Current Regulator Diodes

1N7048-1_1N7055-1

Product Overview

Figure 1. DO-204AA (Formerly DO-7)

Features

- Constant current over wide voltage range
- High source impedance
- Metallurgically bonded
- Double plug construction
- Qualified per MIL-PRF-19500/463

Qualified Levels

- JAN
- JANTX
- JANTXV
- JANS

1. Maximum Ratings

Table 1-1. Maximum Ratings at 25 °C Unless Otherwise Noted

Parameter	Value
Operating temperature:	–65°C to +175 °C
Storage temperature:	–65°C to +175 °C
DC power dissipation:	500 mW at +50 °C at TL = 3/8”
Power derating:	4 mW/°C above +50 °C

1.1 Electrical Characteristics

Table 1-2. Electrical Characteristics at 25 °C Unless Otherwise Stated

Type Number	Regulator Current I_P (mA) at V_S = 25V [1]			Minimum Dynamic Impedance at V_S = 25 Z_S (kΩ) [2]	Minimum Knee Impedance at V_K = 6.0V Z_K (kΩ) [3]	Maximum Limiting Voltage at I_L = 0.8 I_P (min) V_L (volts)	Peak Operating Voltage Volts
	Nom.	Min.	Max.				
1N7048-1	5.10	4.59	5.61	100	4.0	3.67	80
1N7049-1	5.60	5.04	6.16	90	4.0	4.03	80
1N7050-1	6.20	5.58	6.82	80	3.0	4.46	70
1N7051-1	6.80	6.12	7.48	70	2.0	4.90	70
1N7052-1	7.50	6.75	8.25	50	1.5	5.40	60
1N7053-1	8.20	7.38	9.02	30	1.5	5.90	60
1N7054-1	9.10	8.19	10.01	20	1.0	6.55	50
1N7055-1	10.00	9.00	11.10	10	1.0	7.20	50

Notes:

1. Pulse measurement at 1% duty cycle, 10 milliseconds maximum.
2. Z_S is derived by superimposing a 90 Hz RMS signal equal to 10% of V_S on V_S.
3. Z_K is derived by superimposing a 90 Hz RMS signal equal to 10% of V_K on V_K.

2. Package Dimensions

Figure 2-1. Physical Dimensions for DO-204AA (Formerly DO-7)

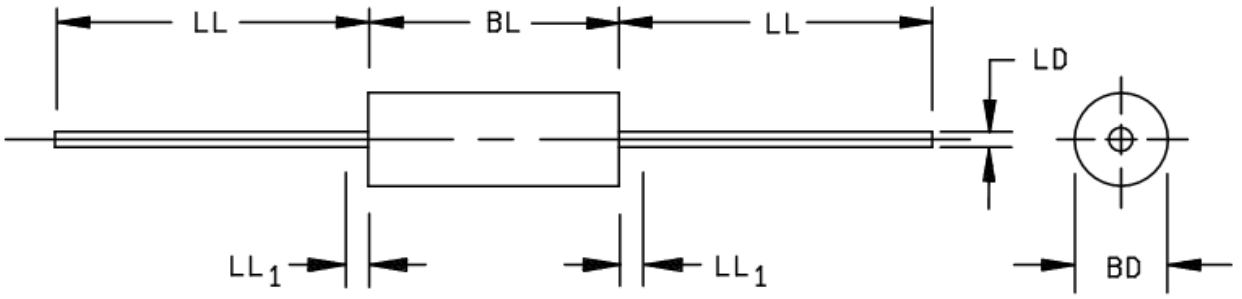

Table 2-1. Package Dimensions

Ltr	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
BD	0.060	0.107	1.52	2.72
BL	0.120	0.300	3.05	7.62
LD	0.018	0.023	0.46	0.58
LL	1.000	1.500	25.40	38.10
LL_1	—	0.050	—	1.27

Notes:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. The minimum body diameter shall be maintained over 0.15 inch (3.81 mm) inch of body length.
4. The specified lead diameter applies in the zone between 0.050 inch (1.27 mm) and the end of the lead. Outside of this zone the lead diameter shall not exceed LD.
5. Both leads shall be within the specified dimension.
6. See 3.3 for L and TL definitions.
7. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

2.1 Design Data

- Case: Hermetically sealed glass case. DO-204AA (Formerly DO-7) outline
- Lead material: Copper clad steel
- Lead finish: Tin/lead
- Thermal Resistance: ($R_{\theta JEC}$): 250 °C/W maximum at L = 0.375 inch
- Thermal Impedance: ($z_{\theta JX}$): 25 °C/W maximum
- Polarity: Diode to be operated with the banded (cathode) end negative.
- Mounting position: Any

3. Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

Revision	Date	Description
A	01/2025	Microsemi document LDS-0012 was converted to the Microchip template and assigned literature number DS00005744.

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ISBN: 979-8-3371-0383-9

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