Zener Voltage Regulators

200 mW SOD–323 Surface Mount

Specification Features:

- Standard Zener Breakdown Voltage Range – 2.0 V to 75 V
- Steady State Power Rating of 200 mW
- Small Body Outline Dimensions: 0.067" x 0.049"(1.7 mm x 1.25 mm)
- Low Body Height: 0.035" (0.9 mm)
- Package Weight: 4.507 mg/unit
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- Pb-Free package is available.

MARKING DIAGRAM

xx= Specific Device Code

SOD-323

Mechanical Characteristics:

CASE: Void-free, transfer-molded plastic

FINISH: All external surfaces are corrosion resistant

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

260°C for 10 Seconds

POLARITY: Cathode indicated by polarity band

FLAMMABILITY RATING: UL94 V-0

MOUNTING POSITION: Any

MAXIMUM RATINGS

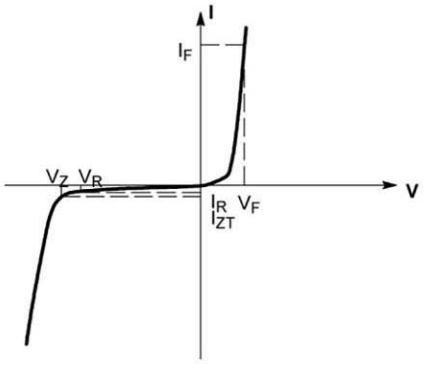
Rating	Symbol	Max	Unit
Total Device Dissipation FR–5 Board, (Note 1.) @ TA = 25°C	P_D	200	mW
Derate above 25°C		1.5	mW/°C
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	635	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	–65 to+150	°C

1. FR–4 Minimum Pad

ELECTRICAL CHARACTERISTICS

(T_A = 25°C unless otherwise noted,
V_F = 0.9 V Max. @ I_F = 10 mA for all types)

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
ΘV_Z	Maximum Temperature Coefficient of V_Z
C	Max. Capacitance @V_R = 0 and f = 1 MHz



Zener Voltage Regulator

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted, V_F = 0.9 V Max. @ I_F = 10 mA for all types)

Device	Device Marking	Zener Voltage (Note 2.) V_Z (Volts) Min	Nom	Max	@ I_{ZT} mA	Zener Impedance Z_{ZT} @ I_{ZT} Ω	Z_{ZK} @ I_{ZK} Ω	mA	Leakage Current I_R @ V_R µA	Volts	ΘV_Z (mV/k) @ I_{ZT} Min	Max	C @ V_R = 0 f = 1 MHz pF
MM3Z2V0	WY	1.91	2.0	2.09	5	100	600	1.0	150	1.0	–3.5	0	450
MM3Z2V4	00	2.2	2.4	2.6	5	100	1000	0.5	50	1.0	–3.5	0	450
MM3Z2V7	01	2.5	2.7	2.9	5	100	1000	0.5	20	1.0	–3.5	0	450
MM3Z3V0	02	2.8	3.0	3.2	5	100	1000	0.5	10	1.0	–3.5	0	450
MM3Z3V3	05	3.1	3.3	3.5	5	95	1000	0.5	5	1.0	–3.5	0	450
MM3Z3V6	06	3.4	3.6	3.8	5	90	1000	0.5	5	1.0	–3.5	0	450
MM3Z3V9	07	3.7	3.9	4.1	5	90	1000	0.5	3	1.0	–3.5	–2.5	450
MM3Z4V3	08	4.0	4.3	4.6	5	90	1000	0.5	3	1.0	–3.5	0	450
MM3Z4V7	09	4.4	4.7	5.0	5	80	800	0.5	3	2.0	–3.5	0.2	260
MM3Z5V1	0A	4.8	5.1	5.4	5	60	800	0.5	2	2.0	–2.7	1.2	225
MM3Z5V6	0C	5.2	5.6	6.0	5	40	700	0.5	1	2.0	–2.0	2.5	200
MM3Z6V2	0E	5.8	6.2	6.6	5	10	100	0.5	3	4.0	0.4	3.7	185
MM3Z6V8	0F	6.4	6.8	7.2	5	15	160	0.5	2	4.0	1.2	4.5	155
MM3Z7V5	0G	7.0	7.5	7.9	5	15	160	0.5	1	5.0	2.5	5.3	140
MM3Z8V2	0H	7.7	8.2	8.7	5	15	160	0.5	0.7	5.0	3.2	6.2	135
MM3Z9V1	0K	8.5	9.1	9.6	5	15	160	0.5	0.2	7.0	3.8	7.0	130
MM3Z10V	0L	9.4	10	10.6	5	20	160	0.5	0.1	8.0	4.5	8.0	130
MM3Z11V	0M	10.4	11	11.6	5	20	160	0.5	0.1	8.0	5.4	9.0	130
MM3Z12V	0N	11.4	12	12.7	5	25	80	0.5	0.1	8.0	6.0	10	130
MM3Z13V	0P	12.4	13.25	14.1	5	30	80	0.5	0.1	8.0	7.0	11	120
MM3Z15V	0T	14.3	15	15.8	5	30	400	0.5	0.05	10.5	9.2	13	110
MM3Z16V	0U	15.3	16.2	17.1	5	40	400	0.5	0.05	11.2	10.4	14	105
MM3Z18V	0W	16.8	18	19.1	5	45	400	0.5	0.05	12.6	12.4	16	100
MM3Z20V	0Z	18.8	20	21.2	5	55	500	0.5	0.05	14.0	14.4	18	85
MM3Z22V	10	20.8	22	23.3	5	55	500	0.5	0.05	15.4	16.4	20	85
MM3Z24V	11	22.8	24.2	25.6	5	70	120	0.5	0.05	16.8	18.4	22	80
MM3Z27V	12	25.1	27	28.9	2	80	300	0.5	0.05	18.9	21.4	25.3	70
MM3Z30V	14	28	30	32	2	80	300	0.5	0.05	21.0	24.4	29.4	70
MM3Z33V	18	31	33	35	2	80	300	0.5	0.05	23.2	27.4	33.4	70
MM3Z36V	19	34	36	38	2	90	500	0.5	0.05	25.2	30.4	37.4	70
MM3Z39V	20	37	39	41	2	130	500	0.5	0.05	27.3	33.4	41.2	45
MM3Z43V	21	40	43	46	2	150	500	0.5	0.05	30.1	37.6	46.6	40
MM3Z47V	1A	44	47	50	2	170	500	0.5	0.05	32.9	42.0	51.8	40
MM3Z51V	1C	48	51	54	2	180	500	0.5	0.05	35.7	46.6	57.2	40
MM3Z56V	1D	52	56	60	2	200	500	0.5	0.05	39.2	52.2	63.8	40
MM3Z62V	1E	58	62	66	2	215	500	0.5	0.05	43.4	58.8	71.6	35
MM3Z68V	1F	64	68	72	2	240	500	0.5	0.05	47.6	65.6	79.8	35
MM3Z75V	1G	70	75	79	2	255	500	0.5	0.05	52.5	73.4	88.6	35

2. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C.

Typical Characteristics

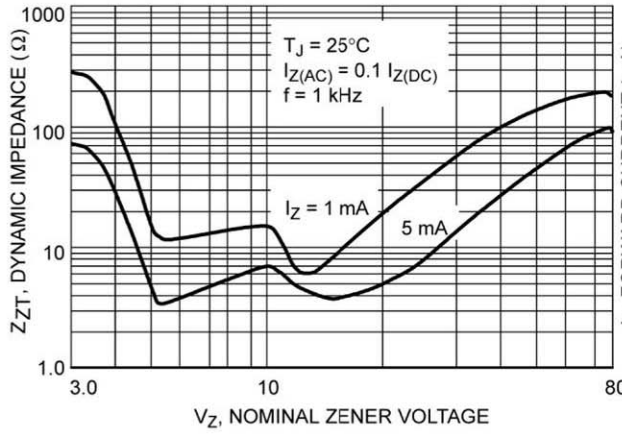


Figure 1. Effect of Zener Voltage on Zener Impedance

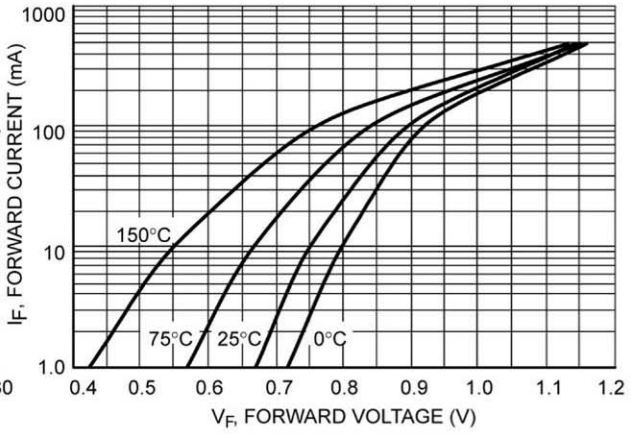


Figure 2. Typical Forward Voltage

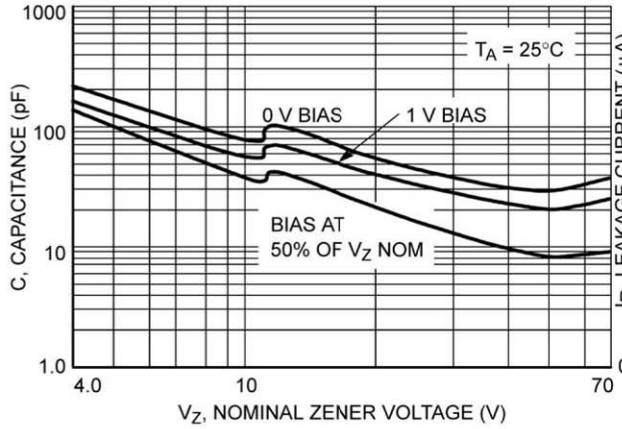


Figure 3. Typical Capacitance

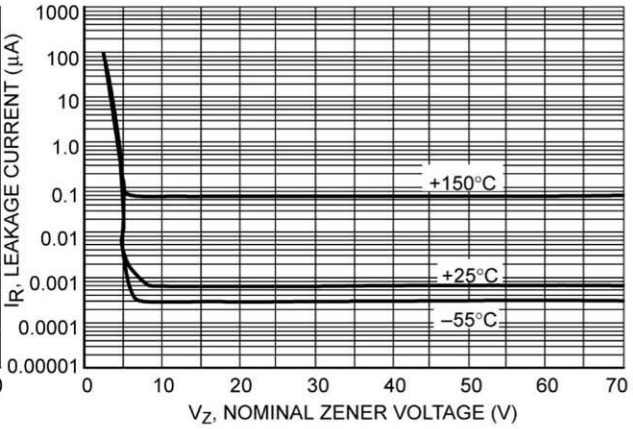


Figure 4. Typical Leakage Current

Typical Characteristics

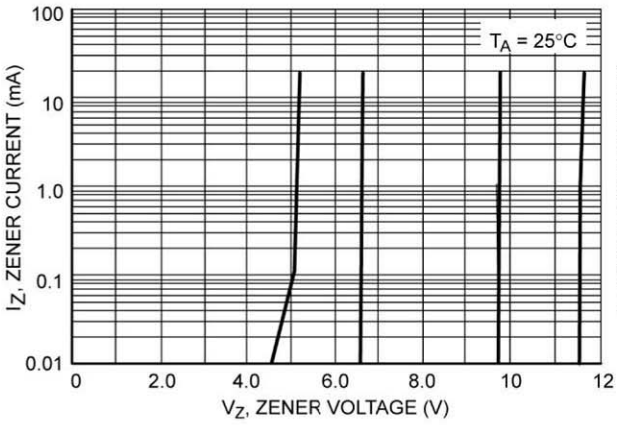


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

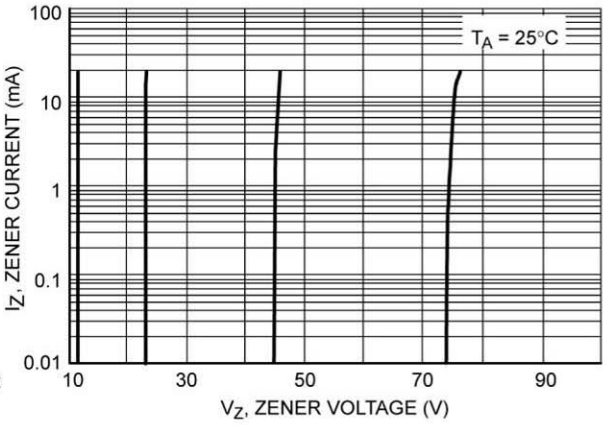


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

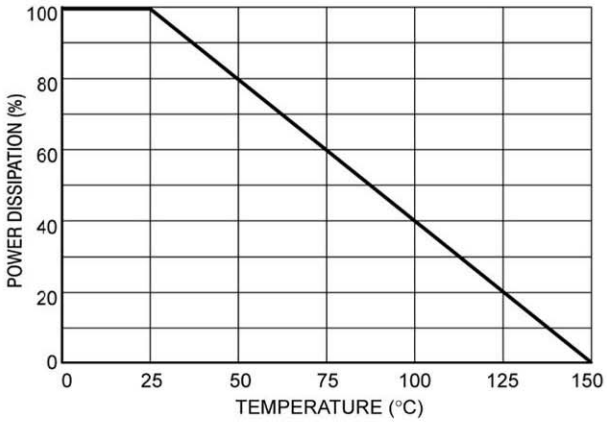


Figure 7. Steady State Power Derating