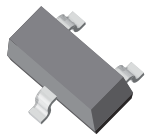


Zener Diodes

SOT-23

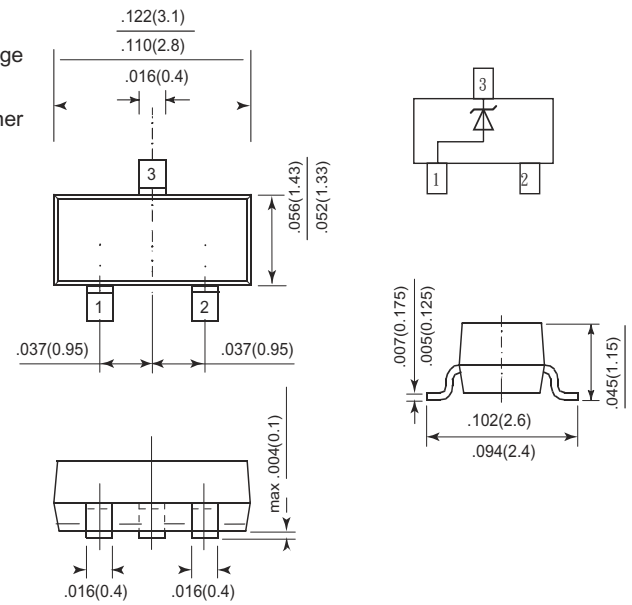
Features

- The Zener voltages are graded according to the international E 24 standard. Standard Zener voltage tolerance is ±5 %. Replace "C" with "B" for ±2 % tolerance. Other voltage tolerances and other Zener voltages are available upon request.
- Silicon Planar Power Zener Diodes

Mechanical Data

Case: SOT-23 Plastic Package

Weight: Approx. 8 mg



Absolute Maximum Ratings & Thermal Characteristics T_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Value	Unit
Power dissipation	P_{tot}	300 [1)]	mW
Thermal resistance junction to ambient air	$R_{\theta JA}$	420 [1)]	°C/W
Junction temperature	T_j	150	°C
Storage temperature range	T_s	- 65 to + 150	°C

Electrical Characteristics

Partnumber	Marking Code	Zener Voltage Range		Dynamic Resistance		Test Current	Temp. Coefficient of Zener Voltage		Test Current	Reverse Leakage Current	
		V_Z @ I_{ZT1}		r_{zj} @ I_{ZT1}	r_{zj} @ I_{ZT2}	I_{ZT1}	v_Z @ I_{ZT1}		I_{ZT2}	I_R	@ V_R
		V		Ω		mA	10^{-4} /°C		mA	uA	V
		min	min				min	min			
BZX84C2V7	Z12	2.5	2.9	75 (≤100)	300 (≤600)	5	-9.0	-4.0	1	20	1
BZX84C3	Z13	2.8	3.2	80 (≤95)	325 (≤600)	5	-9.0	-3.0	1	10	1
BZX84C3V3	Z14	3.1	3.5	85 (≤95)	350 (≤600)	5	-8.0	-3.0	1	5	1
BZX84C3V6	Z15	3.4	3.8	85 (≤90)	375 (≤600)	5	-8.0	-3.0	1	5	1
BZX84C3V9	Z16	3.7	4.1	85 (≤90)	400 (≤600)	5	-7.0	-3.0	1	3	1
BZX84C4V3	Z17	4	4.6	80 (≤90)	410 (≤600)	5	-6.0	1.0	1	3	1
BZX84C4V7	Z1	4.4	5	50 (≤80)	425 (≤500)	5	-5.0	+2.0	1	3	2
BZX84C5V1	Z2	4.8	5.4	40 (≤60)	400 (≤480)	5	-3.0	+4.0	1	2	2
BZX84C5V6	Z3	5.2	6	15 (≤40)	80 (≤400)	5	-2.0	+6.0	1	1	2
BZX84C6V2	Z4	5.8	6.6	6.0 (≤10)	40 (≤150)	5	-1.0	+7.0	1	3	4
BZX84C6V8	Z5	6.4	7.2	6.0 (≤15)	30 (≤80)	5	+2.0	+7.0	1	2	4
BZX84C7V5	Z6	7	7.9	6.0 (≤15)	30 (≤80)	5	+3.0	+7.0	1	1	5
BZX84C8V2	Z7	7.7	8.7	6.0 (≤15)	40 (≤80)	5	+4.0	+7.0	1	0.7	5
BZX84C9V1	Z8	8.5	9.6	6.0 (≤15)	40 (≤100)	5	+5.0	+8.0	1	0.5	6
BZX84C10	Z9	9.4	10.6	8.0 (≤20)	50 (≤150)	5	+5.0	+8.0	1	0.2	7
BZX84C11	Y1	10.4	11.6	10 (≤20)	50 (≤150)	5	+5.0	+9.0	1	0.1	8
BZX84C12	Y2	11.4	12.7	10 (≤25)	50 (≤150)	5	+6.0	+9.0	1	0.1	8
BZX84C13	Y3	12.4	14.1	10 (≤30)	50 (≤170)	5	+7.0	+9.0	1	0.1	8
BZX84C15	Y4	13.8	15.6	10 (≤30)	50 (≤200)	5	+7.0	+9.0	1	0.05	0.7 VZnom.
BZX84C16	Y5	15.3	17.1	10 (≤40)	50 (≤200)	5	+8.0	+9.5	1	0.05	0.7 VZnom.
BZX84C18	Y6	16.8	19.1	10 (≤45)	50 (≤225)	5	+8.0	+9.5	1	0.05	0.7 VZnom.
BZX84C20	Y7	18.8	21.2	15 (≤55)	60 (≤225)	5	+8.0	+10	1	0.05	0.7 VZnom.
BZX84C22	Y8	20.8	23.3	20 (≤55)	60 (≤250)	5	8.0	+10	1	0.05	0.7 VZnom.
BZX84C24	Y9	22.8	25.6	25 (≤70)	60 (≤250)	5	+8.0	+10	1	0.05	0.7 VZnom.
BZX84C27	Y10	25.1	28.9	25 (≤80)	65 (≤300)	2	+8.0	+10	0.5	0.05	0.7 VZnom.
BZX84C30	Y11	28	32	30 (≤80)	70 (≤300)	2	+8.0	+10	0.5	0.05	0.7 VZnom.
BZX84C33	Y12	31	35	35 (≤80)	75 (≤25)	2	+8.0	+10	0.5	0.05	0.7 VZnom.
BZX84C36	Y13	34	38	35 (≤90)	80 (≤350)	2	+8.0	+10	0.5	0.05	0.7 VZnom.
BZX84C39	Y14	37	41	40 (≤130)	80 (≤350)	2	+10	+12	0.5	0.05	0.7 VZnom.
BZX84C43	Y15	40	46	45 (≤150)	85 (≤375)	2	+10	+12	0.5	0.05	0.7 VZnom.
BZX84C47	Y16	44	50	50 (≤170)	85 (≤375)	2	+10	+12	0.5	0.05	0.7 VZnom.

Typical Characteristics (Tamb= 25 ˚C, unless otherwise specified)

Fig 1. Forward characteristics

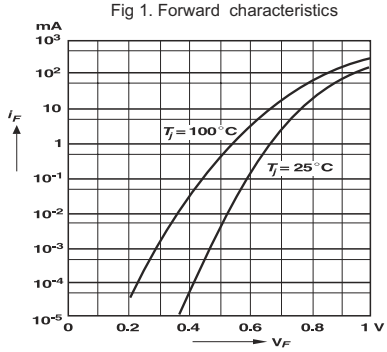


Fig 4. Dynamic Resistance vs. Zener Current

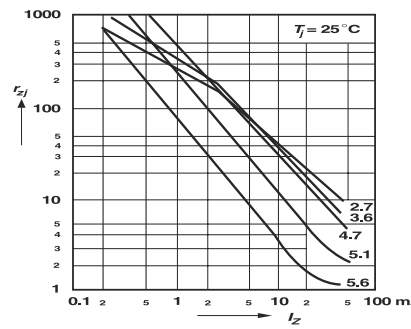


Fig 2. Admissible Power Dissipation vs. Ambient Temperature

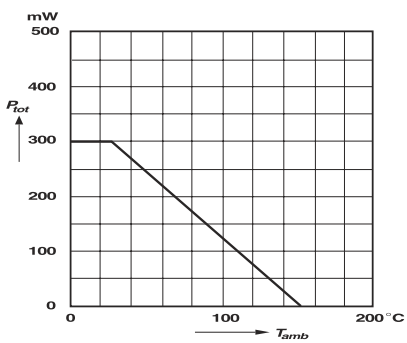


Fig 5. Capacitance vs. Zener Voltage

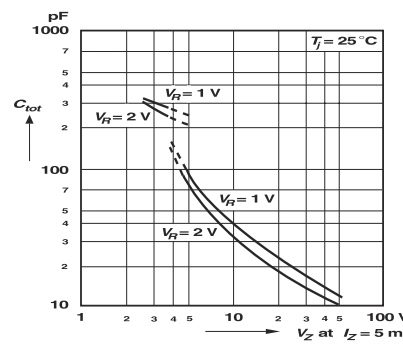


Fig 3. Pulse Thermal Resistance vs. Pulse Duration

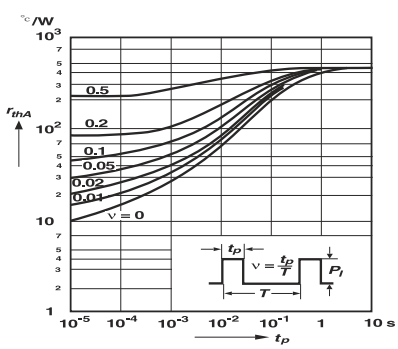


Fig 6. Dynamic Resistance vs. Zener Current

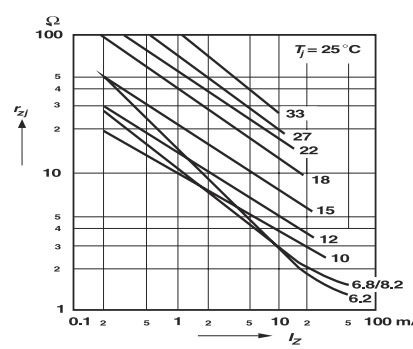


Fig 7. Dynamic Resistance vs. Zener Current

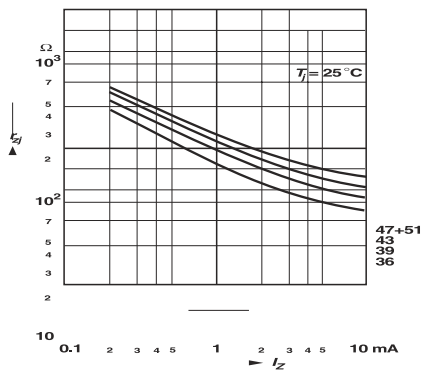


Fig 8. Thermal differential resistance versus Zener voltage

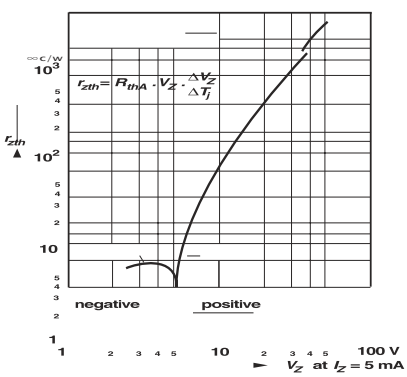


Fig 9. Dynamic resistance versus Zener voltage

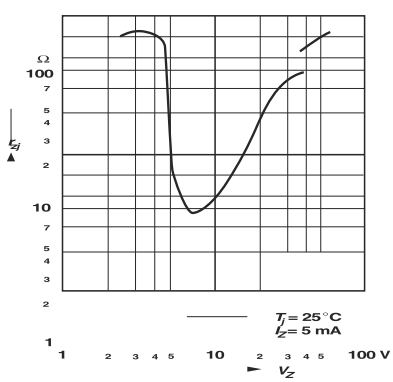


Fig 10. Temperature dependence of Zener voltage versus Zener voltage

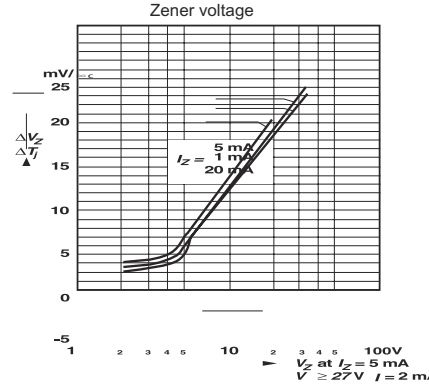


Fig 11.Change of Zener voltage versus junction temperatuer

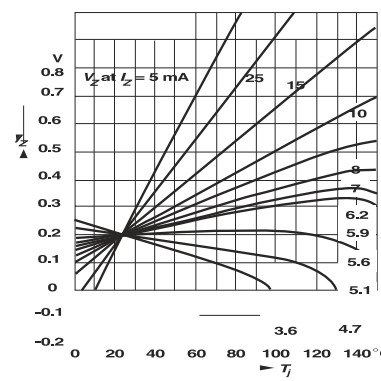


Fig 12. Temperatuer dependence of Zener voltage versus Zener voltage

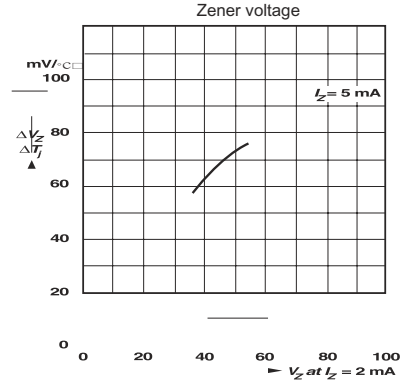


Fig 13. Change of Zener voltage versus unction temperature

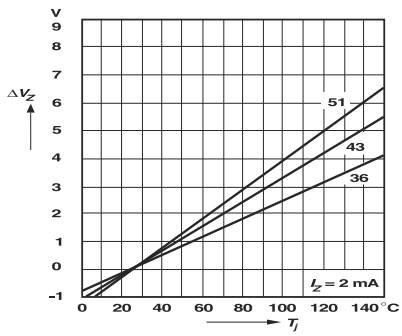


Fig 14. Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage

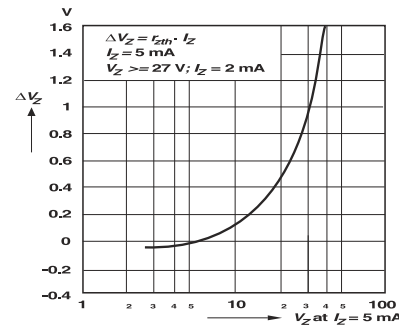


Fig 15. Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage

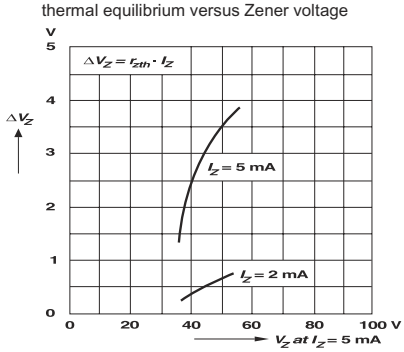


Fig 16. Breakdown Characteristics

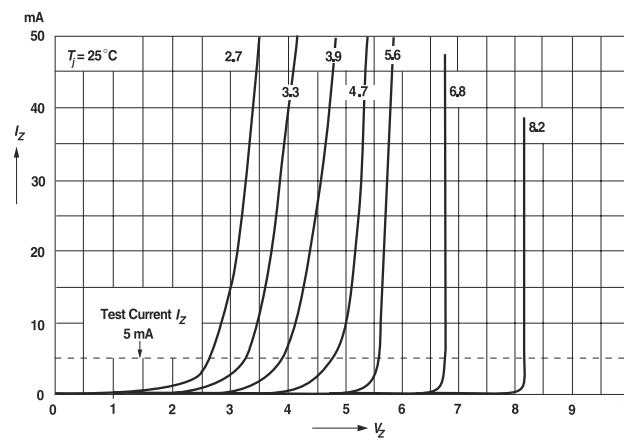


Fig 17.Breakdown Characteristics

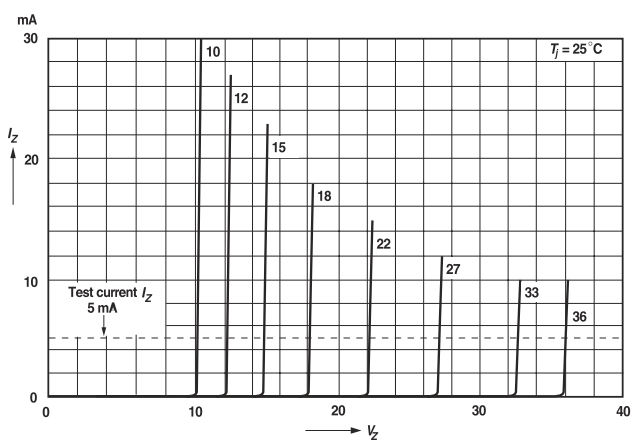
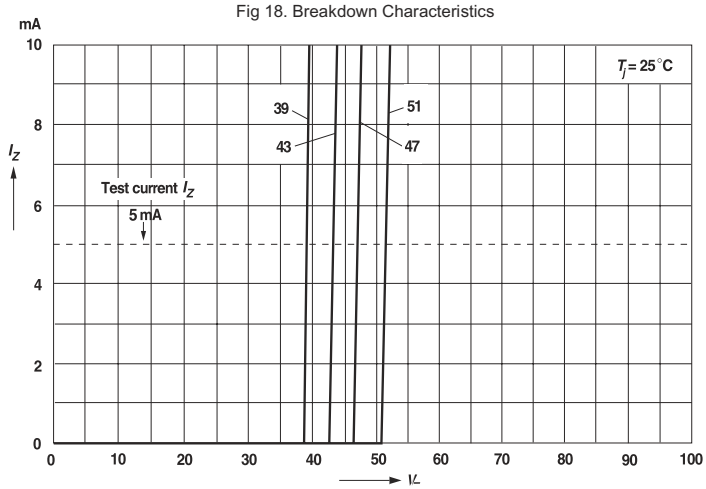
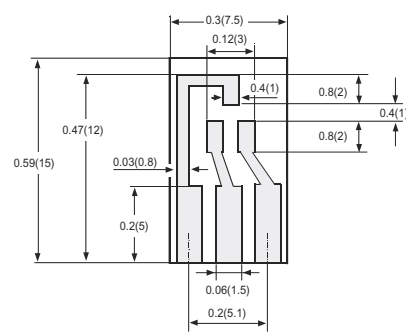


Fig 18. Breakdown Characteristics



Layout for $R_{Theta;JA}$ test

Thickness: Fiberglass 0.059 in. (1.5 mm)

Copper leads 0.012 in. (0.3 mm)