DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

1N2804(R)B-1N2846(R)B

50 WATT ZENER DIODES

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Parameter	Value
DC Power Dissipation	50 W
Voltage Range	6.8 – 200 V
Junction Temperature	-65°C to +175°C
Storage Temperature	-65°C to +175°C
Power Derating	0.5W/°C above 75°C
Forward Voltage	@ 2.0 A: 1.5 Volts

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Part Number (1)	Nominal Zener Voltage V_Z @ I_{ZT}	Zener Test Current (I_{ZT})	Maximum Dynamic Impedance (2)		Max DC Zener Current (I_{ZM}) @ 75°C Stud Temperature (3)	Typical Temperature Coefficient α_{VZ}	Maximum Reverse Current I_R @ V_R	
	Volts	mA	Z_{ZT} @ I_{ZT} ohms	Z_{ZK} @ 1mA (I_{ZK}) ohms	mA	%/°C	µA	Volts
1N2804B	6.8	1850	0.20	70	6600	0.040	150	4.5
1N2805B	7.5	1700	0.30	70	5900	0.0475	75	5.0
1N2806B	8.2	1500	0.40	70	5200	0.048	50	5.4
1N2807B	9.1	1370	1.50	70	4800	0.051	25	6.1
1N2808B	10.0	1200	0.60	80	4300	0.055	15	6.7
1N2809B	11.0	1100	0.80	80	3900	0.060	10	8.4
1N2810B	12.0	1000	1.00	80	3600	0.065	5.0	9.1
1N2811B	13.0	960	1.10	80	3300	0.065	5.0	9.9
1N2812B	14.0	890	1.20	80	3000	0.070	5.0	10.6
1N2813B	15.0	830	1.40	80	2800	0.070	5.0	11.4
1N2814B	16.0	780	1.60	80	2650	0.070	5.0	12.2
1N2815B	17.0	740	1.80	80	2500	0.075	5.0	13.0
1N2816B	18.0	700	2.00	80	2300	0.075	5.0	13.7
1N2817B	19.0	660	2.20	80	2200	0.075	5.0	14.4
1N2818B	20.0	630	2.40	80	2100	0.075	5.0	15.2
1N2819B	22.0	570	2.50	80	1900	0.080	5.0	16.7
1N2820B	24.0	520	2.60	80	1750	0.080	5.0	18.2
1N2821B	25.0	500	2.70	90	1550	0.080	5.0	19.0
1N2822B	27.0	460	2.80	90	1500	0.085	5.0	20.6
1N2823B	30.0	420	3.00	90	1400	0.085	5.0	22.8

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Part Number [1]	Nominal Zener Voltage V_Z @ I_{ZT}	Zener Test Current (I_{ZT})	Maximum Dynamic Impedance [2]		Max DC Zener Current (I_{ZM}) @ 75°C Stud Temperature [3]	Typical Temperature Coefficient α_{VZ}	Maximum Reverse Current I_R @ V_R	
	Volts	mA	Z_{ZT} @ I_{ZT} ohms	Z_{ZK} @ 1mA (I_{ZK}) ohms	mA	%/°C	µA	Volts
1N2824B	33.0	380	3.20	90	1300	0.085	5.0	25.1
1N2825B	36.0	350	3.50	90	1150	0.085	5.0	27.4
1N2826B	39.0	320	4.00	90	1050	0.090	5.0	29.7
1N2827B	43.0	290	4.50	90	975	0.090	5.0	32.7
1N2828B	45.0	280	4.50	100	930	0.090	5.0	34.2
1N2829B	47.0	270	5.00	100	880	0.090	5.0	35.8
1N2830B	50.0	250	5.00	100	830	0.090	5.0	38.0
1N2831B	51.0	245	5.20	100	810	0.090	5.0	38.8
1N2832B	56.0	220	6.00	110	740	0.090	5.0	42.6
1N2833B	62.0	200	7.00	120	660	0.090	5.0	47.1
1N2834B	68.0	180	8.00	140	600	0.090	5.0	51.7
1N2835B	75.0	170	9.00	150	540	0.090	5.0	56.0
1N2836B	82.0	150	11.00	160	490	0.090	5.0	62.2
1N2837B	91.0	140	15.00	180	420	0.090	5.0	69.2
1N2838B	100.0	120	20.00	200	400	0.090	5.0	76.0
1N2839B	105.0	120	25.00	210	380	0.095	5.0	79.8
1N2840B	110.0	110	30.00	220	365	0.095	5.0	83.6
1N2841B	120.0	100	40.00	240	335	0.095	5.0	91.2
1N2842B	130.0	95	50.00	275	310	0.095	5.0	98.8
1N2843B	150.0	85	75.00	400	270	0.095	5.0	114.0
1N2844B	160.0	80	80.00	450	250	0.095	5.0	121.6
1N2845B	180.0	68	90.00	525	220	0.095	5.0	136.8
1N2846B	200.0	65	100.00	600	200	0.100	5.0	152.0

Note 1: Suffix B indicates +/-5% tolerance, suffix A indicates +/-10% no suffix indicates +/-20% tolerance, suffix C indicates +/-2% tolerance, suffix D indicates +/-1% tolerance.

Note 2: The Zener impedance (Z_{ZT}) is derived from the 60 Hz ac voltage, which results when an ac current rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.

Note 3: I_{ZM} are calculated +/-5% tolerance on nominal zener voltage.

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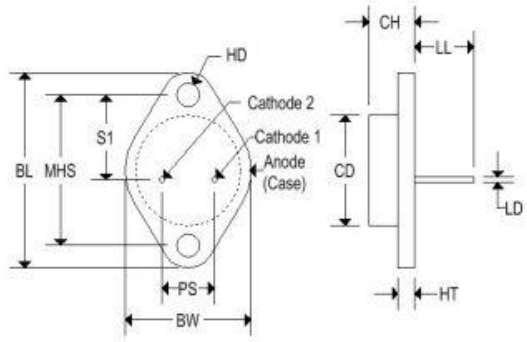
MECHANICAL CHARACTERISTICS

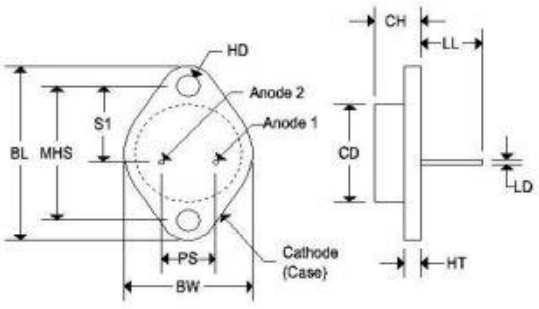
Case	TO-3 (1N2804B-1N2846B)
Marking	Alpha-numeric
Polarity	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.048	0.053	1.219	1.346
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

MECHANICAL CHARACTERISTICS

Case	TO-3 (1N2804RB-1N2846RB)
Marking	Alpha-numeric
Polarity	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.048	0.053	1.219	1.346
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150