

# 1N3595-1, 1N3595A-1 1N3595UR-1, 1N3595AUR-1

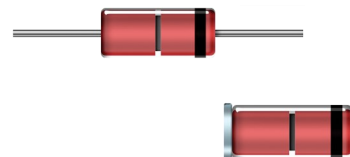


## Low Leakage Controlled Forward Voltage Diode

Rev. V1

### Features

- Available in JAN, JANTX and JANTXV per MIL-PRF-19500/241
- Metallurgically Bonded
- Hermetically Sealed
- Double Plug Construction
- Non Cavity Hard Glass Package



### DC Electrical Characteristics $T_A = +25^\circ\text{C}$ (unless otherwise specified)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Forward Voltage	$I_F = 200 \text{ mA dc}$	$V_{F1}$	V dc	.83	1.00
Forward Voltage	$I_F = 100 \text{ mA dc}$	$V_{F2}$	V dc	.79	.92
Forward Voltage	$I_F = 50 \text{ mA dc}$	$V_{F3}$	V dc	.74	.88
Forward Voltage	$I_F = 10 \text{ mA dc}$	$V_{F4}$	V dc	.65	.80
Forward Voltage	$I_F = 5 \text{ mA dc}$	$V_{F5}$	V dc	.60	.765
Forward Voltage	$I_F = 1 \text{ mA dc}$	$V_{F6}$	V dc	.52	.70
Reverse Current Leakage (1N3595-1, 1N3595UR-1)	$V_R = 125 \text{ V dc}$	$I_{R1}$	nA dc	—	1.0
Reverse Current Leakage (1N3595A-1, 1N3595AUR-1)	$V_R = 125 \text{ V dc}$	$I_{R1}$	nA dc	—	2.0
Reverse Current Leakage	$T_A = +150^\circ\text{C}; V_R = 125 \text{ V dc}$	$I_{R2}$	$\mu\text{A dc}$	—	3.0
Breakdown Voltage	$T_A = -55^\circ\text{C}; I_R = 100 \mu\text{A dc}$	$V_{(BR)}$	V dc	150	—
Capacitance	$V_R = 0 \text{ V dc}; f = 1 \text{ MHz}$	C	pF	—	8.0
Reverse Recovery Time	$I_F = 10 \text{ mA dc}; V_R = 35 \text{ V dc};$ $R = 1,000 \Omega; .6 \mu\text{F}$	$t_{rr}$	$\mu\text{s}$	—	3

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### Absolute Maximum Ratings ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Absolute Maximum
Working Voltage	$V_{RWM}$	125 V (pk)
Average Rectified Output Current <sup>(1) (2)</sup>	$I_O$	150 mA dc
Forward Surge Current ( $t_p = 1$ s)	$I_{FSM}$	500 mA (pk)
Forward Surge Current ( $t_p = 1$ $\mu$ s)	$I_{FSM}$	4 A (pk)
Junction Temperature	$T_J$	$-65^\circ\text{C}$ to $+175^\circ\text{C}$
Storage Temperature	$T_{STG}$	$-65^\circ\text{C}$ to $+175^\circ\text{C}$

### Thermal Characteristics ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Absolute Maximum
Thermal Resistance Junction to Lead ( $L = .375$ inch, 9.53 mm)	$R_{\theta JL}$	$250^\circ\text{C/W}$
Thermal Resistance Junction to End Cap	$R_{\theta JEC}$	$100^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (PCB)	$R_{\theta JA}$	$275^\circ\text{C/W}$

(1) For temperature-current derating curves, see figure 9.

(2)  $T_A = +75^\circ\text{C}$  for both axial and MELF diodes (US) on printed circuit board (PCB), PCB = FR4  $\sim .0625$  inch (1.59mm) 1-layer, 1-Oz Cu, horizontal, in still air; pads for (US) =  $.061$  inch (1.55 mm) x  $.105$  inch (2.67 mm); pads for axial =  $.092$  inch (2.34 mm) diameter, strip =  $.030$  inch (0.76 mm) x 1 inch (25.4 mm) long, lead length  $L \leq .187$  inch ( $\leq 4.75$  mm);  $R_{\theta JA}$  with a defined PCB thermal resistance condition included, is measured at  $I_O = 150$  mA dc.

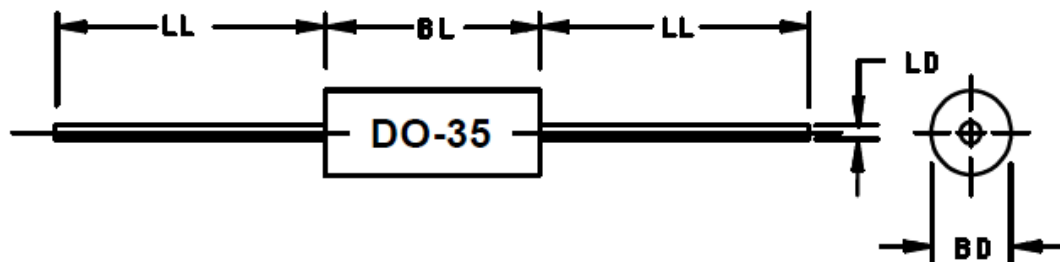
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## Outline Drawings (DO-35)



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	.056	.075	1.42	1.91
BL	.140	.180	3.56	4.57
LD	.018	.022	0.46	0.56
LL	1.000	1.500	25.40	38.10

### NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5, diameters are equivalent to  $\Phi$ x symbology.
4. Dimensions are pre-solder dip.

FIGURE 1. Physical dimensions - 1N3595-1, 1N3595A-1 (DO-35).

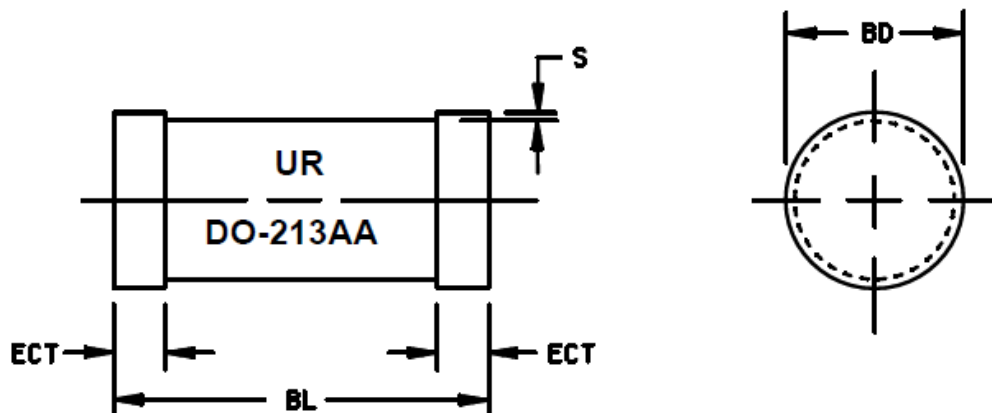
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## Outline Drawings (DO-213AA)



Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.063	.067	1.60	1.70	
BL	.130	.146	3.30	3.70	
ECT	.016	.022	0.41	0.55	
S	0 min		0 min		4

### NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimensions are pre-solder dip.
4. Dimension S is optional however the glass body diameter shall not exceed endcap diameter.
- \* 5. In accordance with ASME Y14.5, diameters are equivalent to  $\Phi$ x symbology.

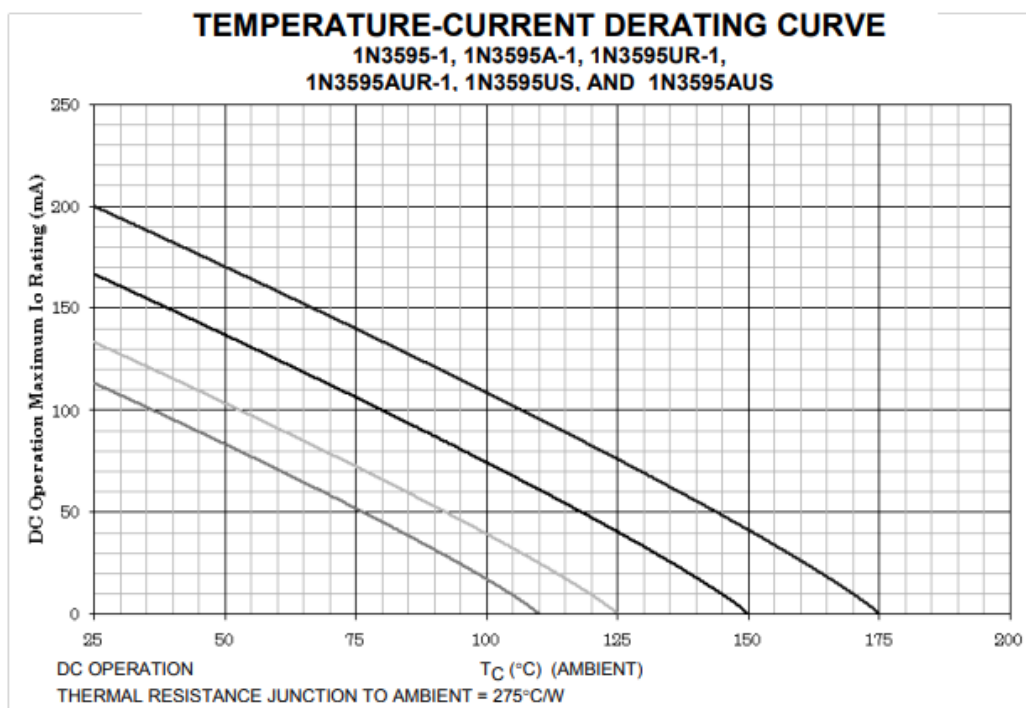
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## Temperature-Current Derating Curve



### NOTES:

1. This is the true inverse of the worst case thermal resistance value. All devices are capable of operating at  $\leq T_J$  specified on this curve. Any parallel line to this curve will intersect the appropriate power for the desired maximum  $T_J$  allowed.
2. Derate design curve constrained by the maximum junction temperature ( $T_J \leq 175^\circ\text{C}$ ) and power/current rating specified. (See 1.3 herein.)
3. Derate design curve chosen at  $T_J \leq 150^\circ\text{C}$ , where the maximum temperature of electrical test is performed.
4. Derate design curves chosen at  $T_J \leq 125^\circ\text{C}$ , and  $110^\circ\text{C}$  to show power/current rating where most users want to limit  $T_J$  in their application.

FIGURE 9. Temperature-current derating graph.

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