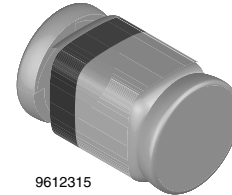


Small Signal Zener Diodes

Features

- Saving space
- Hermetic sealed parts
- Electrical data identical with the devices BZT55..Series/TZM..Series
- Fits onto SOD-323/SOD-110 footprints
- Very sharp reverse characteristic
- Low reverse current level
- Very high stability
- Low noise
- Available with tighter tolerances
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



9612315

Applications

- Voltage stabilization

Mechanical Data

Case: MicroMELF

Weight: approx. 12 mg

Packaging codes/options:

TR/2.5 k per 7" reel, 12.5 k/box

TR3/10 k per 13" reel, 10 k/box

Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Power dissipation	$R_{thJA} \leq 300\text{ K/W}$	P_V	500	mW
Z-current		I_Z	P_V/V_Z	mA
Junction temperature		T_j	175	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	- 65 to + 175	$^{\circ}\text{C}$

Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Junction to ambient air	Mounted on epoxy-glass hard tissue, fig. 1	R_{thJA}	500	K/W
Junction tie point	35 μm copper clad, 0.9 mm^2 copper area per electrode	R_{thJL}	300	K/W

Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Test condition	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F = 200\text{ mA}$	V_F			1.5	V

Electrical Characteristics

BZM55C..

Part number	Zener voltage range ¹⁾		Dynamic resistance		Test current	Temperature coefficient		Test current	Reverse leakage current		
	V _Z at I _{ZT}		r _{zT} at I _{ZT} , f = 1kHz	r _{zJK} at I _{ZK} , f = 1kHz	I _{ZT}	TK _{VZ}		I _{ZK}	I _R at T _{amb} = 25 °C	I _R at T _{amb} = 150 °C	at V _R
	V		Ω		mA	%K		mA	μA		V
	min.	max.				min.	max.				
BZM55C2V4	2.28	2.56	< 85	< 600	5	- 0.09	- 0.06	1	< 50	< 100	1
BZM55C2V7	2.5	2.9	< 85	< 600	5	- 0.09	- 0.06	1	< 10	< 50	1
BZM55C3V0	2.8	3.2	< 90	< 600	5	- 0.08	- 0.05	1	< 4	< 40	1
BZM55C3V3	3.1	3.5	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55C3V6	3.4	3.8	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55C3V9	3.7	4.1	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55C4V3	4	4.6	< 90	< 600	5	- 0.06	- 0.03	1	< 1	< 20	1
BZM55C4V7	4.4	5	< 80	< 600	5	- 0.05	0.02	1	< 0.5	< 10	1
BZM55C5V1	4.8	5.4	< 60	< 550	5	- 0.02	0.02	1	< 0.1	< 2	1
BZM55C5V6	5.2	6	< 40	< 450	5	- 0.05	0.05	1	< 0.1	< 2	1
BZM55C6V2	5.8	6.6	< 10	< 200	5	0.03	0.06	1	< 0.1	< 2	2
BZM55C6V8	6.4	7.2	< 8	< 150	5	0.03	0.07	1	< 0.1	< 2	3
BZM55C7V5	7	7.9	< 7	< 50	5	0.03	0.07	1	< 0.1	< 2	5
BZM55C8V2	7.7	8.7	< 7	< 50	5	0.03	0.08	1	< 0.1	< 2	6.2
BZM55C9V1 *	8.5	9.6	< 10	< 50	5	0.03	0.09	1	< 0.1	< 2	6.8
BZM55C10 *	9.4	0.6	< 15	< 70	5	0.03	0.1	1	< 0.1	< 2	7.5
BZM55C11 *	10.4	11.6	< 20	< 70	5	0.03	0.11	1	< 0.1	< 2	8.2
BZM55C12 *	11.4	12.7	< 20	< 90	5	0.03	0.11	1	< 0.1	< 2	9.1
BZM55C13 *	12.4	14.1	< 26	< 110	5	0.03	0.11	1	< 0.1	< 2	10
BZM55C15 *	13.8	15.6	< 30	< 110	5	0.03	0.11	1	< 0.1	< 2	11
BZM55C16 *	15.3	17.1	< 40	< 170	5	0.03	0.11	1	< 0.1	< 2	12
BZM55C18 *	16.8	19.1	< 50	< 170	5	0.03	0.11	1	< 0.1	< 2	13
BZM55C20 *	18.8	21.2	< 55	< 220	5	0.03	0.11	1	< 0.1	< 2	15
BZM55C22 *	20.8	23.3	< 55	< 220	5	0.04	0.12	1	< 0.1	< 2	16
BZM55C24 *	22.8	25.6	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	18
BZM55C27 *	25.1	28.9	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	20
BZM55C30 *	28	32	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	22
BZM55C33 *	31	35	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	24
BZM55C36 *	34	38	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	27
BZM55C39 *	37	41	< 90	< 500	2.5	0.04	0.12	0.5	< 0.1	< 5	30
BZM55C43 *	40	46	< 90	< 600	2.5	0.04	0.12	0.5	< 0.1	< 5	33
BZM55C47 *	44	50	110	< 700	2.5	0.04	0.12	0.5	< 0.1	< 5	36
BZM55C51 *	48	54	125	< 700	2.5	0.04	0.12	0.5	< 0.1	< 10	39
BZM55C56 *	52	60	135	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	43
BZM55C62 *	58	66	150	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	47
BZM55C68 *	64	72	200	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	51
BZM55C75 *	70	79	250	< 1500	2.5	0.04	0.12	0.5	< 0.1	< 10	56

Notes:

¹⁾ t_p ≤ 10 ms, T/t_p > 1000

^{*)} Additional measurement of voltage group 9V1 to 75 % at 95 % V_{zmin.} ≤ 35 nA at T_j 25 °C



Electrical Characteristics

BZM55B..

Part number	Zener voltage range ¹⁾		Dynamic resistance		Test current	Temperature coefficient		Test current	Reverse leakage current		
	V_Z at I_{ZT}		r_{zT} at I_{ZT} , f = 1kHz	r_{zK} at I_{ZK} , f = 1kHz	I_{ZT}	TK _{VZ}		I_{ZK}	I_R at $T_{amb} = 25\text{ }^\circ\text{C}$	I_R at $T_{amb} = 150\text{ }^\circ\text{C}$	at V_R
	V		Ω		mA	%/K		mA	μA		V
	min.	max.				min.	max.				
BZM55B2V4	2.35	2.45	< 85	< 600	5	- 0.09	- 0.06	1	< 50	< 100	1
BZM55B2V7	2.64	2.76	< 85	< 600	5	- 0.09	- 0.06	1	< 10	< 50	1
BZM55B3V0	2.94	3.06	< 90	< 600	5	- 0.08	- 0.05	1	< 4	< 40	1
BZM55B3V3	3.24	3.36	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55B3V6	3.52	3.68	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55B3V9	3.82	3.98	< 90	< 600	5	- 0.08	- 0.05	1	< 2	< 40	1
BZM55B4V3	4.22	4.38	< 90	< 600	5	- 0.06	- 0.03	1	< 1	< 20	1
BZM55B4V7	4.6	4.80	< 80	< 600	5	- 0.05	0.02	1	< 0.5	< 10	1
BZM55B5V1	5	5.20	< 60	< 550	5	- 0.02	0.02	1	< 0.1	< 2	1
BZM55B5V6	5.48	5.72	< 40	< 450	5	- 0.05	0.05	1	< 0.1	< 2	1
BZM55B6V2	6.08	6.32	< 10	< 200	5	0.03	0.06	1	< 0.1	< 2	2
BZM55B6V8	6.66	6.94	< 8	< 150	5	0.03	0.07	1	< 0.1	< 2	3
BZM55B7V5	7.35	7.65	< 7	< 50	5	0.03	0.07	1	< 0.1	< 2	5
BZM55B8V2	8.04	8.36	< 7	< 50	5	0.03	0.08	1	< 0.1	< 2	6.2
BZM55B9V1 *	8.92	9.28	< 10	< 50	5	0.03	0.09	1	< 0.1	< 2	6.8
BZM55B10 *	9.8	10.20	< 15	< 70	5	0.03	0.1	1	< 0.1	< 2	7.5
BZM55B11 *	10.78	11.22	< 20	< 70	5	0.03	0.11	1	< 0.1	< 2	8.2
BZM55B12 *	11.76	12.24	< 20	< 90	5	0.03	0.11	1	< 0.1	< 2	9.1
BZM55B13 *	12.74	13.26	< 26	< 110	5	0.03	0.11	1	< 0.1	< 2	10
BZM55B15 *	14.7	15.30	< 30	< 110	5	0.03	0.11	1	< 0.1	< 2	11
BZM55B16 *	15.7	16.30	< 40	< 170	5	0.03	0.11	1	< 0.1	< 2	12
BZM55B18 *	17.64	18.36	< 50	< 170	5	0.03	0.11	1	< 0.1	< 2	13
BZM55B20 *	19.6	20.40	< 55	< 220	5	0.03	0.11	1	< 0.1	< 2	15
BZM55B22 *	21.55	22.45	< 55	< 220	5	0.04	0.12	1	< 0.1	< 2	16
BZM55B24 *	23.5	24.5	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	18
BZM55B27 *	26.4	27.6	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	20
BZM55B30 *	29.4	30.6	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	22
BZM55B33 *	32.4	33.6	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	24
BZM55B36 *	35.3	36.7	< 80	< 220	5	0.04	0.12	1	< 0.1	< 2	27
BZM55B39 *	38.2	39.8	< 90	< 500	2.5	0.04	0.12	1	< 0.1	< 5	30
BZM55B43 *	42.1	43.9	< 90	< 600	2.5	0.04	0.12	0.5	< 0.1	< 5	33
BZM55B47 *	46.1	47.9	< 110	< 700	2.5	0.04	0.12	0.5	< 0.1	< 5	36
BZM55B51 *	50	52.0	< 125	< 700	2.5	0.04	0.12	0.5	< 0.1	< 10	39
BZM55B56 *	54.9	57.1	< 135	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	43
BZM55B62 *	60.8	63.2	< 150	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	47
BZM55B68 *	66.6	69.4	< 200	< 1000	2.5	0.04	0.12	0.5	< 0.1	< 10	51
BZM55B75 *	73.5	76.5	< 250	< 1500	2.5	0.04	0.12	0.5	< 0.1	< 10	56

Notes:

¹⁾ $t_p \leq 10\text{ ms}$, $T/t_p > 1000$

^{*)} Additional measurement of voltage group 9V1 to 75 % at 95 % $V_{zmin.} \leq 35\text{ nA}$ at $T_j 25\text{ }^\circ\text{C}$

Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

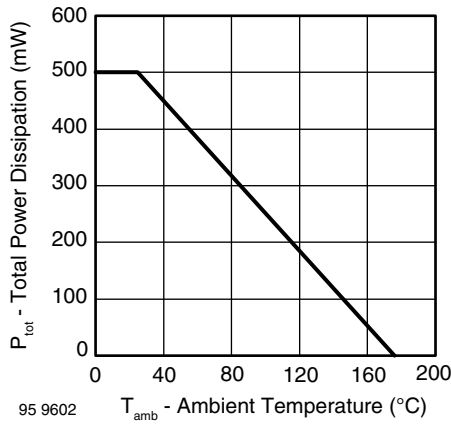


Figure 1. Total Power Dissipation vs. Ambient Temperature

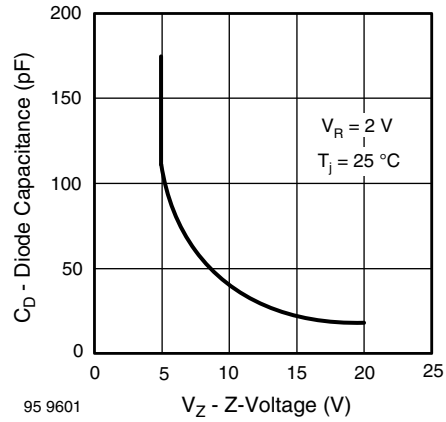


Figure 4. Diode Capacitance vs. Z-Voltage

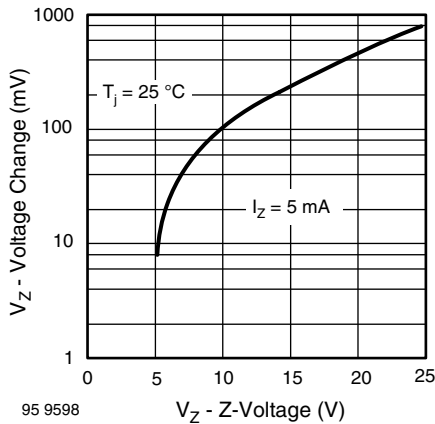


Figure 2. Typical Change of Working Voltage under Operating Conditions at $T_{amb}=25\text{ }^{\circ}\text{C}$

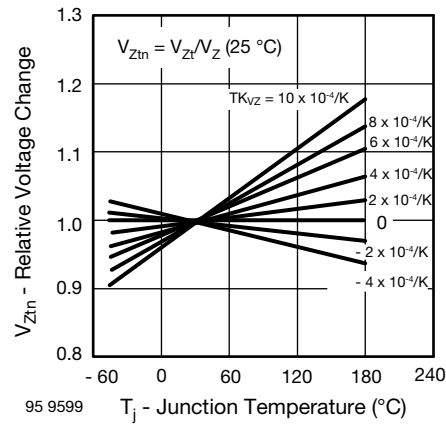


Figure 5. Typical Change of Working Voltage vs. Junction Temperature

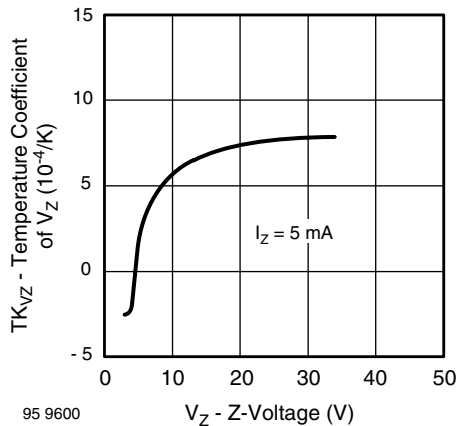


Figure 3. Temperature Coefficient of V_Z vs. Z-Voltage

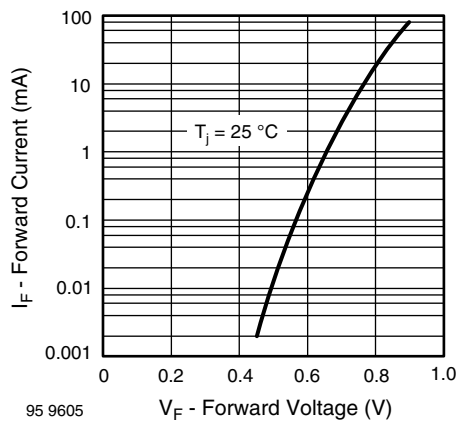


Figure 6. Forward Current vs. Forward Voltage

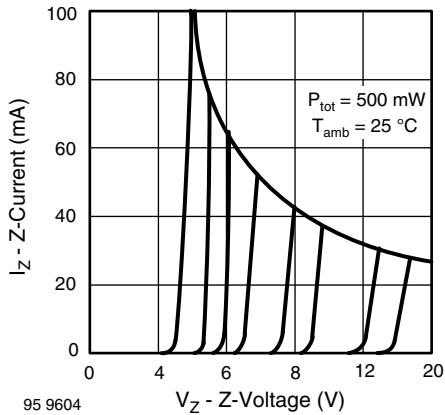


Figure 7. Z-Current vs. Z-Voltage

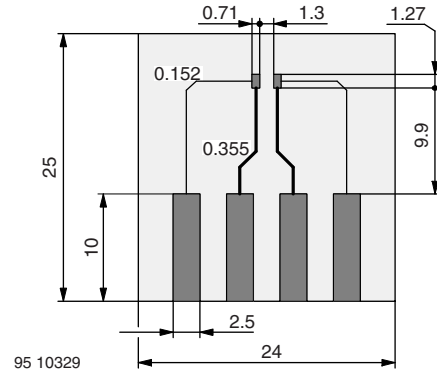


Figure 10. Board for R_{thJA} Definition (in mm)

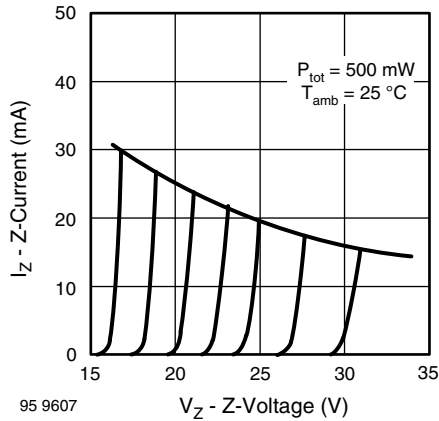


Figure 8. Z-Current vs. Z-Voltage

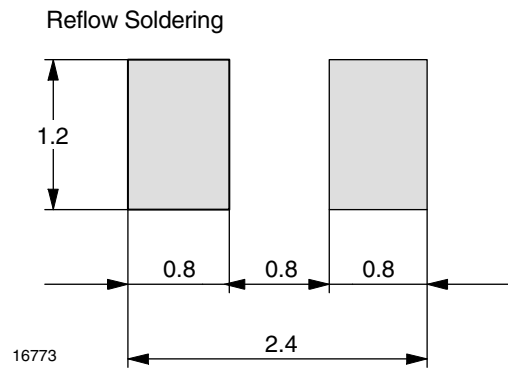


Figure 11. Recommended Foot Pads (in mm)

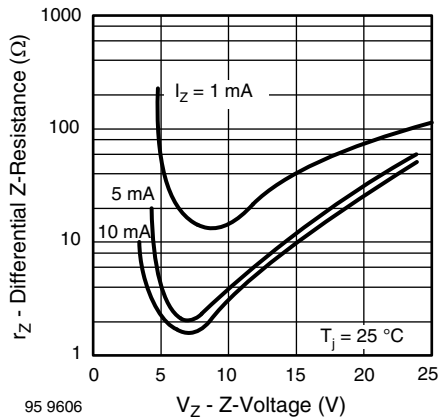


Figure 9. Differential Z-Resistance vs. Z-Voltage

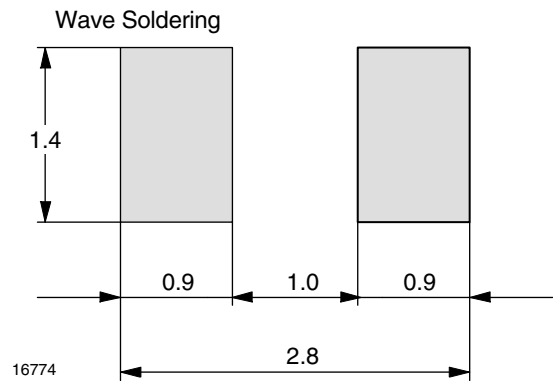
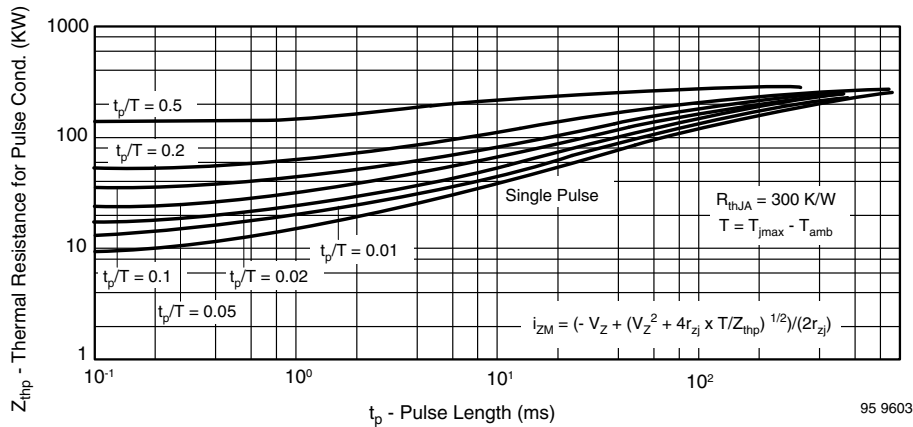
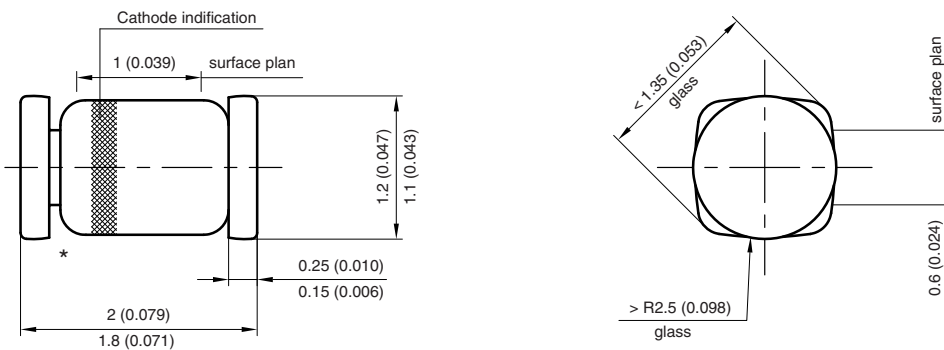


Figure 12. Recommended Foot Pads (in mm)

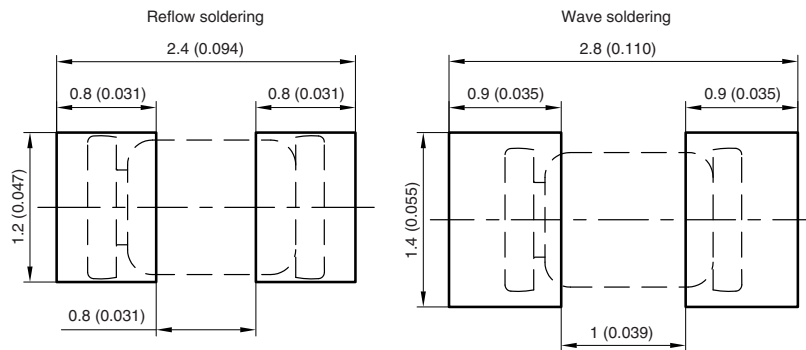


Package Dimensions in millimeters (inches): MicroMELF



* The gap between plug and glass can be either on cathode or anode side

Foot print recommendation:



Created - Date: 26.July.1996
 Rev. 13 - Date: 07.June.2006
 Document no.:6.560-5007.01-4
 96 12072



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