

Zener diode

Features

1. High reliability
2. Very sharp reverse characteristic
3. Low reverse current level
4. V_Z -tolerance $\pm 5\%$

Applications

Voltage stabilization



Absolute Maximum Ratings

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$T_{\text{amb}} \leq 50^\circ\text{C}$		P_V	1	W
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	200	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^\circ\text{C}$

Maximum Thermal Resistance

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	$l = 9.5\text{mm}(3/8")$ $T_L = \text{constant}$	R_{thJA}	100	K/W

Electrical Characteristics

$T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 200\text{mA}$		V_F			1.2	V

Type	$V_{Znom}^{1)}$	I_{ZT} for		r_{zK} at		I_R at	
	V	mA	Ω	Ω	mA	μA	V
1N4728A	3.3	76	<10	<400	1	<100	1
1N4729A	3.6	69	<10	<400	1	<100	1
1N4730A	3.9	64	<9	<400	1	<50	1
1N4731A	4.3	58	<9	<400	1	<10	1
1N4732A	4.7	53	<8	<500	1	<10	1
1N4733A	5.1	49	<7	<550	1	<10	1
1N4734A	5.6	45	<5	<600	1	<10	2
1N4735A	6.2	41	<2	<700	1	<10	3
1N4736A	6.8	37	<3.5	<700	1	<10	4
1N4737A	7.5	34	<4.0	<700	0.5	<10	5
1N4738A	8.2	31	<4.5	<700	0.5	<10	6
1N4739A	9.1	28	<5.0	<700	0.5	<10	7
1N4740A	10	25	<7	<700	0.25	<10	7.6
1N4741A	11	23	<8	<700	0.25	<5	8.4
1N4742A	12	21	<9	<700	0.25	<5	9.1
1N4743A	13	19	<10	<700	0.25	<5	9.9
1N4744A	15	17	<14	<700	0.25	<5	11.4
1N4745A	16	15.5	<16	<700	0.25	<5	12.2
1N4746A	18	14	<20	<750	0.25	<5	13.7
1N4747A	20	12.5	<22	<750	0.25	<5	15.2
1N4748A	22	11.5	<23	<750	0.25	<5	16.7
1N4749A	24	10.5	<25	<750	0.25	<5	18.2
1N4750A	27	9.5	<35	<750	0.25	<5	20.6
1N4751A	30	8.5	<40	<1000	0.25	<5	22.8
1N4752A	33	7.5	<45	<1000	0.25	<5	25.1
1N4753A	36	7.0	<50	<1000	0.25	<5	27.4
1N4754A	39	6.5	<60	<1000	0.25	<5	29.7
1N4755A	43	6.0	<70	<1500	0.25	<5	32.7
1N4756A	47	5.5	<80	<1500	0.25	<5	35.8
1N4757A	51	5.0	<95	<1500	0.25	<5	38.8
1N4758A	56	4.5	<110	<2000	0.25	<5	42.6
1N4759A	62	4.0	<125	<2000	0.25	<5	47.1
1N4760A	68	3.7	<150	<2000	0.25	<5	51.7
1N4761A	75	3.3	<175	<2000	0.25	<5	56

1) Based on DC-measurement at thermal equilibrium while maintaining the lead temperature(T_L) at 30°C, 9.5mm(3/8") from the diode body.

Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter
V_Z	Reverse zener voltage @ I_{ZT}
I_{ZT}	Reverse current
Z_{ZT}	Maximum zener impedance @ I_{ZT}
I_{ZK}	Reverse current
Z_{ZK}	Maximum zener impedance @ I_{ZK}
I_R	Reverse leakage current @ V_R
V_R	Breakdown voltage
I_F	Forward current
V_F	Forward voltage @ I_F

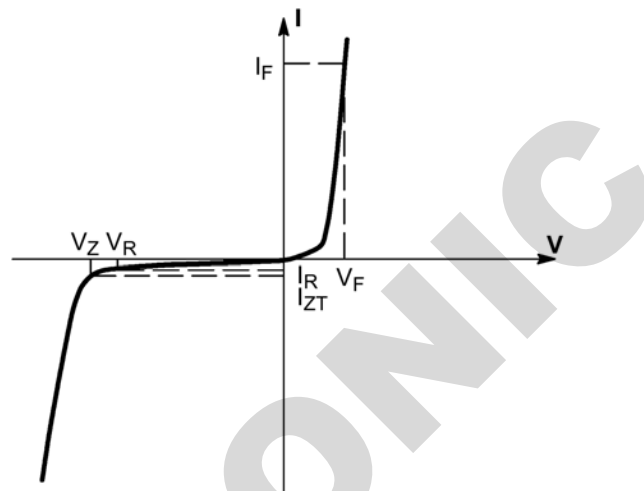


Figure 1. Zener voltage regulator

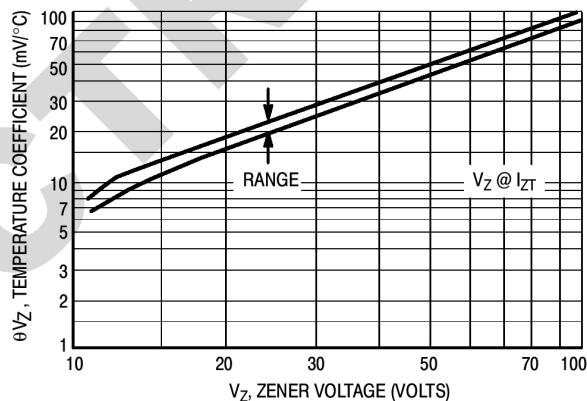
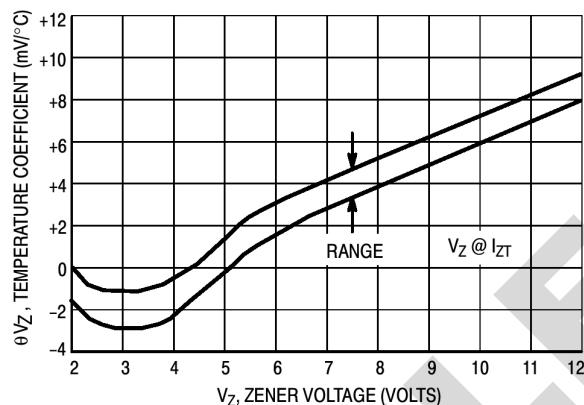


Figure 2. Temperature coefficients

(-55°C to $+150^\circ\text{C}$ temperature range; 90% of the units are in the ranges indicated.)

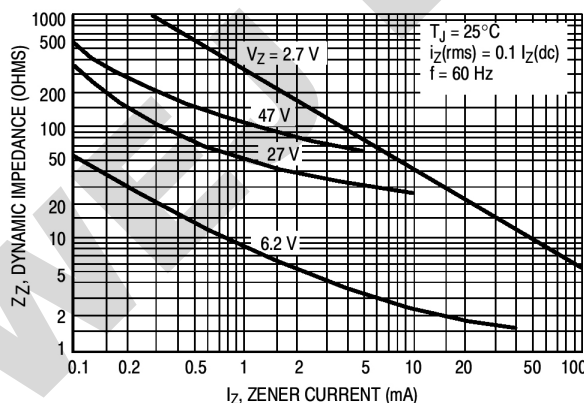


Figure 3. Effect of zener current on zener impedance

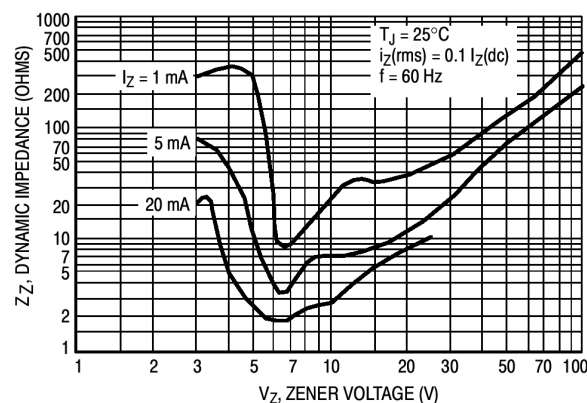
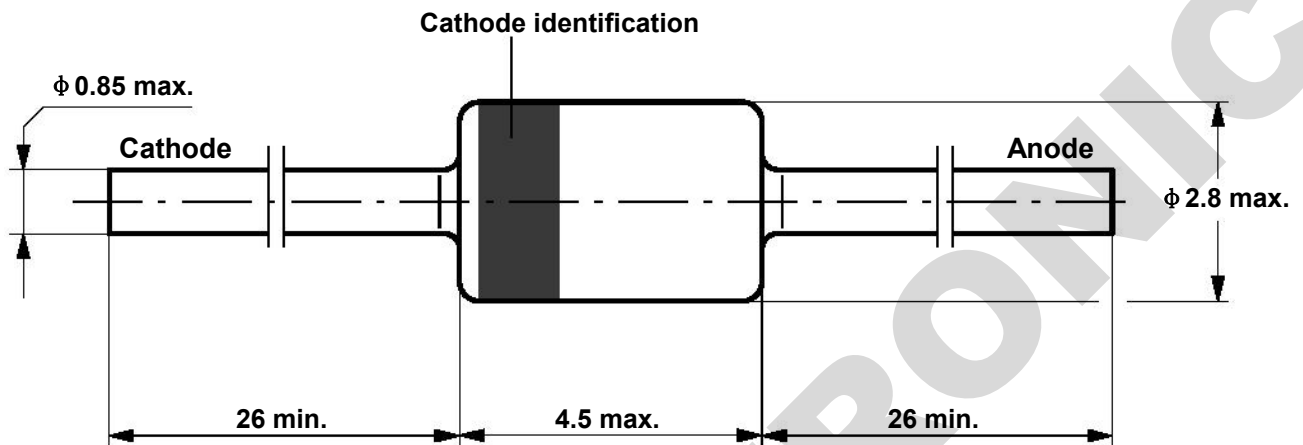


Figure 4. Effect of zener voltage on zener impedance

Dimensions in mm



Standard Glass Case
JEDEC DO 41