Silicon Z-Diode

ZPD18

18V/500mW

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

Datasheet Rev. 1.3 – 03/19 - data without warranty / liability

ZPD3,3 – ZPD33

500 mW SILICON ZENER DIODES

ABSOLUTE MAXIMUM RATINGS (Note 1)

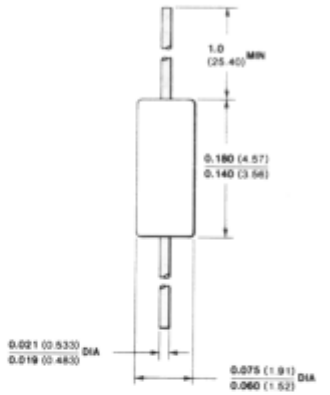
Temperatures

Storage Temperature Range	−65°C to +200°C
Maximum Junction Operating Temperature	+175°C
Lead Temperature	+260°C

Power Dissipation (Note 2)

Maximum Total Power Dissipation at 25°C Ambient	500 mW
Linear Power Derating Factor	3.3 mW / °C

DO-35 OUTLINE



NOTES:
Copper clad steel leads, tin plated
Gold plated leads available
Hermetically sealed glass package
Package weight is 0.14 gram

ELECTRICAL CHARACTERISTICS (25°C Ambient unless otherwise listed)

SYMBOL	V_Z			Z_Z		V_R	I_{ZM}		TC	
Characteristic	Zener Voltage @I_Z = 5 mA			Max Zener Impedance I_Z = 5 mA f = 1 kHz	I_Z = 1 mA f = 1 kHz	Minimum Reverse Voltage @I_R = 100 nA	Maximum Zener Current		Temperature Coefficient of V_Z	
	MIN	NOM	MAX				25°C	45°C	MIN	MAX
UNIT	V	V	V	Ω	Ω	V	mA	mA	%/°C	%/°C
ZPD3,3	3.1	3.3	3.5	90	500	—	130	109	−0.080	−0.030
ZPD3,6	3.4	3.6	3.8	90	500	—	120	101	−0.080	−0.030
ZPD3,9	3.7	3.9	4.1	90	500	—	110	92	−0.070	−0.030
ZPD4,3	4.0	4.3	4.6	90	500	—	100	85	−0.060	−0.010
ZPD4,7	4.4	4.7	5.0	78	500	—	90	76	−0.050	+0.020
ZPD5,1	4.8	5.1	5.4	60	480	0.8	80	67	−0.030	+0.040
ZPD5,6	5.2	5.6	6.0	40	400	1.0	70	59	−0.020	+0.060
ZPD6,2	5.8	6.2	6.6	10	200	2.0	64	54	−0.010	+0.070
ZPD6,8	6.4	6.8	7.2	8.0	150	3.0	58	49	+0.020	+0.070
ZPD7,5	7.0	7.5	7.9	7.0	50	5.0	53	44	+0.030	+0.070
ZPD8,2	7.7	8.2	8.7	7.0	50	6.0	47	40	+0.040	+0.070
ZPD9,1	8.5	9.1	9.6	10	50	7.0	43	36	+0.050	+0.080
ZPD10	9.4	10.0	10.6	15	70	7.5	40	33	+0.050	+0.080
ZPD11	10.4	11.0	11.6	20	70	8.5	36	30	+0.050	+0.090
ZPD12	11.4	12.0	12.7	20	90	9.0	32	28	+0.060	+0.090
ZPD13	12.4	13.0	14.1	25	110	10.0	29	25	+0.070	+0.090

NOTES:
1. These ratings are limiting values above which the serviceability of the diode may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.
3. V_F = 1.0 V (max) @I_F = 100 mA for all types.
4. For product family characteristic curves, refer to Chapter 4, D13.

FAIRCHILD • ZPD SERIES

ELECTRICAL CHARACTERISTICS (25°C Ambient unless otherwise listed)

SYMBOL	V_Z			Z_Z		V_R	I_{ZM}		TC	
Characteristic	Zener Voltage @I_Z = 5 mA			Max Zener Impedance I_Z = 5 mA f = 1 kHz	I_Z = 1 mA f = 1 kHz	Minimum Reverse Voltage	Maximum Zener Current		Temperature Coefficient of V_Z	
	MIN	NOM	MAX			@I_R = 100 nA	25°C	45°C	MIN	MAX
UNIT	V	V	V	Ω	Ω	V	mA	mA	%/°C	%/°C
ZPD15	13.8	15.0	15.6	30	110	11.0	27	23	+0.070	+0.090
ZPD16	15.3	16.0	17.1	40	170	12.0	24	20	+0.080	+0.095
ZPD18	16.8	18.0	19.1	50	170	14.0	21	18	+0.080	+0.095
ZPD20	18.8	20.0	21.2	50	220	15.0	20	17	+0.080	+0.100
ZPD22	20.8	22.0	23.3	55	220	17.0	18	16	+0.080	+0.100
ZPD24	22.8	24.0	25.6	80	220	18.0	16	13	+0.080	+0.100
ZPD27	25.1	27.0	28.9	80	250	20.0	14	12	+0.080	+0.100
ZPD30	28.0	30.0	32.0	80	250	22.5	13	10	+0.080	+0.100
ZPD33	31.0	33.0	35.0	80	250	25.0	12	9	+0.080	+0.100

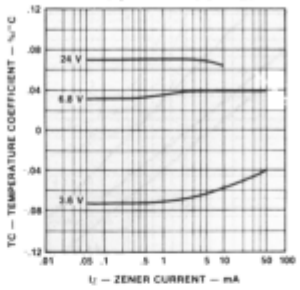
CURVE SET NUMBER D13

500 mW ZENER

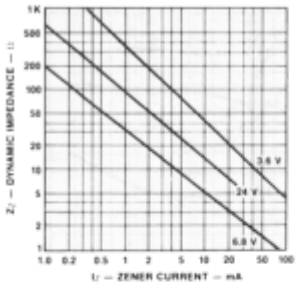
TYPICAL ELECTRICAL CHARACTERISTICS

AT 25°C AMBIENT TEMPERATURE

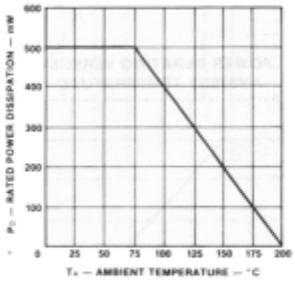
TEMPERATURE COEFFICIENT VERSUS ZENER CURRENT



DYNAMIC IMPEDANCE VERSUS ZENER CURRENT



POWER DERATING VERSUS AMBIENT TEMPERATURE



NOISE DENSITY MEASUREMENT CIRCUIT

1N4099 – 1N4121

1N4620 – 1N4627