

Silicon - Z-Diode

BZY88C11

11V

500mW Z-Diode

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DATASHEET

OEM - Fairchild



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BZY88C3V3 – BZY88C33

500 mW SILICON ZENER DIODES

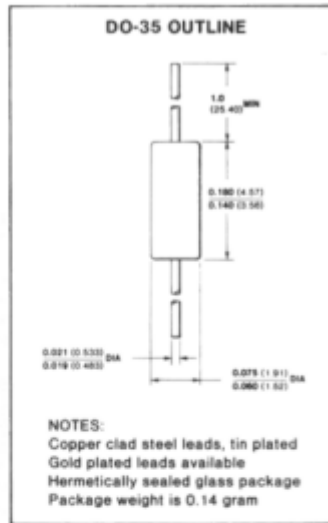
ABSOLUTE MAXIMUM RATINGS (Note 1)

Temperatures

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

Power Dissipation (Note 2)

Maximum Total Power Dissipation at 25°C Ambient	500 mW
Linear Power Derating Factor (from 25°C)	2.85 mW/°C
Maximum Surge Power (Note 3)	15 W



ELECTRICAL CHARACTERISTICS (AT $I_Z = 1.0$ mA, 25°C Ambient)

SYMBOL	V_Z			Z_Z	TC			
	Zener Voltage				Maximum Zener Impedance	Temperature Coefficient of V_Z		
	MIN	NOM	MAX			MIN	TYP	MAX
UNIT	V	V	V	Ω	mV/°C	mV/°C	mV/°C	
BZY88C3V3	2.4	2.75	3.0	440	-4.5	-1.9	-0.5	
BZY88C3V6	2.7	3.0	3.3	430	-4.5	-2.05	-0.5	
BZY88C3V9	3.0	3.3	3.6	430	-3.5	-2.4	-0.5	
BZY88C4V3	3.3	3.6	3.9	430	-2.7	-2.25	-0.5	
BZY88C4V7	3.7	4.1	4.3	420	-2.5	-2.0	-0.3	
BZY88C5V1	4.3	4.65	5.0	370	-2.1	-1.9	-0.3	
BZY88C5V6	4.8	5.3	5.7	350	-1.8	-1.4	0	
BZY88C6V2	5.7	5.9	6.5	250	0	+1.6	+3.0	
BZY88C6V8	6.3	6.7	6.9	70	+2	+3.2	+3.7	
BZY88C7V5	7.0	7.45	7.8	20	+3	+4.2	+5.9	
BZY88C8V2	7.8	8.1	8.5	20	+4.3	+5.0	+6.0	
BZY88C9V1	8.55	9.0	9.5	24	+4.5	+6.0	+7.0	
BZY88C10	9.3	9.9	10.5	50	+6.0	+6.6	+7.0	
BZY88C11	10.3	10.9	11.5	70	+7.1	+8.3	+9.0	
BZY88C12	11.3	11.9	12.5	80	+7.6	+8.7	+9.2	
BZY88C13	12.3	12.9	13.0	90	+9.1	+10.1	+11.1	
BZY88C15	13.8	14.9	15.5	95	+11	+12.5	+13	
BZY88C16	15.3	15.8	16.9	100	+12	+13	+14	
BZY88C18	16.7	17.8	18.9	120	+14	+15	+16.5	
BZY88C20	18.7	19.8	21.0	140	+16	+17	+18.5	
BZY88C22	20.6	21.8	23.1	150	+17	+19	+21	
BZY88C24	22.5	23.8	25.7	200	+19	+21	+23	
BZY88C27	24.7	26.6	28.5	300	+21	+22.5	+25	
BZY88C30	27.5	29.5	31.5	350	+22	+24	+29	
BZY88C33	29.5	32.0	34.5	450	+23	+25	+35	

NOTES

- These ratings are limiting values above which the serviceability of the diode may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.
- Non-recurrent square wave, PW = 100 μ s, $T_J = 150^\circ$ C
- $V_Z = 0.9$ V (Max) @ $I_Z = 10$ mA for all types
- For Product Family Characteristic curves, refer to Chapter 4, D13



FAIRCHILD • BZY88C3V3 – BZY88C33

ELECTRICAL CHARACTERISTICS (AT $I_z = 5.0$ mA 25°C Ambient)

SYMBOL	V _Z			Z _Z	TC			
	Zener Voltage				Maximum Zener Impedance	Temperature Coefficient of V _Z		
	MIN	NOM	MAX			MIN	TYP	MAX
UNIT	V	V	V	Ω	mV/°C	mV/°C	mV/°C	
BZY88C3V3	3.1	3.3	3.5	110	-4.0	-2.3	-0.5	
BZY88C3V6	3.4	3.6	3.8	105	-3.5	-2.0	-0.5	
BZY88C3V9	3.7	3.9	4.1	100	-2.5	-2.05	-0.5	
BZY88C4V3	4.0	4.3	4.5	90	-2.5	-1.8	-0.5	
BZY88C4V7	4.4	4.7	5.0	85	-2.0	-1.55	0	
BZY88C5V1	4.8	5.1	5.4	75	-1.75	-1.2	0	
BZY88C5V6	5.3	5.6	6.0	55	-1.5	-0.2	+1.0	
BZY88C6V2	5.8	6.2	6.6	27	+0.5	+2.0	+3.5	
BZY88C6V8	6.4	6.8	7.2	15	+2.3	+3.2	+3.8	
BZY88C7V5	7.1	7.5	7.9	15	+3.1	+4.2	+5.9	
BZY88C8V2	7.8	8.2	8.7	20	+4.2	+5.0	+6.0	
BZY88C9V1	8.6	9.1	9.6	25	+4.8	+6.0	+7.0	
BZY88C10	9.4	10	10.6	25	+6.0	+7.0	+7.5	
BZY88C11	10.4	11	11.6	25	+7.0	+8.7	+9.1	
BZY88C12	11.4	12	12.6	35	+8.5	+9.0	+9.6	
BZY88C13	12.4	13	14.1	35	+10	+10.5	+11.5	
BZY88C15	13.9	15	15.6	35	+12	+12.5	+14	
BZY88C16	15.4	16	17.1	40	+12	+13	+14	
BZY88C18	16.9	18	19.1	45	+14	+15	+18	
BZY88C20	18.9	20	21.2	50	+16	+17	+19	
BZY88C22	20.8	22	23.3	60	+17	+19	+21	
BZY88C24	22.7	24	25.9	75	+20	+21	+24	
BZY88C27	25.1	27	28.9	85	+22	+23.5	+27	
BZY88C30	28	30	32	95	+25	+26	+29	
BZY88C33	31	33	35	120	+27	+28	+36	

ELECTRICAL CHARACTERISTICS (AT $I_z = 20$ mA 25°C Ambient)

SYMBOL	V _Z			Z _Z	TC			
	Zener Voltage				Maximum Zener Impedance	Temperature Coefficient of V _Z		
	MIN	NOM	MAX			MIN	TYP	MAX
UNIT	V	V	V	Ω	mV/°C	mV/°C	mV/°C	
BZY88C3V3	3.5	4	4.2	22	-3.3	-2.4	-0.5	
BZY88C3V6	3.9	4.2	4.4	20	-2.5	-1.55	-0.5	
BZY88C3V9	4.2	4.45	4.65	18	-2.4	-1.55	-0.5	
BZY88C4V3	4.45	4.7	4.95	17	-2.0	-1.5	-0.5	
BZY88C4V7	4.9	5.1	5.3	17	-1.5	-0.85	0	
BZY88C5V1	5.1	5.35	5.7	11	-1.5	-0.8	0	
BZY88C5V6	5.45	5.75	6.1	8.0	-1.0	+1.0	+3.0	
BZY88C6V2	5.95	6.4	6.7	3.1	+1.0	+2.2	+4.0	
BZY88C6V8	6.6	6.9	7.25	3.0	+2.8	+3.2	+3.8	
BZY88C7V5	7.2	7.65	7.95	5.0	+2.5	+4.2	+5.9	
BZY88C8V2	7.9	8.4	8.75	6.0	+4.0	+5.0	+6.0	
BZY88C9V1	8.7	9.4	9.7	7.0	+5.0	+6.0	+7.0	
BZY88C10	9.5	10.1	10.8	8.0	+7.0	+7.3	+7.5	
BZY88C11	10.5	11.1	11.8	10	+8.5	+9.1	+9.5	
BZY88C12	11.6	12.2	12.8	25	+8.9	+9.6	+10.3	
BZY88C13	12.6	13.2	14.3	25	+11	+11.5	+12.5	
BZY88C15	14.1	15.3	15.9	25	+12	+13.5	+14.5	
BZY88C16	15.6	16.3	17.4	30	+13	+14	+15	
BZY88C18	17.2	18.4	19.6	30	+15	+16	+18	
BZY88C20	19.3	20.5	21.9	35	+17.5	+18.5	+20.5	
BZY88C22	21.3	22.6	24.1	35	+19	+20.5	+22.5	
BZY88C24	23.3	24.7	26.7	40	+20	+23	+25	
BZY88C27	25.8	28.1	30.1	45	+23	+25.5	+28	
BZY88C30	29.0	31.3	33.4	50	+25	+28	+32	
BZY88C33	32.0	34.2	36.6	60	+27	+30	+38	



FAIRCHILD • BZY88C3V3 – BZY88C33

ELECTRICAL CHARACTERISTICS (25°C Ambient)

SYMBOL	C	I _R	V _{RT}
CHARACTERISTIC	Typical Capacitance @V _R = 3.0 V	Maximum Reverse Current @V _{RT}	Test Voltage
UNIT	pF	μA	V
BZY88C3V3	395	3.0	1
BZY88C3V6	370	3.0	1
BZY88C3V9	335	3.0	1
BZY88C4V3	270	3.0	1
BZY88C4V7	290	3.0	2
BZY88C5V1	275	1.0	2
BZY88C5V6	260	1.0	2
BZY88C6V2	240	1.0	2
BZY88C6V8	220	1.0	3
BZY88C7V5	190	0.5	3
BZY88C8V2	150	0.4	3
BZY88C9V1	140	0.4	5
BZY88C10	110	2.5	7
BZY88C11	90	2.5	7
BZY88C12	80	2.5	8
BZY88C13	65	2.5	9
BZY88C15	60	2.5	10
BZY88C16	55	2.5	10
BZY88C18	50	2.5	13
BZY88C20	45	2.5	14
BZY88C22	43	2.5	15
BZY88C24	42	2.5	17
BZY88C27	40	2.5	19
BZY88C30	35	2.5	21
BZY88C33	35	2.5	23

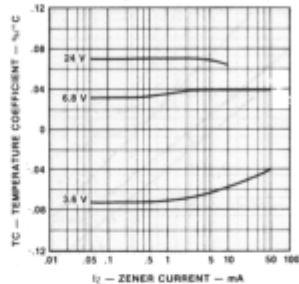


CURVE SET NUMBER D13

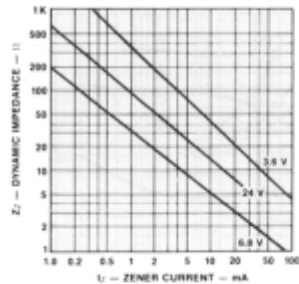
500 mW ZENER

**TYPICAL ELECTRICAL CHARACTERISTICS
AT 25°C AMBIENT TEMPERATURE**

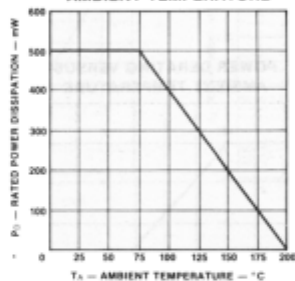
**TEMPERATURE COEFFICIENT
VERSUS ZENER CURRENT**



**DYNAMIC IMPEDANCE
VERSUS ZENER CURRENT**



**POWER DERATING VERSUS
AMBIENT TEMPERATURE**



NOISE DENSITY MEASUREMENT CIRCUIT

1N4099 - 1N4121

1N4620 - 1N4627

