





**BZX84C2V4 THRU BZX84C75**

PLASTIC-ENCAPSULATE ZENER DIODE



VOLTAGE	2.4~51 Volts	POWER	500.0 mW	SOT-23								
<b>FEATURES</b>		<p><b>PINNING</b></p> <table border="1"> <thead> <tr> <th>PIN</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Anode</td> </tr> <tr> <td>2</td> <td>N/A</td> </tr> <tr> <td>3</td> <td>Cathode</td> </tr> </tbody> </table>  			PIN	DESCRIPTION	1	Anode	2	N/A	3	Cathode
PIN	DESCRIPTION											
1	Anode											
2	N/A											
3	Cathode											
<ul style="list-style-type: none"> <li>Low Zener Impedance</li> <li>Power Dissipation of 300mW</li> <li>High Stability and High Reliability</li> <li>Zener Voltage Tolerance: ± 5%</li> </ul>												
<b>MECHANICAL DATA</b>												
<ul style="list-style-type: none"> <li>Case: SOT-23 Small Outline Plastic Package</li> <li>Epoxy UL: 94V-0</li> <li>Mounting position: Any</li> </ul>												
Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)												
Parameter	Symbol	Value	Unit									
Power Dissipation	$P_d$	300 (Note1)	mW									
Forward Voltage @IF=10mA	$V_f$	0.9 (Note2)	V									
Junction temperature	$T_j$	150	°C									
Storage temperature range	$T_s$	-65-150	°C									
Storage temperature range	$R_{\theta JA}$	417	K / W									
Notes: 1. Valid provided that device terminals are kept at ambient temperature. 2. Test with pulse, period=5ms, pulse width=300us.												



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**Electrical Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified).

Device	MARKING	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ IZTC=mV/°C		Test Current IZTC
		V <sub>Z</sub> @I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	Min	Max	
		Min(V)	Nom(V)	Max(V)	mA	Ω		mA	uA	V	Min	Max	
BZX84C2V4	Z11	2.2	2.4	2.6	5	100	600	1.0	50	1.0	-3.5	0.0	5
BZX84C2V7	Z12	2.5	2.7	2.9	5	100	600	1.0	20	1.0	-3.5	0.0	5
BZX84C3V0	Z13	2.8	3.0	3.2	5	95	600	1.0	10	1.0	-3.5	0.0	5
BZX84C3V3	Z14	3.1	3.3	3.5	5	95	600	1.0	5	1.0	-3.5	0.0	5
BZX84C3V6	Z15	3.4	3.6	3.8	5	90	600	1.0	5	1.0	-3.5	0.0	5
BZX84C3V9	Z16	3.7	3.9	4.1	5	90	600	1.0	3	1.0	-3.5	0.0	5
BZX84C4V3	Z17	4.0	4.3	4.6	5	90	600	1.0	3	1.0	-3.5	0.0	5
BZX84C4V7	Z1	4.4	4.7	5.0	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZX84C5V1	Z2	4.8	5.1	5.4	5	60	480	1.0	2	2.0	-2.7	1.2	5
BZX84C5V6	Z3	5.2	5.6	6.0	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZX84C6V2	Z4	5.8	6.2	6.6	5	10	150	1.0	3	4.0	0.4	3.7	5
BZX84C6V8	Z5	6.4	6.8	7.2	5	15	80	1.0	2	4.0	1.2	4.5	5
BZX84C7V5	Z6	7.0	7.5	7.9	5	15	80	1.0	1	5.0	2.5	5.3	5
BZX84C8V2	Z7	7.7	8.2	8.7	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZX84C9V1	Z8	8.5	9.1	9.6	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZX84C10	Z9	9.4	10.0	10.6	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZX84C11	Y1-	10.4	11.0	11.6	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZX84C12	Y2-	11.4	12.0	12.7	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZX84C13	Y3	12.4	13.0	14.1	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZX84C15	Y4	13.8	15.0	15.6	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZX84C16	Y5	15.3	16.0	17.1	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZX84C18	Y6-	16.8	18.0	19.1	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZX84C20	Y7	18.8	20.0	21.2	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZX84C22	Y8	20.8	22.0	23.3	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZX84C24	Y9	22.8	24.0	25.6	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZX84C27	Y10	25.1	27.0	28.9	2	80	300	0.5	0.1	18.9	21.4	25.3	2
BZX84C30	Y11-	28.0	30.0	32.0	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZX84C33	Y12	31.0	33.0	35.0	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZX84C36	Y13	34.0	36.0	38.0	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZX84C39	Y14	37.0	39.0	41.0	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZX84C43	Y15	40.0	43.0	46.0	2	100	700	1.0	0.1	32.0	10.0	12.0	5
BZX84C47	Y16	44.0	47.0	50.0	2	100	750	1.0	0.1	35.0	10.0	12.0	5
BZX84C51	Y17	48.0	51.0	54.0	2	125	750	1.0	0.1	38.0	10.0	12.0	5
BZX84C56	Y18	52.0	56.0	60.0	2	135	700	1.0	0.1	39.0	10.0	12.0	5
BZX84C62	Y19	58.0	62.0	66.0	2	200	1000	1.0	0.2	47.0	10.0	12.0	5
BZX84C68	Y20	64.0	68.0	72.0	2	250	1000	1.0	0.2	52.0	10.0	12.0	5
BZX84C75	Y21-	70.0	75.0	79.0	2	300	1000	1.0	0.2	57.0	10.0	12.0	5

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**RATING AND CHARACTERISTIC CURVES**

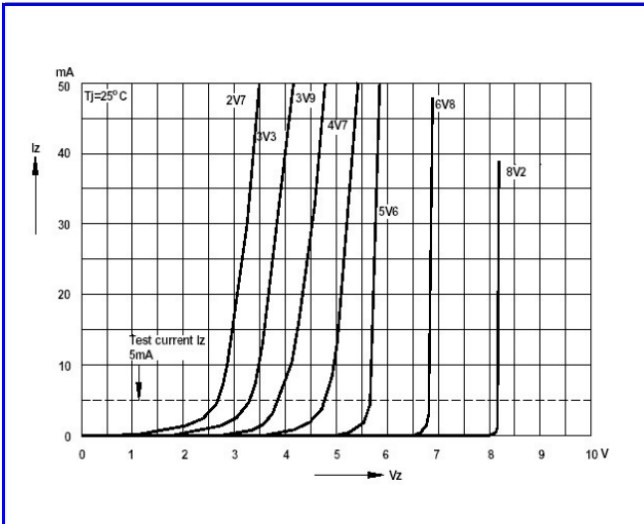


Fig.1-Breakdown characteristics

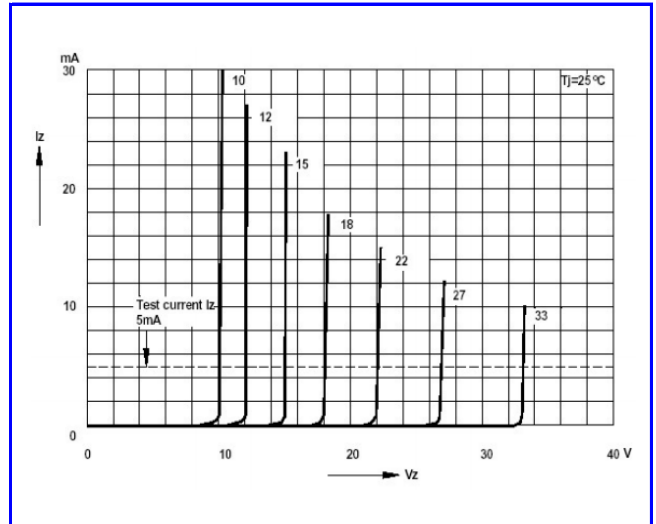


Fig.2- Breakdown characteristics

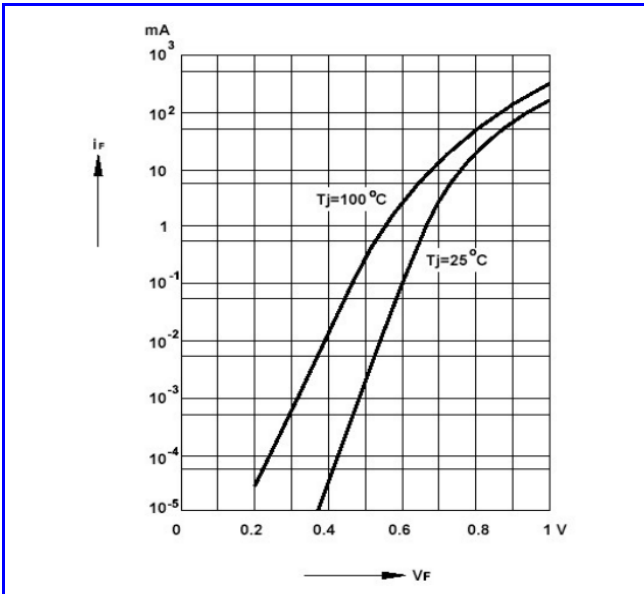


Fig.3- Forward characteristics

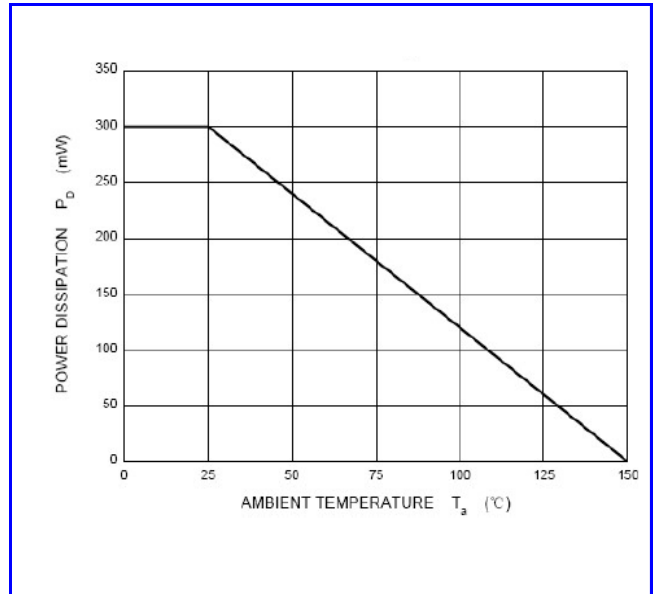


Fig.4- Admissible power dissipation versus ambient temperature

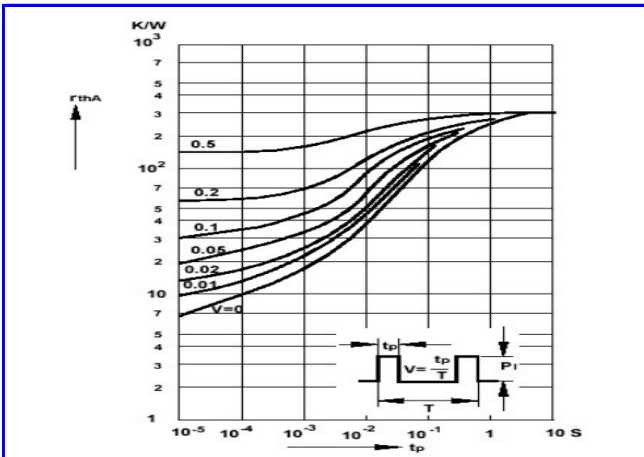


Fig.5-Pulse thermal resistance versus pulse duration

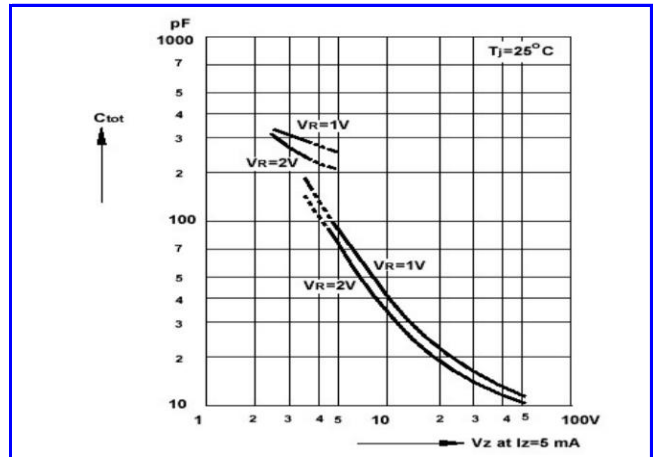


Fig.6-Capacitance versus Zener voltage

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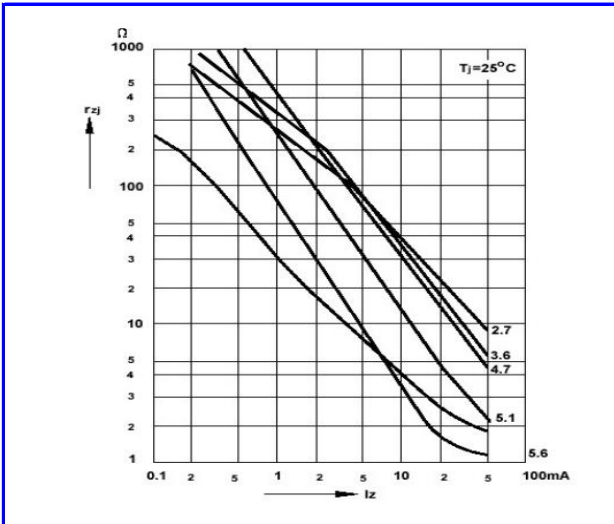


Fig.7-Dynamic resistance versus Zener current

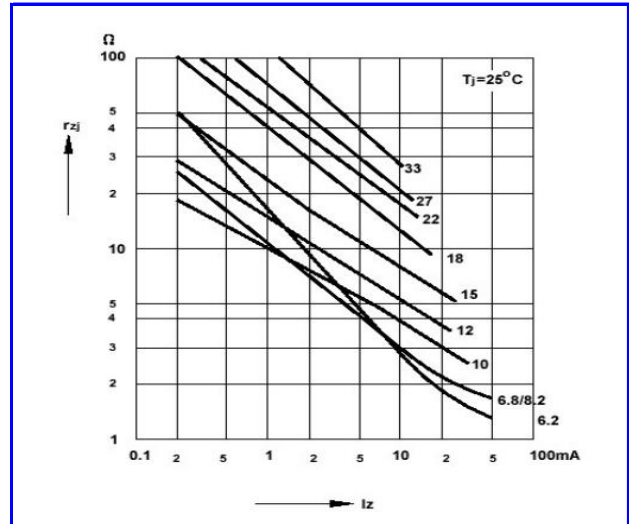


Fig.8-Dynamic resistance versus Zener current

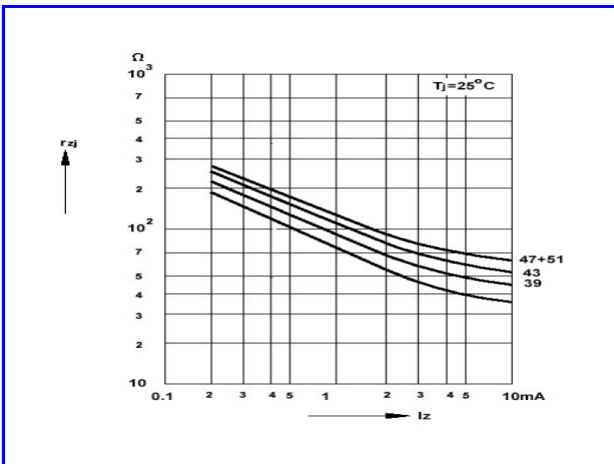


Fig.9-Dynamic resistance versus Zener current

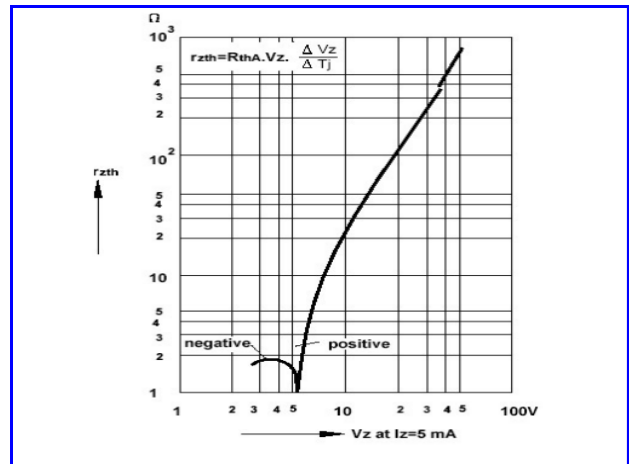


Fig.10-Thermal differential resistance versus Zener voltage

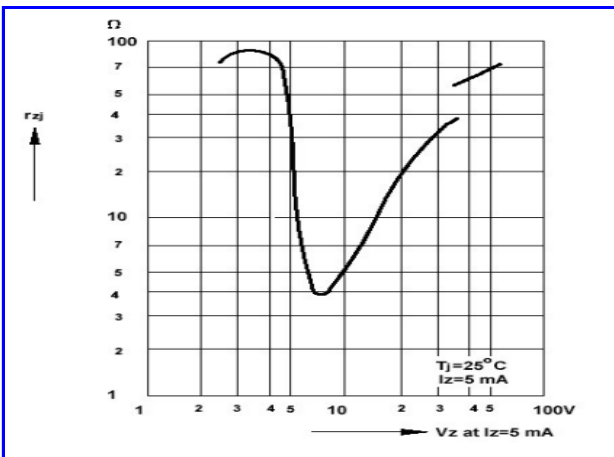


Fig.11-Dynamic resistance versus Zener voltage

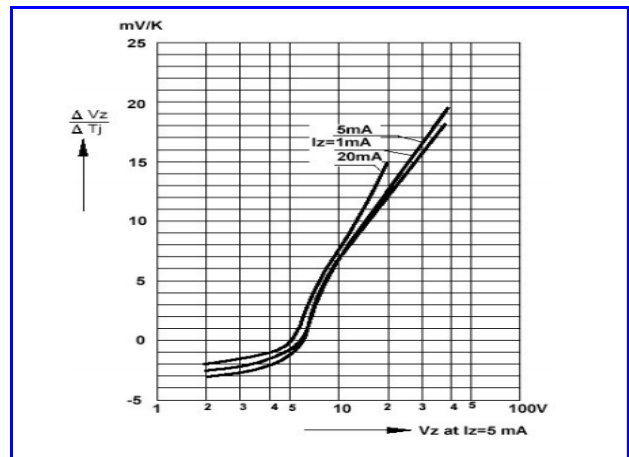


Fig.12-Temperature dependence of Zener voltage versus Zener voltage

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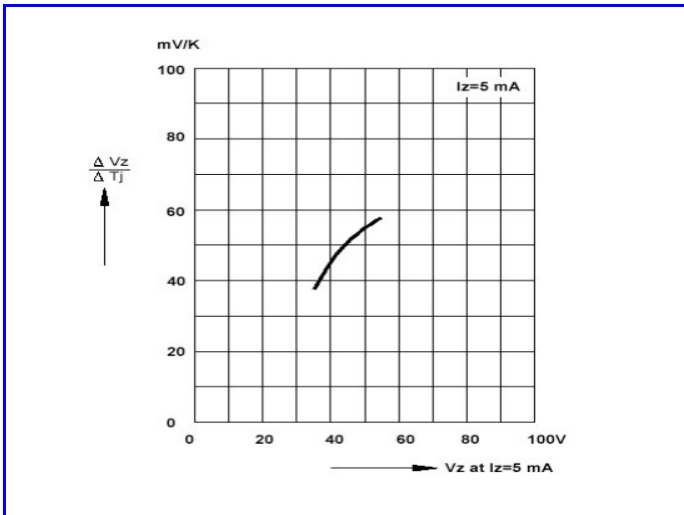


Fig.13-Temperature dependence of Zener voltage versus Zener voltage

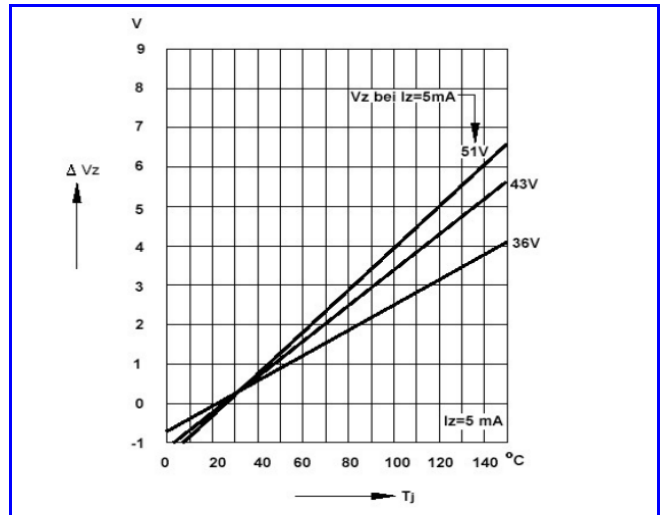


Fig.14-Change of Zener voltage versus junction temperature

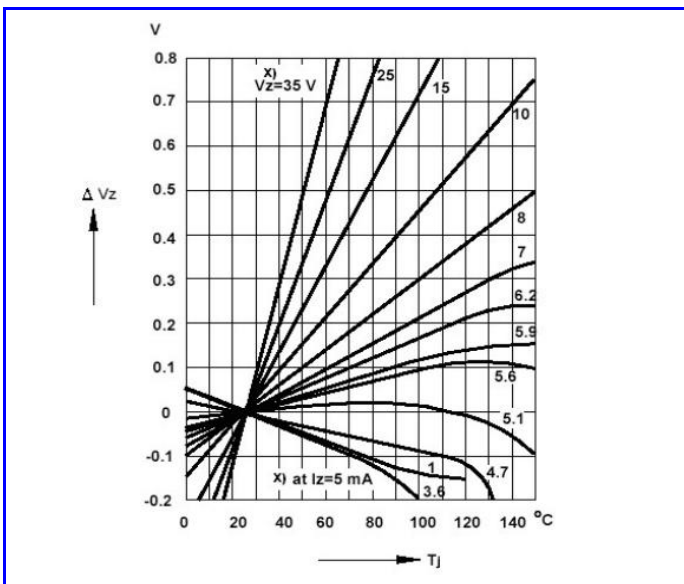


Fig.15- Change of Zener voltage versus junction temperature

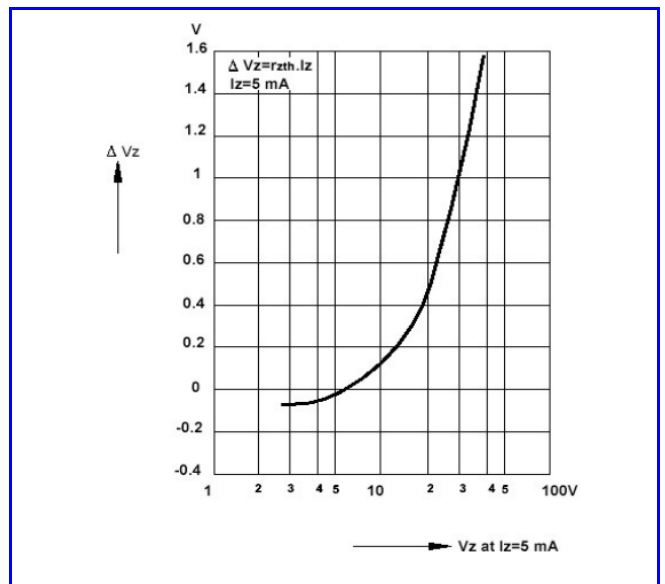
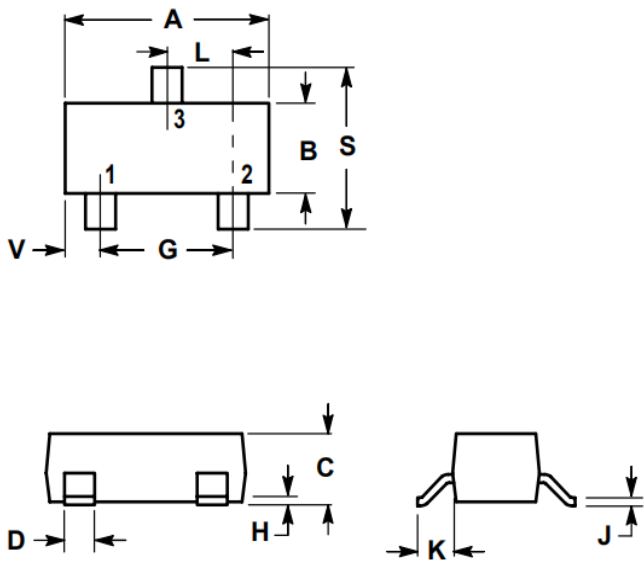


Fig.16- Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage

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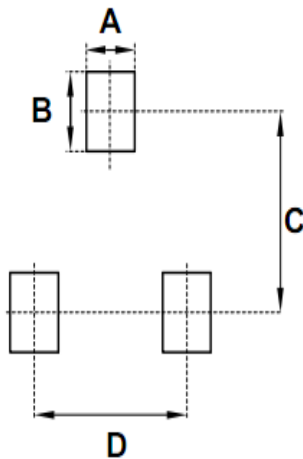
**OUTLINE DRAWINGS**



**SOT-23**

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.800	-	3.040	0.1102	-	0.1197
B	1.200	-	1.400	0.0472	-	0.0551
C	0.890	-	1.110	0.0350	-	0.0437
D	0.370	-	0.500	0.0146	-	0.0197
G	1.780	-	2.040	0.0701	-	0.0803
H	0.013	-	0.100	0.0005	-	0.0039
J	0.085	-	0.177	0.0033	-	0.0070
K	0.350	-	0.690	0.0138	-	0.0272
L	0.890	-	1.020	0.0350	-	0.0402
S	2.100	-	2.640	0.0827	-	0.1039
V	0.450	-	0.600	0.0177	-	0.0236

**MOUNTING PAD LAYOUT**



**SOT-23**

RECOMMENDED MOUNTING PAD DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	0.600	-	-	0.0236	-
B	-	0.800	-	-	0.0315	-
C	-	2.020	-	-	0.0795	-
D	-	1.900	-	-	0.0748	-

**PACKING INFORMATION**

**SOT-23**

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size LxWxH(mm)	Quantity (pcs/Inner Box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
Tape Reel	Φ180	3000	340x340x40	6000	364x364x360	160000

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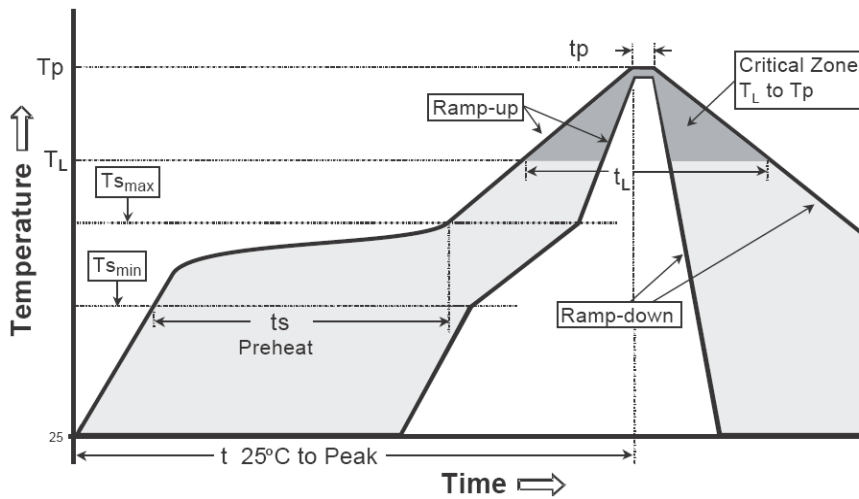
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**Recommended wave soldering condition**

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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