

^{138}Ba $Z = 56$ $N = 82$ [link to full NNDC output](#)

Based on ENSDF from Dec 2018, and mass evaluation from 2016

BE = 1158.292 (0.000) MeV

	Energy T	J+	J-	J-other	T1/2
138BA 1	0.000	0+			1 STABLE
138BA 2	1.436	2+			2 0.199 PS 6
138BA 3	1.899	4+			3 2.160 NS 11
138BA 4	2.091	6+			4 0.85 US 10
138BA 5				2.190 (1,2+)	5 0.8 PS GE
138BA 6	2.203	6+			6 55 PS 17
138BA 7	2.218	2+			7 0.130 PS 10
138BA 8	2.308	4+			8 7 PS 3
138BA 9	2.340	0+			9
138BA 10	2.415	5+			10 16 PS 8
138BA 11	2.446	3+			11 5 PS 4
S-alpha=	2.561 (0.000)				
138BA 12	2.582	4+			12
138BA 13	2.583	1+			13 0.13 PS +4-3
138BA 14	2.639	2+			14 0.32 PS +10-5
138BA 15	2.779	4+			15 6 PS LE
138BA 16				2.795 (1,2+)	16
138BA 17	2.851	4+			17 11 PS LE
138BA 18			2.881 3-		18 0.055 PS 6
138BA 19				2.900	19
138BA 20				2.917 (1,2+)	20
138BA 21	2.931	2+			21 0.19 PS +5-4
138BA 22	2.991	3+			22 11 PS LE
138BA 23	3.050	2+			23 0.33 PS +14-8
138BA 24	3.155	4+			24
138BA 25				3.163 (2)+	25 0.28 PS +55-12
138BA 26	3.184	8+			26 20 PS +20-14
138BA 27				3.243 3	27
138BA 28				3.257 3	28
138BA 29				3.309 (5,6,7)	29
138BA 30	3.339	2+			30 31 FS 9
138BA 31				3.353 (1,2+)	31
138BA 32	3.360	7+			32 25 PS 10
138BA 33	3.367	2+			33 31 FS +10-8
138BA 34				3.377 3	34
138BA 35				3.438 (1,2+)	35
138BA 36				3.442 2(+)	36
138BA 37				3.486	37

138BA 38						3.500	(4+)		38
138BA 39				3.504	2-				39 0.2 PS GE
138BA 40						3.534	-		40

138BA 41						3.562	(4)-		41
138BA 42						3.601	1		42 0.09 PS GE
138BA 43						3.610			43
138BA 44		3.618	0+						44
138BA 45		3.622	10+						45 0.51 NS 7
138BA 46				3.633	9-				46 31 PS 18
138BA 47		3.643	2+						47 19 FS +16-11
138BA 48						3.647	(3)-		48
138BA 49						3.653	(1,2+)		49
138BA 50				3.678	8-				50 0.07 NS LE

138BA 51						3.685	1		51
138BA 52						3.694			52
138BA 53		3.734	2+						53 0.08 PS +13-4
138BA 54		3.800	2+						54 0.09 PS +21-6
138BA 55						3.838	(2+)		55
138BA 56						3.859	(5)-		56
138BA 57		3.911	10+						57 14 PS LE
138BA 58						3.922	(3)-		58
138BA 59						3.931			59
138BA 60		3.935	2+						60

138BA 61						4.001	2(+)		61
138BA 62						4.012	(2+,3,4+)		62
138BA 63						4.014	(1,2+)		63
138BA 64				4.026	1-				64 2.11 FS +17-15
138BA 65		4.043	2+						65
138BA 66						4.080	(1)-		66
138BA 67						4.083	(1,2+)		67
138BA 68						4.115			68
138BA 69						4.115	(1,2+)		69
138BA 70						4.131			70

138BA 71						4.143	(1)-		71
138BA 72						4.157			72
138BA 73						4.165	(4)-		73
138BA 74						4.197	(1,2,3)		74
138BA 75						4.242	(1,2+)		75
138BA 76						4.280	(1,2)-		76
138BA 77				4.324	1-				77 3.6 FS +19-12
138BA 78						4.332	(1,2+)		78
138BA 79						4.359	(1+,2,3)		79
138BA 80				4.445	1-				80 10.4 FS +20-14

138BA 81						4.508	(2+,3)		81
138BA 82				4.536	1-				82 2.5 FS +5-4

138BA 83						4.564	(2,3)-	83
138BA 84						4.580	(1,2,3)	84
138BA 85						4.584		85
138BA 86						4.586	(1)-	86
138BA 87						4.615		87
138BA 88						4.630		88
138BA 89						4.646	(1,2,3)-	89
138BA 90						4.665	(1-,2+)	90

138BA 91		4.689	12+					91 14 PS LE
138BA 92						4.704	(11-)	92
138BA 93					4.707 1-			93 7.5 FS +22-14
138BA 94						4.743	(2,3)-	94
138BA 95						4.796	(2,3)-	95
138BA 96						4.856	1(-)	96 0.28 FS +39-16
138BA 97						4.860	+	97
138BA 98						4.864		98
138BA 99						4.872	(2,3)-	99
138BA 100						5.028	(2-,3)	100

138BA 101						5.128		101
138BA 102						5.146	1	102 0.85 FS +17-12
138BA 103						5.186	(13-)	103
138BA 104						5.284	1	104 1.6 FS +4-3
138BA 105						5.358		105
138BA 106						5.391	1(-)	106 0.69 FS +16-11
138BA 107						5.394	(13-)	107
138BA 108						5.476	1	108 1.43 FS +27-19
138BA 109					5.512 1-			109 0.23 FS +5-3
138BA 110					5.582 1-			110 1.38 FS +31-21

138BA 111					5.645 1-			111 0.29 FS +6-4
138BA 112					5.655 1-			112 0.85 FS +22-14
138BA 113					5.695 1-			113 1.30 FS +27-19
138BA 114		5.740	0+					114
138BA 115						5.742	(11+)	115
138BA 116					5.743 1-			116 0.88 FS +19-14
138BA 117						5.753	1	117 2.1 FS +5-3
138BA 118					5.766 1-			118 0.79 FS +15-11
138BA 119					5.815 1-			119 1.09 FS +22-16
138BA 120					5.874 1-			120 0.44 FS +8-6

138BA 121						5.922	(14-)	121
138BA 122						5.925	(12+)	122
138BA 123					5.964 1-			123 0.56 FS +11-8
138BA 124					6.102 1-			124 0.42 FS +50-15
138BA 125					6.115 1-			125 0.72 FS +31-17
138BA 126					6.193 1-			126 0.25 FS +5-4
138BA 127						6.198	(15-)	127
138BA 128						6.211	(13+)	128

138BA 129			6.245	1-					129	0.82	FS	+16-11
138BA 130		6.280	0+						130			

138BA 131			6.348	1-					131	0.42	FS	+24-25
138BA 132			6.362	1-					132	0.35	FS	+6-5
138BA 133			6.410	1-					133	0.19	FS	+4-3
138BA 134			6.435	1-					134	0.20	FS	+4-3
138BA 135						6.466	1		135	0.76	FS	+15-11
138BA 136						6.486	1		136	1.8	FS	+5-3
138BA 137						6.553	1		137	0.75	FS	+17-12
138BA 138						6.576	1		138	0.66	FS	+14-10
138BA 139						6.613	1		139	0.16	FS	+3-2
138BA 140						6.635	1		140	0.95	FS	+22-15

138BA 141						6.658	(14+)		141			
138BA 142						6.664	1		142	0.63	FS	+12-9
138BA 143						6.679	1		143	0.18	FS	+3-2
138BA 144						6.694	1		144	0.17	FS	+3-2
138BA 145						6.704	1		145	0.43	FS	+8-6
138BA 146						6.759	(16-)		146			
138BA 147						6.802	1		147	0.74	FS	13
138BA 148						6.814	1		148	0.21	FS	+5-3
138BA 149						6.822	1		149	0.99	FS	+28-18
138BA 150		6.830	0+						150			

138BA 151						6.839	1		151	0.65	FS	+14-10
138BA 152						6.848	1		152	0.33	FS	+7-5
138BA 153						6.862	1		153	0.25	FS	+5-4
138BA 154						6.871	1		154	0.40	FS	+8-6
138BA 155						6.895	1		155	0.16	FS	+3-2
138BA 156						6.922	1		156	0.42	FS	+8-6
138BA 157						6.957	1		157	0.63	FS	+16-11
138BA 158						6.981	1		158	0.74	FS	+16-11
138BA 159						6.989	(14+)		159			
138BA 160						7.040	1		160	0.80	FS	+19-13

138BA 161						7.106	1		161	0.76	FS	+17-12
138BA 162						7.144	1		162	0.97	FS	+26-17
138BA 163						7.156	(17-)		163			
138BA 164						7.212	1		164	0.27	FS	+6-4
138BA 165						7.228	(15+)		165			
138BA 166						7.276	1		166	0.18	FS	+4-3
138BA 167						7.334	1		167	0.51	FS	+11-8
138BA 168						7.377	1		168	0.44	FS	+9-7
138BA 169						7.404			169			
138BA 170						7.534	(16+)		170			

138BA 171						7.547	1		171	0.75	FS	+22-14
138BA 172						7.706	1		172	0.38	FS	+8-6
138BA 173						7.774	1		173	0.20	FS	+4-3

138BA 174			7.806	1	174	0.33 FS	+7-5
138BA 175			7.820	1	175	0.30 FS	+8-5
138BA 176			7.871	1	176	0.33 FS	+9-6
138BA 177			7.981	(17+)	177		
138BA 178			8.013		178		
138BA 179			8.076	1	179	0.15 FS	+3-2
138BA 180			8.282	(18+)	180		

138BA 181		8.434	1-		181	0.52 FS	+19-11
S-n	=	8.612 (0.000)	-----				
138BA 182			8.938	(19+)	182		
S-p	=	9.005 (0.000)	-----				
138BA 183			9.334	(20+)	183		

S-p	=	9.005 (0.000)	-----				
S-n	=	8.612 (0.000)	-----				
S-2p	=	16.410 (0.000)	-----				
S-2n	=	15.517 (0.000)	-----				
S-alpha	=	2.561 (0.000)	-----				

S+p	=	-6.254 (0.002)					
S+n	=	-4.723 (0.000)					
S+2p	=	-14.392 (0.002)					
S+2n	=	-11.150 (0.008)					
S+alpha	=	1.303 (0.003)					

gap p	=	2.751 (0.002)					
gap n	=	3.888 (0.001)					
gap 2p	=	2.018 (0.002)					
gap 2n	=	4.367 (0.008)					
gap alpha	=	3.864 (0.003)					