

# 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			$T_{\text{stg}}$	-65~+175	$^\circ\text{C}$

## Maximum Thermal Resistance

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

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

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

## 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

# DL4728A~DL4764A

Type	V <sub>Znom1</sub> V	I <sub>ZT</sub> mA	for r <sub>ZT</sub> Ω	r <sub>ZK</sub> at Ω	I <sub>ZK</sub> mA	I <sub>R</sub> at μA	V <sub>R</sub> V
DL4728A	3.3	76	<10	<400	1	<100	1
DL4729A	3.6	69	<10	<400	1	<100	1
DL4730A	3.9	64	<9	<400	1	<50	1
DL4731A	4.3	58	<9	<400	1	<10	1
DL4732A	4.7	53	<8	<500	1	<10	1
DL4733A	5.1	49	<7	<550	1	<10	1
DL4734A	5.6	45	<5	<600	1	<10	2
DL4735A	6.2	41	<2	<700	1	<10	3
DL4736A	6.8	37	<3.5	<700	1	<10	4
DL4737A	7.5	34	<4.0	<700	0.5	<10	5
DL4738A	8.2	31	<4.5	<700	0.5	<10	6
DL4739A	9.1	28	<5.0	<700	0.5	<10	7
DL4740A	10	25	<7	<700	0.25	<10	7.6
DL4741A	11	23	<8	<700	0.25	<5	8.4
DL4742A	12	21	<9	<700	0.25	<5	9.1
DL4743A	13	19	<10	<700	0.25	<5	9.9
DL4744A	15	17	<14	<700	0.25	<5	11.4
DL4745A	16	15.5	<16	<700	0.25	<5	12.2
DL4746A	18	14	<20	<750	0.25	<5	13.7
DL4747A	20	12.5	<22	<750	0.25	<5	15.2
DL4748A	22	11.5	<23	<750	0.25	<5	16.7
DL4749A	24	10.5	<25	<750	0.25	<5	18.2
DL4750A	27	9.5	<35	<750	0.25	<5	20.6
DL4751A	30	8.5	<40	<1000	0.25	<5	22.8
DL4752A	33	7.5	<45	<1000	0.25	<5	25.1
DL4753A	36	7.0	<50	<1000	0.25	<5	27.4
DL4754A	39	6.5	<60	<1000	0.25	<5	29.7
DL4755A	43	6.0	<70	<1500	0.25	<5	32.7
DL4756A	47	5.5	<80	<1500	0.25	<5	35.8
DL4757A	51	5.0	<95	<1500	0.25	<5	38.8
DL4758A	56	4.5	<110	<2000	0.25	<5	42.6
DL4759A	62	4.0	<125	<2000	0.25	<5	47.1
DL4760A	68	3.7	<150	<2000	0.25	<5	51.7
DL4761A	75	3.3	<175	<2000	0.25	<5	56
DL4762A	82	3.0	<200	<3000	0.25	<5	62.2
DL4763A	91	2.8	<250	<3000	0.25	<5	69.2
DL4764A	100	2.5	<350	<3000	0.25	<5	76

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.

# DL4728A~DL4764A

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 @ $I_F$

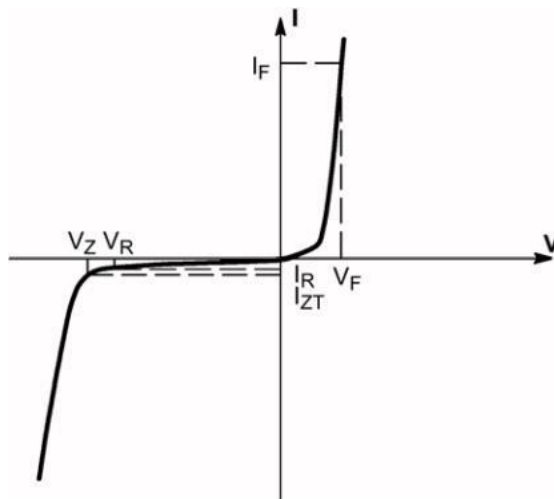


Figure 1. Zener voltage regulator

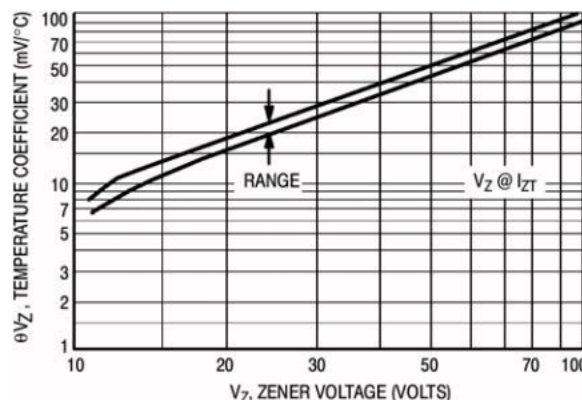
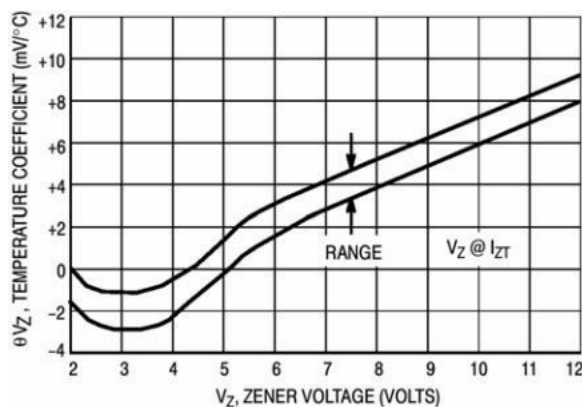


Figure 2. Temperature coefficients

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

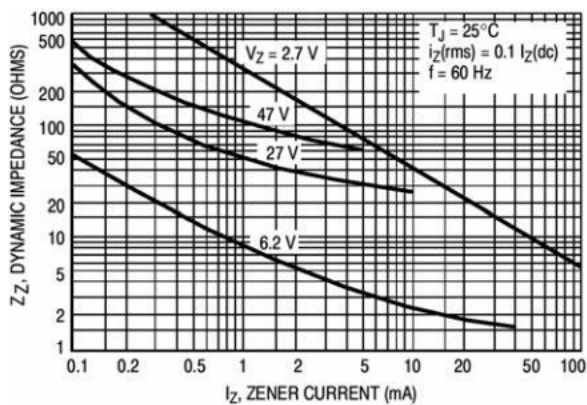


Figure 3. Effect of zener current on zener impedance

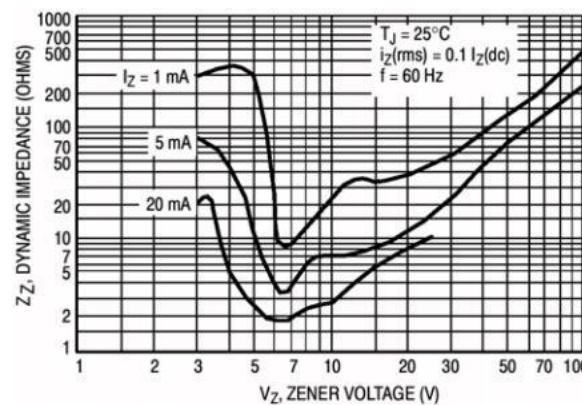
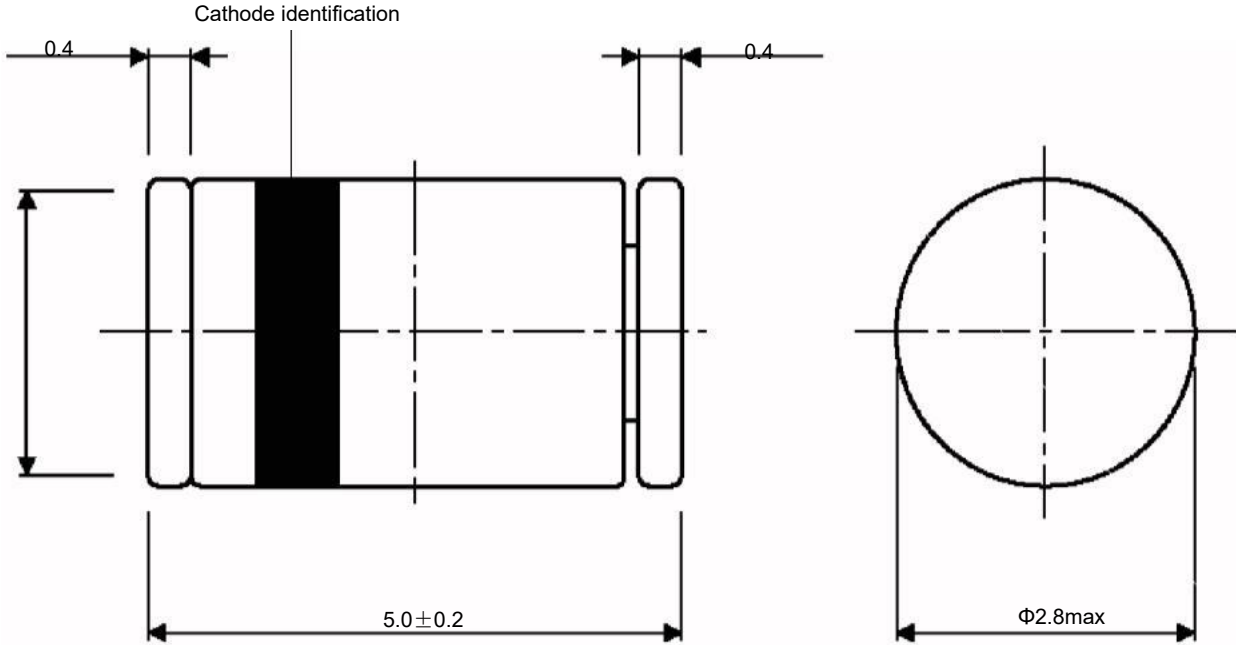


Figure 4. Effect of zener voltage on zener impedance

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Dimensions in mm



Standard Glass Case  
JEDEC LL-41