

TYPES 1N957 THRU 1N973, 1N957A THRU 1N973A, 1N957B THRU 1N973B SILICON VOLTAGE-REGULATOR DIODES

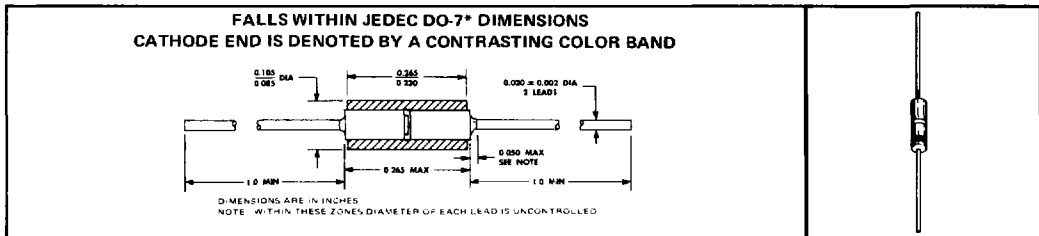
BULLETIN NO. DL-S 7311943, MARCH 1973

V_Z . . . 6.8 V to 33 V
P_D . . . 400 mW

- Available in 5%, 10% and 20% Tolerances
- Rugged Double-Plug Construction

description and mechanical data

These voltage regulator diodes have been designed using the best of both silicon material processing and packaging technologies. The silicon die is a planar oxide-passivated structure which has additional true-glass passivation over the junction. The double-plug package, proven by years of volume production, ensures the best in mechanical integrity and the lowest possible junction temperature when compared to the thermal characteristics of whisker packages. Because of this rugged double-plug (heat-sink) package, these devices offer very conservatively rated power dissipation capabilities.



absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

TYPE	*I _{ZM} Steady-State Regulator Current (See Note 1)	*I _{RSM} Nonrepetitive Reverse Surge Current (See Note 2)	*P _D Continuous Power Dissipation (T _A ≤ 25°C, See Note 3)	T _{stg} Storage Temperature Range
	mA	mA	mW	°C
1N957, A, B	55	300	400	-65 to 175
1N958, A, B	50	275		
1N959, A, B	45	250		
1N960, A, B	41	225		
1N961, A, B	38	200		
1N962, A, B	32	175		
1N963, A, B	31	160		
1N964, A, B	28	150		
1N965, A, B	25	130		
1N966, A, B	24	120		
1N967, A, B	20	110		
1N968, A, B	18	100		
1N969, A, B	16	90		
1N970, A, B	15	80		
1N971, A, B	13	70		
1N972, A, B	12	65		
1N973, A, B	11	60		

- NOTES: 1. The nominal I_{ZM} currents shown are applicable for devices having regulator voltages approximately 10% above the nominal V_Z values shown under electrical characteristics. These values do not represent absolute limits. The actual steady-state current-voltage product must not exceed the power rating in Figure 1.
2. These values apply for an 8.3-ms square-wave pulse with the device at nonoperating thermal equilibrium immediately prior to the surge.
3. Derate linearly to 175°C free-air temperature at the rate of 2.67 mW/°C. See Dissipation Derating Curve, Figure 1.

*JEDEC registered data. This data sheet contains all applicable registered data in effect at the time of publication.

TYPES 1N957 THRU 1N973, 1N957A THRU 1N973A, 1N957B THRU 1N973B SILICON VOLTAGE-REGULATOR DIODES

electrical characteristics at 25°C free-air temperature

CHARACTERISTICS							TEST CURRENT AND VOLTAGE			
PARAMETER	*V _Z Regulator Voltage	*ΔV _Z (ΔI _R) Voltage Regulation	*z _z Small-Signal Regulator Impedance	*z _{zk} Small-Signal Regulator Knee Impedance	I _R ‡ Static Reverse Current	*V _F Static Forward Voltage				
TEST CONDITIONS	I _R = I _Z (T)	I _R (1) = 10% rated I _R , I _R (2) = 50% rated I _R , t = 90 s	I _r = I _Z (T), f = 60 Hz	I _r = I _{ZK} , f = 60 Hz	V _R = V _R (1)	I _F = 200 mA	1N957A thru 1N973A	1N957B thru 1N973B		
LIMIT	NOM†	MAX	MAX	MAX	MAX	MAX				
UNIT	V	V	Ω	Ω	μA	V	mA	mA	V	V
1N957, A, B	6.8	0.25	4.5	700	150	1.5	18.5	1.0	4.9	5.2
1N958, A, B	7.5	0.30	5.5	700	75	1.5	16.5	0.5	5.4	5.7
1N959, A, B	8.2	0.35	6.5	700	50	1.5	15.0	0.5	5.9	6.2
1N960, A, B	9.1	0.40	7.5	700	25	1.5	14.0	0.5	6.6	6.9
1N961, A, B	10	0.45	8.5	700	10	1.5	12.5	0.25	7.2	7.6
1N962, A, B	11	0.50	9.5	700	5	1.5	11.5	0.25	8.0	8.4
1N963, A, B	12	0.55	11.5	700	5	1.5	10.5	0.25	8.6	9.1
1N964, A, B	13	0.60	13	700	5	1.5	9.5	0.25	9.4	9.9
1N965, A, B	15	0.70	16	700	5	1.5	8.5	0.25	10.8	11.4
1N966, A, B	16	0.75	17	700	5	1.5	7.8	0.25	11.5	12.2
1N967, A, B	18	0.85	21	750	5	1.5	7.0	0.25	13.0	13.7
1N968, A, B	20	0.95	25	750	5	1.5	6.2	0.25	14.4	15.2
1N969, A, B	22	1.05	29	750	5	1.5	5.6	0.25	15.8	16.7
1N970, A, B	24	1.15	33	750	5	1.5	5.2	0.25	17.3	18.2
1N971, A, B	27	1.30	41	750	5	1.5	4.6	0.25	19.4	20.6
1N972, A, B	30	1.45	49	1000	5	1.5	4.2	0.25	21.6	22.8
1N973, A, B	33	1.60	58	1000	5	1.5	3.8	0.25	23.8	25.1

† V_Z tolerance is ± 20% for 1N957 thru 1N973, ± 10% for 1N957A thru 1N973A, and ± 5% for 1N957B thru 1N973B.

‡ These limits apply for A and B suffix types only. There is no reverse current specification for 1N957 through 1N973.

* JEDEC registered data

THERMAL INFORMATION

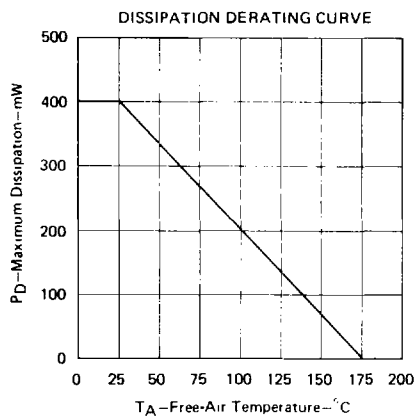


FIGURE 1