics

at T_j = constant (pulsed)



Breakdown characteristics

at T_j = constant (pulsed)

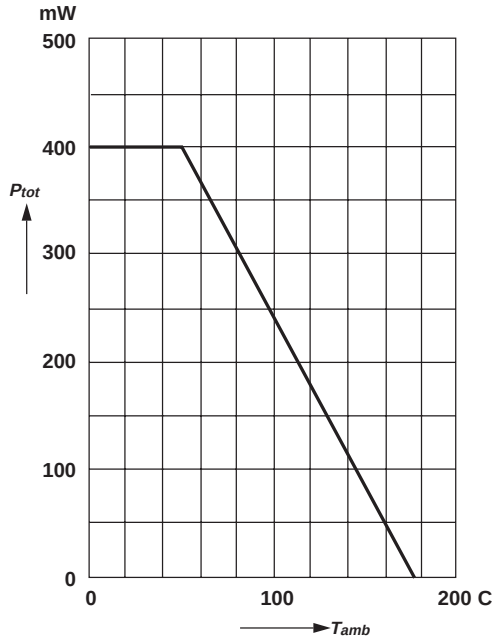


Rating and Characteristic Curves (CZRL55C2V4 Thru CZRL55C75)

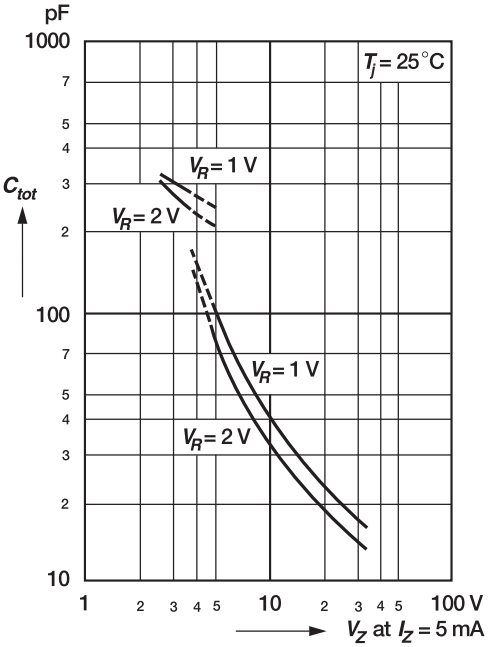
(T_A = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature.

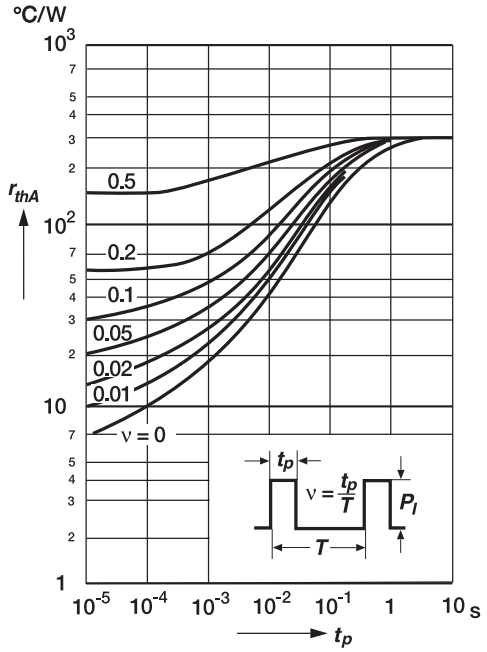


Capacitance versus Zener voltage

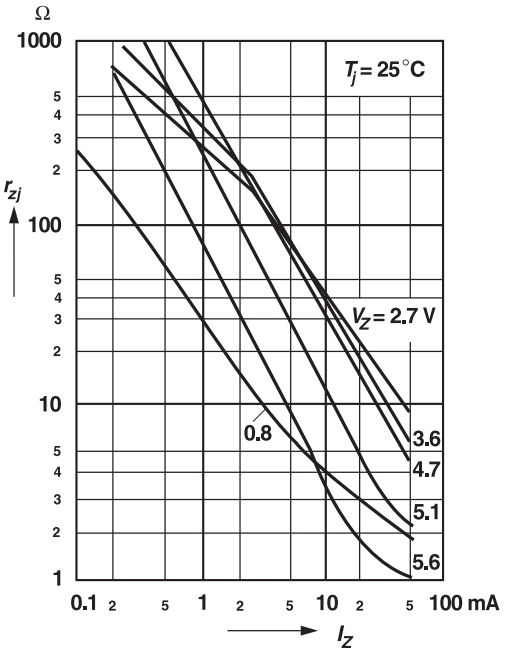


Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



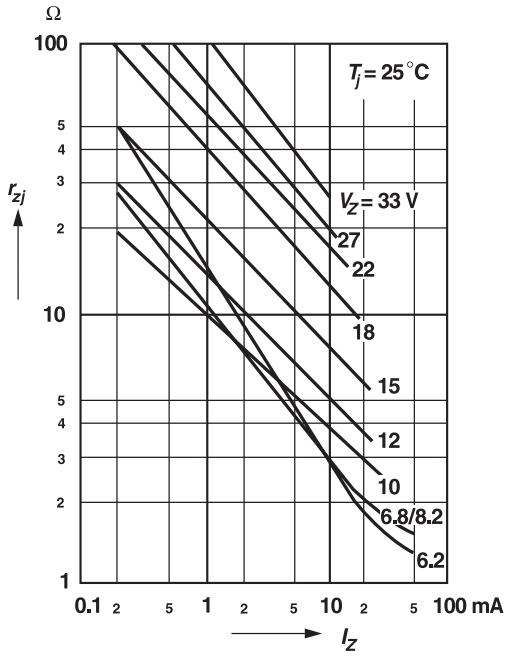
Dynamic resistance versus Zener current



Rating and Characteristic Curves (CZRL55C2V4 Thru CZRL55C75)

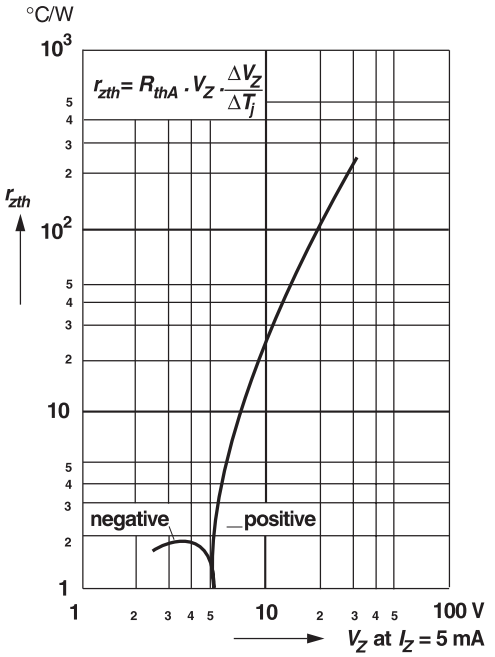
(T_A = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

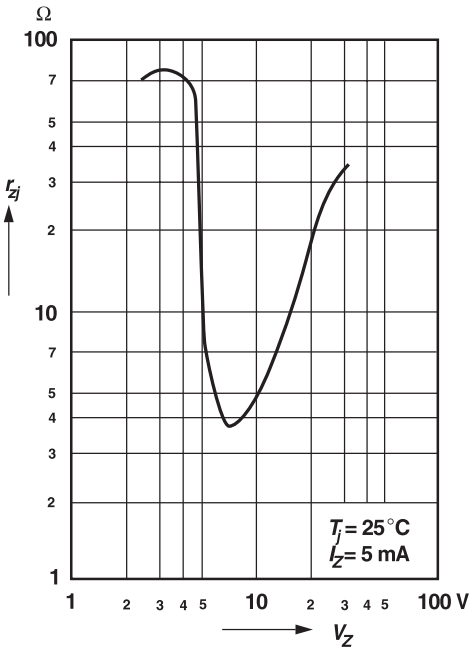


Thermal differential resistance versus Zener voltage

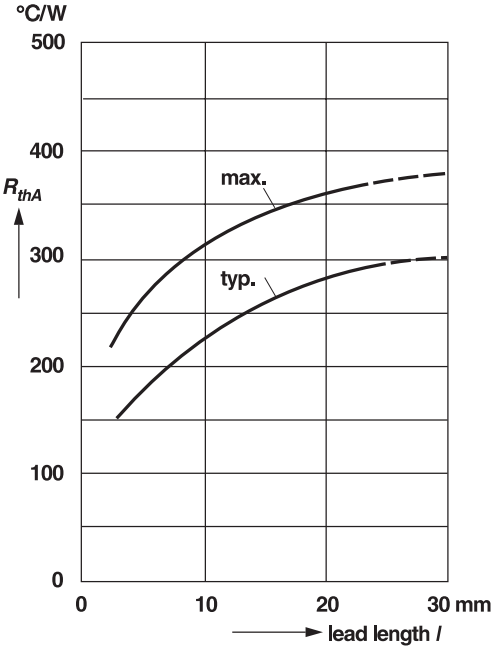
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage



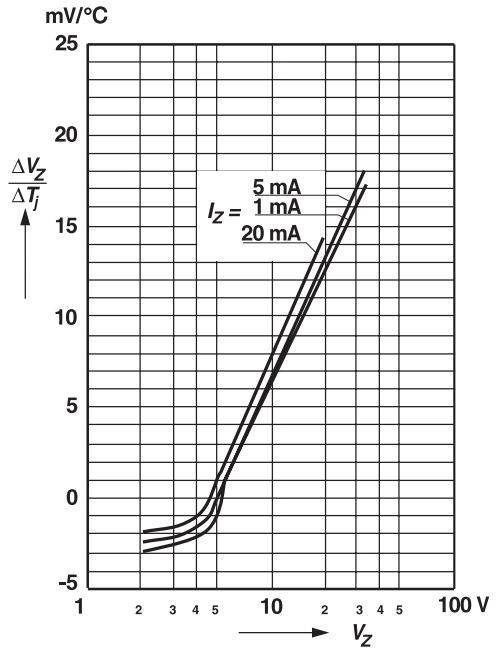
Thermal resistance versus lead length



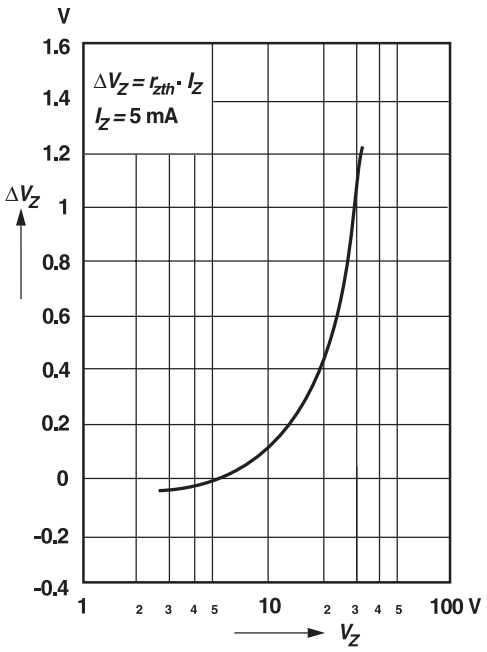
Rating and Characteristic Curves (CZRL55C2V4 Thru CZRL55C75)

(T_A = 25°C unless otherwise noted)

Temperature dependence of Zener voltage versus Zener voltage



Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



Change of Zener voltage versus junction temperature