

1N3031A-1N3071

TYPE	MATERIAL	REPLACEMENT	PAGE NUMBER	IDENTIFICATION	RECTIFIERS					ZENER DIODES			
					V_R (volts)	V_F (volts)	I_O (Amps)	I_R (mA)	I_{surge} (Amps)	V_Z (min)	V_Z (nom) *	Tol V_Z %	P_D
					SIGNAL DIODES					REFERENCE DIODES			
					P_{RV} (volts)	V_F @ I_F (volts)	I_R	t_r (μs)		TC %/°C	V_Z	T (min) °C	T (max) °C
1N3031A	S		2-20	ZD							30*	10	1.0W
1N3031B	S		2-20	ZD							30*	5.0	1.0W
1N3032	S		2-20	ZD							33*	20	1.0W
1N3032A	S		2-20	ZD							33*	10	1.0W
1N3032B	S		2-20	ZD							33*	5.0	1.0W
1N3033	S		2-20	ZD							36*	20	1.0W
1N3033A	S		2-20	ZD							36*	10	1.0W
1N3033B	S		2-20	ZD							36*	5.0	1.0W
1N3034	S		2-20	ZD							39*	20	1.0W
1N3034A	S		2-20	ZD							39*	10	1.0W
1N3034B	S		2-20	ZD							39*	5.0	1.0W
1N3035	S		2-20	ZD							43*	20	1.0W
1N3035A	S		2-20	ZD							43*	10	1.0W
1N3035B	S		2-20	ZD							43*	5.0	1.0W
1N3036	S		2-20	ZD							47*	20	1.0W
1N3036A	S		2-20	ZD							47*	10	1.0W
1N3036B	S		2-20	ZD							47*	5.0	1.0W
1N3037	S		2-20	ZD							51*	20	1.0W
1N3037A	S		2-20	ZD							51*	10	1.0W
1N3037B	S		2-20	ZD							51*	5.0	1.0W
1N3038	S		2-20	ZD							56*	20	1.0W
1N3038A	S		2-20	ZD							56*	10	1.0W
1N3038B	S		2-20	ZD							56*	5.0	1.0W
1N3039	S		2-20	ZD							62*	20	1.0W
1N3039A	S		2-20	ZD							62*	10	1.0W
1N3039B	S		2-20	ZD							62*	5.0	1.0W
1N3040	S		2-20	ZD							68*	20	1.0W
1N3040A	S		2-20	ZD							68*	10	1.0W
1N3040B	S		2-20	ZD							68*	5.0	1.0W
1N3041	S		2-20	ZD							75*	20	1.0W
1N3041A	S		2-20	ZD							75*	10	1.0W
1N3041B	S		2-20	ZD							75*	5.0	1.0W
1N3042	S		2-20	ZD							82*	20	1.0W
1N3042A	S		2-20	ZD							82*	10	1.0W
1N3042B	S		2-20	ZD							82*	5.0	1.0W
1N3043	S		2-20	ZD							91*	20	1.0W
1N3043A	S		2-20	ZD							91*	10	1.0W
1N3043B	S		2-20	ZD							91*	5.0	1.0W
1N3044	S		2-20	ZD							100*	20	1.0W
1N3044A	S		2-20	ZD							100*	10	1.0W
1N3044B	S		2-20	ZD							100*	5.0	1.0W
1N3045	S		2-20	ZD							110*	20	1.0W
1N3045A	S		2-20	ZD							110*	10	1.0W
1N3045B	S		2-20	ZD							110*	5.0	1.0W
1N3046	S		2-20	ZD							120*	20	1.0W
1N3046A	S		2-20	ZD							120*	10	1.0W
1N3046B	S		2-20	ZD							120*	5.0	1.0W
1N3047	S		2-20	ZD							130*	20	1.0W
1N3047A	S		2-20	ZD							130*	10	1.0W
1N3047B	S		2-20	ZD							130*	5.0	1.0W
1N3048	S		2-20	ZD							150*	20	1.0W
1N3048A	S		2-20	ZD							150*	10	1.0W
1N3048B	S		2-20	ZD							150*	5.0	1.0W
1N3049	S		2-20	ZD							160*	20	1.0W
1N3049A	S		2-20	ZD							160*	10	1.0W
1N3049B	S		2-20	ZD							160*	5.0	1.0W
1N3050	S		2-20	ZD							180*	20	1.0W
1N3050A	S		2-20	ZD							180*	10	1.0W
1N3050B	S		2-20	ZD							180*	5.0	1.0W
1N3051	S		2-20	ZD							200*	20	1.0W
1N3051A	S		2-20	ZD							200*	10	1.0W
1N3051B	S		2-20	ZD							200*	5.0	1.0W
1N3052	S			R	12K	70	0.1	0.2	6.0				
1N3053	S			R	14K	75	0.1	0.2	6.0				
1N3054	S			R	16K	80	0.1	0.2	6.0				
1N3055	S			R	18K	85	0.1	0.2	6.0				
1N3056	S			R	20K	90	0.1	0.2	6.0				
1N3057	S			R	22K	95	0.1	0.2	6.0				
1N3058	S			R	24K	100	0.1	0.2	6.0				
1N3059	S			R	26K	105	0.1	0.2	6.0				
1N3060	S			R	28K	120	0.1	0.2	6.0				
1N3061	S			R	30K	125	0.1	0.2	6.0				
1N3062	S			CS	75	1.0	20M	0.1*	2.0				
1N3063	S			HS	75	0.85	10M	0.1*	2.0				
1N3064	S			HS	75	1.0	10M	0.1*	4.0				
1N3065	S			CS	75	1.0	20M	0.1*	2.0				
1N3066	S			HS	75	1.0	10M	0.1*	2.0				
1N3067	S			HS	30	1.0	5.0M	0.1*	2.0				
1N3068	S			HS	30	1.0	5.0M	0.1*	50				
1N3069	S			CS	65	1.0	50M	0.1*	50				
1N3070	S			CS	200	1.0	100M	0.1*	50				
1N3071	S			CS	200	1.0	100M	0.1*	50				

R—Rectifier, RD—Reference Diode, ZD—Zener Diode, GP—General Purpose, HC—High Conductance (≥ 20 mA @ ≤ 1 V), HS—High Speed Switch (Max $t_r < 0.3 \mu s$), CS—High Conductance, High Speed Switch, MS—Medium Speed Switch, PA—Parametric Amplifier, SP—Special Purpose.

QUICK SELECTOR GUIDE

1 WATT Cathode to Case		1½ WATT Cathode to Case	10 WATT Cathode to Case = 1N3993 series Anode to Case = 1N2970 series		50 WATT Anode to Case		Nominal Zener Voltage (NOTE 6)
 CASE 52		 CASE 55	 CASE 56		 CASE 54	 CASE 58	
INDUSTRIAL (NOTE 2, 3)	MIL-S-19500/115 *	INDUSTRIAL (NOTE 3)	INDUSTRIAL (NOTE 2, 3, 4)	MIL-S-19500/272 (1N3993A-4000A) * MIL-S-19500/125 (1N2970B-3015B) (NOTE 4)	INDUSTRIAL (NOTE 3, 4)	MIL-S-19500/114 (NOTE 4) *	INDUSTRIAL (NOTE 3, 4)
1N3821 1N3822 1N3823	1N3821A 1N3822A 1N3823A		1N3993&R	1N3993A&RA	1N4557&R		1N4549&R
1N3824 1N3825 1N3826 1N3827 1N3828	1N3824A 1N3825A 1N3826A 1N3827A 1N3828A		1N3994&R 1N3995&R 1N3996&R 1N3997&R 1N3998&R	1N3994A&RA 1N3995A&RA 1N3996A&RA 1N3997A&RA 1N3998A&RA	1N4558&R 1N4559&R 1N4560&R 1N4561&R 1N4562&R		1N4550&R 1N4551&R 1N4552&R 1N4553&R 1N4554&R
1N3829 1N3016	1N3016B	1N3785	1N3999&R 1N2970&R	1N3999A&RA 1N2970B&RB	1N4563&R 1N2804&R	1N2804B&RB	1N4555&R 1N3305&R
1N3830 1N3017	1N3017B	1N3786	1N4000&R 1N2971&R	1N4000A&RA 1N2971B&RB	1N4564&R 1N2805&R	1N2805B&RB	1N4556&R 1N3306&R
1N3018	1N3018B	1N3787	1N2972&R	1N2972B&RB	1N2806&R	1N2806B&RB	1N3307&R
1N3019	1N3019B	1N3788	1N2973&R	1N2973B&RB	1N2807&R	1N2807B&RB	1N3308&R
1N3020	1N3020B	1N3789	1N2974&R	1N2974B&RB	1N2808&R	1N2808B&RB	1N3309&R
1N3021	1N3021B	1N3790	1N2975&R	1N2975B&RB	1N2809&R	1N2809B&RB	1N3310&R
1N3022	1N3022B	1N3791	1N2976&R	1N2976B&RB	1N2810&R	1N2810B&RB	1N3311&R
1N3023 1N3024 1N3025 1N3026 1N3027 1N3028	1N3023B 1N3024B 1N3025B 1N3026B 1N3027B 1N3028B	1N3792 1N3793 1N3794 1N3795 1N3796 1N3797	1N2977&R 1N2978&R 1N2980&R 1N2982&R 1N2984&R 1N2985&R	1N2977B&RB 1N2978B&RB 1N2980B&RB 1N2982B&RB 1N2984B&RB 1N2985B&RB	1N2811&R 1N2813&R 1N2814&R 1N2816&R 1N2818&R 1N2819&R	1N2811B&RB 1N2813B&RB 1N2814B&RB 1N2816B&RB 1N2818B&RB 1N2819B&RB	1N3312&R 1N3314&R 1N3315&R 1N3317&R 1N3319&R 1N3320&R
1N3029 1N3030 1N3031 1N3032 1N3033 1N3034	1N3029B 1N3030B 1N3031B 1N3032B 1N3033B 1N3034B	1N3798 1N3799 1N3800 1N3801 1N3802 1N3803	1N2986&R 1N2988&R 1N2989&R 1N2990&R 1N2991&R 1N2992&R	1N2986B&RB 1N2988B&RB 1N2989B&RB 1N2990B&RB 1N2991B&RB 1N2992B&RB	1N2820&R 1N2822&R 1N2823&R 1N2824&R 1N2825&R 1N2826&R	1N2820B&RB 1N2822B&RB 1N2823B&RB 1N2824B&RB 1N2825B&RB 1N2826B&RB	1N3321&R 1N3323&R 1N3324&R 1N3325&R 1N3326&R 1N3327&R
1N3035 1N3036 1N3037 1N3038 1N3039 1N3040	1N3035B 1N3036B 1N3037B 1N3038B 1N3039B 1N3040B	1N3804 1N3805 1N3806 1N3807 1N3808 1N3809	1N2993&R 1N2995&R 1N2997&R 1N2999&R 1N3000&R 1N3001&R	1N2993B&RB 1N2995B&RB 1N2997B&RB 1N2999B&RB 1N3000B&RB 1N3001B&RB	1N2827&R 1N2829&R 1N2831&R 1N2832&R 1N2833&R 1N2834&R	1N2827B&RB 1N2829B&RB 1N2831B&RB 1N2832B&RB 1N2833B&RB 1N2834B&RB	1N3328&R 1N3330&R 1N3332&R 1N3334&R 1N3335&R 1N3336&R
1N3041 1N3042 1N3043 1N3044 1N3045 1N3046	1N3041B 1N3042B 1N3043B 1N3044B 1N3045B 1N3046B	1N3810 1N3811 1N3812 1N3813 1N3814 1N3815	1N3002&R 1N3003&R 1N3004&R 1N3005&R 1N3007&R 1N3008&R	1N3002B&RB 1N3003B&RB 1N3004B&RB 1N3005B&RB 1N3007B&RB 1N3008B&RB	1N2835&R 1N2836&R 1N2837&R 1N2838&R 1N2840&R 1N2841&R	1N2835B&RB 1N2836B&RB 1N2837B&RB 1N2838B&RB 1N2840B&RB 1N2841B&RB	1N3337&R 1N3338&R 1N3339&R 1N3340&R 1N3342&R 1N3343&R
1N3047 1N3048 1N3049 1N3050 1N3051	1N3047B 1N3048B 1N3049B 1N3050B 1N3051B	1N3816 1N3817 1N3818 1N3819 1N3820	1N3009&R 1N3011&R 1N3012&R 1N3014&R 1N3015&R	1N3009B&RB 1N3011B&RB 1N3012B&RB 1N3014B&RB 1N3015B&RB	1N2842&R 1N2843&R 1N2844&R 1N2845&R 1N2846&R	1N2842B&RB 1N2843B&RB 1N2844B&RB 1N2845B&RB 1N2846B&RB	1N3344&R 1N3346&R 1N3347&R 1N3349&R 1N3350&R

4. R, RA & RB = Reverse Polarity Types Available.

5. No suffix is $\pm 10\%$ tolerance, "A" suffix is $\pm 10\%$ tolerance, "B" suffix is $\pm 5\%$ tolerance.

6. Contact your Semiconductor Representative for information on Military and Mag A-Life II Types and Intermediate voltages.

* Military and Mag-A-Life II Types

1N3016 thru 1N3051 (continued)

ELECTRICAL CHARACTERISTICS ($T_c = 30^\circ\text{C}$ unless otherwise noted)

$V_F = 1.5\text{ V max @ } 200\text{ mA}$ on all types.

Type No.	Nominal Zener Voltage V_Z @ I_Z Volts	Test Current I_Z mA	Max Zener Impedance			Reverse Leakage Current*			Max DC Zener Current I_{ZM} mA	Typical Zener Voltage Temp. Coeff. %/°C
			Z_Z @ I_Z Ohms	Z_Z @ I_{ZM} Ohms	I_{ZT} mA	I_R Max (μA)	V_{R1}	V_{R2}		
1N3016	6.8	37	3.5	700	1.0	150	5.2	4.9	130	.040
1N3017	7.5	34	4.0	700	0.5	75	5.7	5.4	120	.045
1N3018	8.2	31	4.5	700	0.5	50	6.2	5.9	105	.048
1N3019	9.1	28	5.0	700	0.5	25	6.9	6.6	95	.051
1N3020	10	25	7	700	0.25	10	7.6	7.2	85	.055
1N3021	11	23	8	700	0.25	5	8.4	8.0	75	.060
1N3022	12	21	9	700	0.25	5	9.1	8.6	70	.065
1N3023	13	19	10	700	0.25	5	9.9	9.4	65	.065
1N3024	15	17	14	700	0.25	5	11.4	10.8	56	.070
1N3025	16	15.5	16	700	0.25	5	12.2	11.5	53	.070
1N3026	18	14	20	750	0.25	5	13.7	13.0	46	.075
1N3027	20	12.5	22	750	0.25	5	15.2	14.4	42	.075
1N3028	22	11.5	23	750	0.25	5	16.7	15.8	38	.080
1N3029	24	10.5	25	750	0.25	5	18.2	17.3	35	.080
1N3030	27	9.5	35	750	0.25	5	20.6	19.4	30	.085
1N3031	30	8.5	40	1,000	0.25	5	22.8	21.6	28	.085
1N3032	33	7.5	45	1,000	0.25	5	25.1	23.8	26	.085
1N3033	36	7.0	50	1,000	0.25	5	27.4	25.9	24	.085
1N3034	39	6.5	60	1,000	0.25	5	29.7	28.1	20	.090
1N3035	43	6.0	70	1,500	0.25	5	32.7	31.0	19	.090
1N3036	47	5.5	80	1,500	0.25	5	35.8	33.8	17	.090
1N3037	51	5.0	95	1,500	0.25	5	38.8	36.7	16	.090
1N3038	56	4.5	110	2,000	0.25	5	42.6	40.3	15	.090
1N3039	62	4.0	125	2,000	0.25	5	47.1	44.6	13	.090
1N3040	68	3.7	150	2,000	0.25	5	51.7	49.0	12	.090
1N3041	75	3.3	175	2,000	0.25	5	56.0	54.0	11	.090
1N3042	82	3.0	200	3,000	0.25	5	62.2	59.0	10	.090
1N3043	91	2.8	250	3,000	0.25	5	69.2	65.5	9	.090
1N3044	100	2.5	350	3,000	0.25	5	76.0	72.0	8	.090
1N3045	110	2.3	450	4,000	0.25	5	83.6	79.2	7.2	.095
1N3046	120	2.0	550	4,500	0.25	5	91.2	86.4	7.0	.095
1N3047	130	1.9	700	5,000	0.25	5	98.8	93.6	6.0	.095
1N3048	150	1.7	1,000	6,000	0.25	5	114.0	108.0	5.5	.095
1N3049	160	1.6	1,100	6,500	0.25	5	121.6	115.2	5.2	.095
1N3050	180	1.4	1,200	7,000	0.25	5	136.8	129.6	4.6	.095
1N3051	200	1.2	1,500	8,000	0.25	5	152.0	144.0	4.0	.100

SPECIAL SELECTIONS AVAILABLE INCLUDE: (See page 2-4 for details).

1 — Nominal zener voltages between those shown.

2 — Matched sets: (Standard Tolerances are $\pm 5.0\%$, $\pm 3.0\%$, $\pm 2.0\%$, $\pm 1.0\%$) depending on voltage per device.

a. Two or more units for series connection with specified tolerance on total voltage. Series matched sets make possible higher zener voltages and provide lower temperature coefficients, lower dynamic impedance and greater power handling ability.

b. Two or more units matched to one another with any specified tolerance.

3 — Tight voltage tolerances: 1.0%, 2.0%, 3.0%.

* V_{R1} — Test Voltage for 5% Tolerance Device

V_{R2} — Test Voltage for 10% Tolerance Device

No Leakage Specified as 20% Tolerance Device