

$^{48}\text{V}$        $Z = 23$        $N = 25$       adopted link      ENSDF link

Based on ensdf\_240402 (Apr 2024), and mass evaluation from 2020

BE = 413.907 ( 0.001) MeV

Qbeta+ = 4.015 ( 0.001) MeV

		Energy T	J+		J-		J-other	T1/2	
-----									
48V	1	0.000	4+					1	15.974 D 3
48V	2	0.308	2+					2	7.11 NS 4
48V	3	0.421	1+					3	135 PS LT
48V	4	0.428	5+					4	6.4 PS 10
48V	5				0.519	1-		5	2.72 NS 6
48V	6	0.613	4+					6	15.0 PS 8
48V	7	0.627	6+					7	76 PS 6
48V	8				0.745	2-		8	17.3 PS 18
48V	9	0.765	3+					9	2.6 PS LE
48V	10						0.776 3,5	10	
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48V	11				1.056	3-		11	4.5 PS 13
48V	12				1.099	4-		12	4.5 PS 4
48V	13						1.120 (2,3,4)+	13	
48V	14	1.254	7+					14	0.41 PS 10
48V	15	1.265	5+					15	1.9 PS LE
48V	16						1.326	16	
48V	17	1.521	2+					17	3.0 PS LE
48V	18				1.558	4-		18	0.97 PS 28
48V	19				1.686	5(-)		19	0.60 PS 7
48V	20						1.691 (2+,3-)	20	
-----									
48V	21						1.728 5+,6+,7+	21	
48V	22	1.750	(6+)					22	
48V	23						1.764	23	
48V	24	1.781	3+					24	
48V	25						1.998 2-,3-	25	
48V	26				2.062	5(-)		26	0.76 PS 21
48V	27						2.097	27	
48V	28						2.118 1+,2+,3+	28	
48V	29	2.180	1+					29	
48V	30						2.196 (3,4)-	30	
-----									
48V	31	2.231	8+					31	0.215 PS 35
48V	32						2.258 1+,2+,3+,	32	
48V	33	2.289	1+					33	
48V	34						2.322	34	
48V	35						2.333	35	
48V	36						2.338 (3,4+)	36	

48V	37					2.373		37	
48V	38					2.391		38	
48V	39			2.398	6-			39	0.222 PS 21
48V	40	2.408	1+					40	
-----									
48V	41					2.447	(2+,3-)	41	
48V	42					2.458		42	
48V	43					2.472	(2,3)-	43	
48V	44					2.495	(3+,4,5-)	44	
48V	45					2.575		45	
48V	46					2.579		46	
48V	47					2.587		47	
48V	48					2.605	(2+,3,4+)	48	
48V	49	2.607	(1+)					49	
48V	50	2.626	9+					50	0.56 PS 8
-----									
48V	51	2.703	(7+)					51	
48V	52					2.716	4-,5-,6-	52	
48V	53					2.760		53	
48V	54					2.775	1+,2+,3+,	54	
48V	55			2.779	(6-)			55	0.194 PS 28
48V	56					2.793	(3,4)-	56	
48V	57			2.823	(4-)			57	
48V	58					2.885		58	
48V	59					2.915		59	
48V	60					2.925		60	
-----									
48V	61					2.954		61	
48V	62					2.969		62	
48V	63					2.985		63	
48V	64					3.012	(1+,2,3,4	64	
48V	65	3.023	0+					65	
48V	66					3.049		66	
48V	67					3.074	1+,2+,3+,	67	
48V	68					3.101		68	
48V	69					3.168	1+,2+,3+,	69	
48V	70			3.174	(7-)			70	0.139 PS 14
-----									
48V	71					3.201		71	
48V	72	3.210	(8+)					72	
48V	73	3.243	(2)+					73	
48V	74					3.294	1+,2+,3+,	74	
48V	75					3.322	1+,2+,3+,	75	
48V	76	3.382	1+					76	
48V	77			3.423	(7-)			77	0.132 PS 28
48V	78					3.451	1+,2+,3+,	78	
48V	79					3.507	1+,2+,3+,	79	
48V	80					3.565	(3,4)+	80	
-----									
48V	81					3.633		81	

48V	82					3.660		82		
48V	83	3.702	1+					83		
48V	84					3.736	1+,2+,3+,	84		
48V	85					3.806	1+,2+,3+,	85		
48V	86	3.866	1+					86		
48V	87					3.945	0+,1+	87		
48V	88				3.981	(8-)		88	0.152 PS	21
48V	89	4.024	(2)+					89		
48V	90				4.073	(8-)		90	0.097 PS	28
-----										
48V	91					4.086	1+,2+,3+,	91		
48V	92	4.150	(10+)					92		
48V	93					4.181	0+,1+	93		
48V	94					4.201	(0+,1+)	94		
48V	95					4.245	0+,1+	95		
48V	96	4.307	(11+)					96	0.36 PS	4
48V	97				4.361	(8-)		97	0.083 PS	28
48V	98	4.368	(9+)					98		
48V	99				4.396	(9-)		99	0.90 PS	14
48V	100					4.456	0+,1+	100		
-----										
48V	101					4.554	0+,1+	101		
48V	102				4.581	(9-)		102	0.39 PS	4
48V	103					4.595	0+,1+	103		
48V	104					4.675		104		
48V	105	4.684	1+					105		
48V	106	4.781	1+					106		
48V	107					4.857	0+,1+	107		
48V	108					4.924	0+,1+	108		
48V	109	4.969	(10+)					109		
48V	110					4.971	0+,1+	110		
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48V	111					5.067	0+,1+	111		
48V	112					5.130	0+,1+	112		
48V	113					5.164	0+,1+	113		
48V	114					5.199	0+,1+	114		
48V	115				5.204	(10-)		115	0.28 PS	7
48V	116					5.246	(0+,1+)	116		
48V	117					5.277	0+,1+	117		
48V	118					5.388	0+,1+	118		
48V	119					5.430	0+,1+	119		
48V	120					5.477		120		
-----										
48V	121					5.516		121		
48V	122					5.567	0+,1+	122		
48V	123	5.569	(11+)					123		
48V	124					5.702	0+,1+	124		
48V	125					5.739	0+,1+	125		
48V	126					5.766	0+,1+	126		
48V	127					5.820	0+,1+	127		

48V 128				5.898	(11-)				128	0.62 PS	7
48V 129							5.913		129		
48V 130							5.965 0+,1+		130		
-----											
48V 131							6.005 0+,1+		131		
48V 132							6.085		132		
48V 133							6.192 0+,1+		133		
48V 134							6.208 0+,1+		134		
48V 135		6.215		(12+)					135		
48V 136		6.243		(13+)					136	0.194 PS	28
48V 137							6.280 0+,1+		137		
48V 138							6.401 0+,1+		138		
48V 139							6.464 0+,1+		139		
48V 140							6.501 0+,1+		140		
-----											
48V 141							6.516 (0+,1+)		141		
48V 142							6.548 0+,1+		142		
48V 143							6.568 (0+,1+)		143		
48V 144							6.603 (0+,1+)		144		
48V 145							6.641 0+,1+		145		
48V 146							6.697 0+,1+		146		
48V 147							6.748		147		
48V 148							6.770 0+,1+		148		
48V 149							6.819 0+,1+		149		
S-p	=	6.829 ( 0.001)	-----								
48V 150							6.874 0+,1+		150		
-----											
48V 151							6.924 0+,1+		151		
48V 152							6.950 0+,1+		152		
48V 153							6.982 0+,1+		153		
48V 154							7.038 0+,1+		154		
48V 155							7.061 0+,1+		155		
48V 156							7.106 0+,1+		156		
48V 157							7.163 0+,1+		157		
48V 158							7.219 0+,1+		158		
48V 159							7.247		159		
48V 160							7.308 0+,1+		160		
-----											
48V 161				7.334	(12-)				161	0.118 PS	21
48V 162		7.335		(12+)					162		
48V 163							7.350		163		
48V 164							7.374 0+,1+		164		
48V 165							7.398 0+,1+		165		
48V 166							7.428 0+,1+		166		
48V 167							7.455 0+,1+		167		
48V 168							7.496 0+,1+		168		
48V 169							7.520 0+,1+		169		
48V 170							7.558 0+,1+		170		
-----											
48V 171							7.580 0+,1+		171		

48V 172			7.639 0+,1+	172
48V 173			7.702	173
48V 174			7.706	174
48V 175			7.709	175
48V 176			7.712	176
48V 177			7.717	177
48V 178			7.723	178
48V 179			7.730	179
48V 180			7.746	180
-----				
48V 181			7.751	181
48V 182			7.755	182
48V 183			7.768	183
48V 184			7.773	184
48V 185			7.778	185
48V 186			7.781	186
48V 187			7.788	187
48V 188			7.791	188
48V 189			7.794	189
48V 190			7.797	190
-----				
48V 191			7.804	191
48V 192			7.806	192
48V 193			7.809	193
48V 194			7.815	194
48V 195			7.821	195
48V 196			7.825	196
48V 197			7.831	197
48V 198			7.835	198
48V 199			7.838	199
48V 200			7.840	200
-----				
48V 201			7.843	201
48V 202			7.846	202
48V 203			7.850	203
48V 204			7.852	204
48V 205			7.856	205
48V 206			7.858	206
48V 207			7.863	207
48V 208			7.864	208
48V 209			7.870	209
48V 210			7.873	210
-----				
48V 211			7.875	211
48V 212			7.879	212
48V 213			7.884	213
48V 214			7.886	214
48V 215			7.894	215
48V 216			7.895	216
48V 217			7.899	217

48V 218				7.904		218
48V 219				7.909		219
48V 220				7.912		220
-----						
48V 221				7.917		221
48V 222				7.920		222
48V 223				7.924		223
48V 224				7.926		224
48V 225				7.928		225
48V 226				7.931		226
48V 227				7.934		227
48V 228				7.938		228
48V 229				7.941		229
48V 230				7.944		230
-----						
48V 231		7.944	(13-)			231 0.090 PS 14
48V 232				7.949		232
48V 233				7.952		233
48V 234				7.954		234
48V 235				7.957		235
48V 236				7.960		236
48V 237				7.964		237
48V 238				7.967		238
48V 239				7.969		239
48V 240				7.972		240
-----						
48V 241		7.973	(13+)			241 0.14 PS LT
48V 242				7.974		242
48V 243				7.977		243
48V 244				7.981		244
48V 245				7.985		245
48V 246				7.988		246
48V 247				7.998		247
48V 248				8.003		248
48V 249				8.006		249
48V 250				8.012		250
-----						
48V 251				8.014		251
48V 252				8.018		252
48V 253				8.022		253
48V 254				8.029		254
48V 255				8.032		255
48V 256				8.037		256
48V 257				8.040		257
48V 258				8.042		258
48V 259				8.044		259
48V 260				8.048		260
-----						
48V 261				8.054		261
48V 262				8.058		262

48V 263				8.059	263
48V 264				8.062	264
48V 265				8.071	265
48V 266				8.075	266
48V 267				8.078	267
48V 268				8.082	268
48V 269				8.084	269
48V 270				8.089	270
-----					
48V 271				8.091	271
48V 272				8.093	272
48V 273				8.096	273
48V 274				8.098	274
48V 275				8.101	275
48V 276				8.103	276
48V 277				8.107	277
48V 278				8.112	278
48V 279				8.115	279
48V 280				8.118	280
-----					
48V 281				8.161 0+,1+	281
48V 282				8.216 (0+,1+)	282
48V 283				8.262 0+,1+	283
48V 284				8.279 0+,1+	284
48V 285				8.286 (15,13)	285
48V 286				8.316 0+,1+	286
48V 287				8.353 0+,1+	287
48V 288				8.401 (0+,1+)	288
48V 289				8.440 0+,1+	289
48V 290				8.465 0+,1+	290
-----					
48V 291		8.496	(14+)		291 0.07 PS LT
48V 292				8.505 0+,1+	292
48V 293				8.530 (0+,1+)	293
48V 294				8.572 (0+,1+)	294
48V 295				8.589 (14)	295
48V 296				8.600 (0+,1+)	296
48V 297				8.645 0+,1+	297
48V 298				8.666 (0+,1+)	298
48V 299		8.713	(15+)		299 0.118 PS 28
48V 300				8.744 (0+,1+)	300
-----					
48V 301				8.767 0+,1+	301
48V 302				8.821	302
48V 303				8.887 0+,1+	303
48V 304				8.904 (0+,1+)	304
48V 305				8.967 0+,1+	305
48V 306				8.998 (0+,1+)	306
48V 307				9.027 0+,1+	307
48V 308				9.061 0+,1+	308

S-alpha= 9.087 ( 0.002)		-----	
48V 309			9.105 0+,1+ 309
48V 310			9.157 (0+,1+) 310
-----			
48V 311			9.198 (0+,1+) 311
48V 312			9.220 0+,1+ 312
48V 313			9.232 0+,1+ 313
48V 314			9.268 314
48V 315			9.301 0+,1+ 315
48V 316			9.333 0+,1+ 316
48V 317			9.362 317
48V 318			9.397 0+,1+ 318
48V 319			9.446 0+,1+ 319
48V 320			9.492 0+,1+ 320
-----			
48V 321			9.606 0+,1+ 321
48V 322			9.651 (0+,1+) 322
48V 323			9.699 323
48V 324			9.732 0+,1+ 324
48V 325			9.770 0+,1+ 325
48V 326			9.808 0+,1+ 326
48V 327			9.846 0+,1+ 327
48V 328			9.891 0+,1+ 328
48V 329		9.910 (14-)	329 0.056 PS LT
48V 330			9.930 0+,1+ 330
-----			
48V 331			9.962 0+,1+ 331
48V 332			10.008 0+,1+ 332
48V 333			10.038 333
48V 334			10.073 0+,1+ 334
48V 335			10.107 0+,1+ 335
48V 336			10.133 0+,1+ 336
48V 337			10.179 337
48V 338			10.237 0+,1+ 338
48V 339			10.258 (0+,1+) 339
48V 340			10.286 340
-----			
48V 341			10.334 0+,1+ 341
48V 342			10.373 0+,1+ 342
48V 343			10.446 0+,1+ 343
48V 344		10.450 (15-)	344 0.056 PS LT
48V 345			10.470 0+,1+ 345
48V 346			10.509 0+,1+ 346
S-n = 10.542 ( 0.001)		-----	
48V 347			10.564 0+,1+ 347
48V 348			10.585 0+,1+ 348
48V 349			10.626 0+,1+ 349
48V 350			10.653 350
-----			
48V 351			10.707 0+,1+ 351



48V 352			10.735 0+,1+	352
48V 353			10.777 0+,1+	353
48V 354			10.823 0+,1+	354
48V 355			10.856	355
48V 356			10.901	356
48V 357			10.955	357
48V 358			10.984 (0+,1+)	358
48V 359			11.017 0+,1+	359
48V 360			11.061 (0+,1+)	360
-----				
48V 361			11.102 (0+,1+)	361
48V 362			11.139 0+,1+	362
48V 363			11.174 0+,1+	363
48V 364			11.207	364
48V 365			11.280 (0+,1+)	365
48V 366			11.302 0+,1+	366
48V 367			11.335 0+,1+	367
48V 368			11.349 0+,1+	368
48V 369			11.419	369
48V 370			11.466	370
-----				
48V 371			11.512	371
48V 372			11.565	372
48V 373			11.636 0+,1+	373
48V 374			11.669 0+,1+	374
48V 375			11.707	375
48V 376			11.768	376
48V 377			11.794	377
48V 378			11.858	378
48V 379			11.883	379
48V 380			11.942 0+,1+	380
-----				
48V 381			11.991 (0+,1+)	381
48V 382			12.008 (0+,1+)	382
48V 383			12.046 (0+,1+)	383
48V 384			12.133 (0+,1+)	384
48V 385			12.169 (0+,1+)	385
48V 386			12.233 (0+,1+)	386
48V 387			12.275 0+,1+	387
48V 388			12.321	388
48V 389			12.346 0+,1+	389
48V 390			12.398 (0+,1+)	390
-----				
48V 391			12.482 0+,1+	391
48V 392			12.538 0+,1+	392
48V 393			12.618	393
48V 394		12.644 (16-)		394
48V 395			12.646 (0+,1+)	395
48V 396			12.675	396
48V 397		13.282 (17-)		397

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S-p    =  6.829 ( 0.001) -----
S-n    = 10.542 ( 0.001) -----
S-2p   = 17.294 ( 0.001) -----
S-2n   = 23.545 ( 0.001) -----
S-alpha=  9.087 ( 0.002) -----

S+p    =  -8.143 ( 0.002)
S+n    = -11.555 ( 0.001)
S+2p   = -12.727 ( 0.001)
S+2n   = -20.888 ( 0.001)
S+alpha =  -8.658 ( 0.001)

gap p   =  -1.314 ( 0.003)
gap n   =  -1.013 ( 0.002)
gap 2p  =   4.567 ( 0.002)
gap 2n  =   2.657 ( 0.001)
gap alpha =  0.429 ( 0.002)
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