

^{133}Ba $Z = 56$ $N = 77$ adopted link ENSDF link

Based on ENSDF from Oct 2022, and mass evaluation from 2020

BE = 1117.227 (0.001) MeV

Qbeta+ = 0.517 (0.001) MeV

| | Energy T | J+ | J- | J-other | T1/2 |
|----------|----------------|-------|-------------|----------------------|---------------|
| 133BA 1 | 0.000 | 1/2+ | | | 1 10.551 Y 11 |
| 133BA 2 | 0.012 | 3/2+ | | | 2 7.0 NS 3 |
| 133BA 3 | | | 0.288 11/2- | | 3 38.93 H 10 |
| 133BA 4 | 0.291 | 5/2+ | | | 4 |
| 133BA 5 | 0.302 | 3/2+ | | | 5 |
| 133BA 6 | 0.540 | 1/2+ | | | 6 |
| 133BA 7 | 0.578 | 7/2+ | | | 7 |
| 133BA 8 | 0.631 | 5/2+ | | | 8 |
| 133BA 9 | | | | 0.676 3/2+,5/2+ | 9 |
| 133BA 10 | | | 0.791 7/2- | | 10 |
| 133BA 11 | 0.858 | 3/2+ | | | 11 |
| 133BA 12 | | | | 0.863 (7/2)+ | 12 |
| 133BA 13 | 0.883 | 9/2+ | | | 13 |
| 133BA 14 | 0.887 | 5/2+ | | | 14 |
| 133BA 15 | | | 0.902 13/2- | | 15 |
| 133BA 16 | 0.924 | 5/2+ | | | 16 |
| 133BA 17 | | | 0.969 15/2- | | 17 |
| 133BA 18 | | | | 0.969 | 18 |
| 133BA 19 | 1.022 | 3/2+ | | | 19 |
| 133BA 20 | | | | 1.067 | 20 |
| 133BA 21 | | | | 1.111 5/2-,7/2- | 21 |
| 133BA 22 | | | | 1.112 3/2+,5/2+,7/2+ | 22 |
| 133BA 23 | | | | 1.212 3/2+,5/2+ | 23 |
| 133BA 24 | 1.248 | 1/2+ | | | 24 |
| 133BA 25 | | | 1.271 7/2- | | 25 |
| S-alpha= | 1.282 (0.001) | | | | |
| 133BA 26 | | | 1.284 3/2- | | 26 |
| 133BA 27 | 1.329 | 5/2+ | | | 27 |
| 133BA 28 | | | 1.329 7/2- | | 28 |
| 133BA 29 | 1.353 | 7/2+ | | | 29 |
| 133BA 30 | 1.376 | 11/2+ | | | 30 |
| 133BA 31 | | | | 1.502 | 31 |
| 133BA 32 | | | | 1.529 3/2,5/2+ | 32 |
| 133BA 33 | | | 1.529 15/2- | | 33 |
| 133BA 34 | | | | 1.532 3/2,5/2,7/2+ | 34 |
| 133BA 35 | 1.563 | 5/2+ | | | 35 |
| 133BA 36 | | | 1.583 1/2- | | 36 |

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|----------|--|-------|-------|--|-------|-------|---------------|--|--------------|
| 133BA 37 | | 1.621 | 5/2+ | | | | | | 37 |
| 133BA 38 | | 1.633 | 13/2+ | | | | | | 38 |
| 133BA 39 | | | | | | 1.690 | 3/2+,5/2,7/2+ | | 39 |
| 133BA 40 | | | | | | 1.707 | 3/2,5/2+ | | 40 |
| ----- | | | | | | | | | |
| 133BA 41 | | | | | 1.713 | 17/2- | | | 41 |
| 133BA 42 | | | | | | 1.770 | 3/2,5/2+ | | 42 |
| 133BA 43 | | | | | 1.771 | 5/2- | | | 43 |
| 133BA 44 | | | | | | 1.830 | 3/2,5/2+ | | 44 |
| 133BA 45 | | | | | 1.859 | 19/2- | | | 45 |
| 133BA 46 | | | | | | 1.872 | | | 46 |
| 133BA 47 | | | | | | 1.938 | | | 47 |
| 133BA 48 | | 1.942 | 19/2+ | | | | | | 48 3.5 NS 15 |
| 133BA 49 | | | | | 1.968 | 7/2- | | | 49 |
| 133BA 50 | | | | | | 2.017 | | | 50 |
| ----- | | | | | | | | | |
| 133BA 51 | | | | | | 2.025 | | | 51 |
| 133BA 52 | | | | | 2.036 | 17/2- | | | 52 |
| 133BA 53 | | | | | 2.076 | 3/2- | | | 53 |
| 133BA 54 | | | | | | 2.101 | | | 54 |
| 133BA 55 | | | | | 2.113 | 3/2- | | | 55 |
| 133BA 56 | | | | | | 2.142 | (7/2-) | | 56 |
| 133BA 57 | | | | | 2.171 | 19/2- | | | 57 |
| 133BA 58 | | | | | 2.171 | 5/2- | | | 58 |
| 133BA 59 | | 2.211 | 15/2+ | | | | | | 59 |
| 133BA 60 | | | | | | 2.223 | | | 60 |
| ----- | | | | | | | | | |
| 133BA 61 | | | | | | 2.245 | | | 61 |
| 133BA 62 | | | | | | 2.267 | | | 62 |
| 133BA 63 | | | | | 2.288 | 7/2- | | | 63 |
| 133BA 64 | | | | | | 2.325 | | | 64 |
| 133BA 65 | | | | | | 2.339 | | | 65 |
| 133BA 66 | | 2.366 | 23/2+ | | | | | | 66 |
| 133BA 67 | | 2.382 | 21/2+ | | | | | | 67 |
| 133BA 68 | | | | | | 2.409 | | | 68 |
| 133BA 69 | | 2.447 | 17/2+ | | | | | | 69 |
| 133BA 70 | | | | | | 2.496 | (21/2+) | | 70 |
| ----- | | | | | | | | | |
| 133BA 71 | | | | | 2.509 | 21/2- | | | 71 |
| 133BA 72 | | | | | 2.526 | 19/2- | | | 72 |
| 133BA 73 | | | | | 2.671 | 21/2- | | | 73 |
| 133BA 74 | | | | | 2.830 | 23/2- | | | 74 |
| 133BA 75 | | | | | | 2.831 | 19/2(+) | | 75 |
| 133BA 76 | | 2.862 | 21/2+ | | | | | | 76 |
| 133BA 77 | | | | | 2.890 | 23/2- | | | 77 |
| 133BA 78 | | | | | 2.966 | 21/2- | | | 78 |
| 133BA 79 | | | | | | 2.978 | 19/2 | | 79 |
| 133BA 80 | | | | | | 3.063 | 21/2(+) | | 80 |
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| 133BA 81 | | 3.104 | 25/2+ | | | | | | 81 |

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|-----------|--|-------|-------|-------|-------|-------|---------|-----|
| 133BA 82 | | 3.115 | 21/2+ | | | | | 82 |
| 133BA 83 | | 3.247 | 23/2+ | | | | | 83 |
| 133BA 84 | | | | 3.256 | 25/2- | | | 84 |
| 133BA 85 | | 3.346 | 27/2+ | | | | | 85 |
| 133BA 86 | | | | | | 3.374 | 23/2(+) | 86 |
| 133BA 87 | | 3.434 | 25/2+ | | | | | 87 |
| 133BA 88 | | | | 3.546 | 27/2- | | | 88 |
| 133BA 89 | | | | 3.583 | 27/2- | | | 89 |
| 133BA 90 | | | | | | 3.646 | (25/2)+ | 90 |
| ----- | | | | | | | | |
| 133BA 91 | | | | | | 3.688 | (25/2-) | 91 |
| 133BA 92 | | | | | | 3.701 | 25/2(+) | 92 |
| 133BA 93 | | | | | | 3.710 | (25/2) | 93 |
| 133BA 94 | | 3.711 | 27/2+ | | | | | 94 |
| 133BA 95 | | 3.839 | 29/2+ | | | | | 95 |
| 133BA 96 | | | | | | 3.968 | | 96 |
| 133BA 97 | | | | 3.988 | 27/2- | | | 97 |
| 133BA 98 | | | | | | 4.085 | 27/2(+) | 98 |
| 133BA 99 | | 4.146 | 29/2+ | | | | | 99 |
| 133BA 100 | | 4.179 | 29/2+ | | | | | 100 |
| ----- | | | | | | | | |
| 133BA 101 | | | | 4.194 | 29/2- | | | 101 |
| 133BA 102 | | 4.203 | 31/2+ | | | | | 102 |
| 133BA 103 | | | | | | 4.224 | (29/2+) | 103 |
| 133BA 104 | | | | 4.243 | 31/2- | | | 104 |
| 133BA 105 | | 4.256 | 29/2+ | | | | | 105 |
| 133BA 106 | | | | | | 4.402 | (27/2) | 106 |
| 133BA 107 | | | | 4.422 | 31/2- | | | 107 |
| 133BA 108 | | | | | | 4.425 | (27/2+) | 108 |
| 133BA 109 | | 4.485 | 31/2+ | | | | | 109 |
| 133BA 110 | | | | | | 4.501 | 29/2(+) | 110 |
| ----- | | | | | | | | |
| 133BA 111 | | 4.502 | 31/2+ | | | | | 111 |
| 133BA 112 | | | | | | 4.634 | (29/2) | 112 |
| 133BA 113 | | | | 4.658 | 29/2- | | | 113 |
| 133BA 114 | | | | 4.825 | 31/2- | | | 114 |
| 133BA 115 | | 4.831 | 33/2+ | | | | | 115 |
| 133BA 116 | | 5.001 | 33/2+ | | | | | 116 |
| 133BA 117 | | | | 5.058 | 33/2- | | | 117 |
| 133BA 118 | | 5.174 | 33/2+ | | | | | 118 |
| 133BA 119 | | 5.242 | 35/2+ | | | | | 119 |
| 133BA 120 | | | | | | 5.263 | (33/2-) | 120 |
| ----- | | | | | | | | |
| 133BA 121 | | | | 5.350 | 35/2- | | | 121 |
| 133BA 122 | | | | 5.392 | 35/2- | | | 122 |
| 133BA 123 | | 5.418 | 35/2+ | | | | | 123 |
| 133BA 124 | | | | 5.430 | 33/2- | | | 124 |
| 133BA 125 | | | | | | 5.465 | (35/2)+ | 125 |
| 133BA 126 | | | | 5.521 | 35/2- | | | 126 |
| 133BA 127 | | | | 5.662 | 35/2- | | | 127 |

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| 133BA 128 | | | | 5.736 | 37/2- | | 128 |
| 133BA 129 | | 5.858 | 37/2+ | | | | 129 |
| 133BA 130 | | 5.936 | 37/2+ | | | | 130 |
| ----- | | | | | | | |
| 133BA 131 | | | | 5.984 | 37/2- | | 131 |
| 133BA 132 | | | | 6.237 | 39/2- | | 132 |
| 133BA 133 | | 6.277 | 39/2+ | | | | 133 |
| 133BA 134 | | | | 6.308 | 39/2- | | 134 |
| 133BA 135 | | | | 6.367 | 39/2- | | 135 |
| 133BA 136 | | 6.426 | 39/2+ | | | | 136 |
| 133BA 137 | | | | | | 6.546 | 137 |
| 133BA 138 | | | | 6.750 | 41/2- | | 138 |
| 133BA 139 | | | | 6.818 | 41/2- | | 139 |
| 133BA 140 | | 6.955 | 41/2+ | | | | 140 |
| ----- | | | | | | | |
| 133BA 141 | | | | | | 6.981 (41/2+) | 141 |
| S-n | = | 7.190 | (0.001) | ----- | | | |
| 133BA 142 | | | | 7.218 | 43/2- | | 142 |
| 133BA 143 | | | | 7.421 | 43/2- | | 143 |
| 133BA 144 | | | | | | 7.431 (43/2+) | 144 |
| 133BA 145 | | 7.586 | 43/2+ | | | | 145 |
| S-p | = | 7.690 | (0.001) | ----- | | | |
| 133BA 146 | | | | 8.052 | 45/2- | | 146 |
| ----- | | | | | | | |
| S-p | = | 7.690 | (0.001) | ----- | | | |
| S-n | = | 7.190 | (0.001) | ----- | | | |
| S-2p | = | 13.718 | (0.001) | ----- | | | |
| S-2n | = | 17.017 | (0.001) | ----- | | | |
| S-alpha | = | 1.282 | (0.001) | ----- | | | |
| ----- | | | | | | | |
| S+p | = | -4.954 | (0.020) | | | | |
| S+n | = | -9.468 | (0.001) | | | | |
| S+2p | = | -11.641 | (0.010) | | | | |
| S+2n | = | -16.440 | (0.001) | | | | |
| S+alpha | = | -0.790 | (0.001) | | | | |
| ----- | | | | | | | |
| gap p | = | 2.736 | (0.020) | | | | |
| gap n | = | -2.278 | (0.002) | | | | |
| gap 2p | = | 2.077 | (0.010) | | | | |
| gap 2n | = | 0.578 | (0.001) | | | | |
| gap alpha | = | 0.492 | (0.001) | | | | |