

电子伏特与焦耳的相互换算表

GB 5112—85

Electronvolt and joule conversion tables

1 引言

1.1 为了使所有的国家标准逐步采用国际单位制，针对我国现有的实际情况和各行各业的需要，参照有关量和单位的 15 个国家标准（GB 3100—82，GB 3101—82，GB 3102.1～3102.13—82），遵照 GB 1.1—81《标准化工作导则 编写标准的一般规定》，特编制 GB 5112—85《电子伏特与焦耳的相互换算表》。

1.2 本标准适用于所有电子伏特（eV）换算成焦耳（J）和焦耳换算成电子伏特的场合。本标准换算表仅限于一般需要的换算，换算表中换算后的数字修约至五位有效数字，1 以下的数字修约至小数点后四位。必要时按 1.3 给出的换算系数进行计算和修约。修约规则按 GB 1.1—81 附录 C 的规定。

1.3 换算系数：

1 eV = (1.602 189 2 ± 0.000 004 6) × 10⁻¹⁹J

1 J = 1 / (1.602 189 2 ± 0.000 004 6) × 10¹⁹eV

此数据取自 GB 3102.9—82《原子物理学和核物理学的量和单位》。

2 换算表

表 1 电子伏特至焦耳的换算表
1 eV = 1.602 189 2 × 10⁻¹⁹J

<div>J (×10⁻¹⁹)</div> <div>eV</div>	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0.0000	0.1602	0.3204	0.4807	0.6409	0.8011	0.9613	1.1215	1.2818	1.4420
1	1.6022	1.7624	1.9226	2.0828	2.2431	2.4033	2.5635	2.7237	2.8839	3.0442
2	3.2044	3.3646	3.5248	3.6850	3.8453	4.0055	4.1657	4.3259	4.4861	4.6463
3	4.8066	4.9668	5.1270	5.2872	5.4474	5.6077	5.7679	5.9281	6.0883	6.2485
4	6.4088	6.5690	6.7292	6.8894	7.0496	7.2099	7.3701	7.5303	7.6905	7.8507
5	8.0109	8.1712	8.3314	8.4916	8.6518	8.8120	8.9723	9.1325	9.2927	9.4529
6	9.6131	9.7734	9.9336	10.094	10.254	10.414	10.574	10.735	10.895	11.055
7	11.215	11.376	11.536	11.696	11.856	12.016	12.177	12.337	12.497	12.657
8	12.818	12.978	13.138	13.298	13.458	13.619	13.779	13.939	14.099	14.259
9	14.420	14.580	14.740	14.900	15.061	15.231	15.381	15.541	15.701	15.862

续表 1

J ($\times 10^{-19}$) eV	eV									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10	16.022	16.182	16.342	16.503	16.663	16.823	16.983	17.143	17.304	17.464
11	17.624	17.784	17.945	18.105	18.265	18.425	18.585	18.746	18.906	19.066
12	19.226	19.386	19.547	19.707	19.867	20.027	20.188	20.348	20.508	20.668
13	20.828	20.989	21.149	21.309	21.469	21.630	21.790	21.950	22.110	22.270
14	22.431	22.591	22.751	22.911	23.072	23.232	23.392	23.552	23.712	23.873
15	24.033	24.193	24.353	24.513	24.674	24.834	24.994	25.154	25.315	25.475
16	25.635	25.795	25.955	26.116	26.276	26.436	26.596	26.757	26.917	27.077
17	27.237	27.397	27.558	27.718	27.878	28.038	28.199	28.359	28.519	28.679
18	28.839	29.000	29.160	29.320	29.480	29.641	29.801	29.961	30.121	30.281
19	30.442	30.602	30.762	30.922	31.082	31.243	31.403	31.563	31.723	31.884
20	32.044	32.204	32.364	32.524	32.685	32.845	33.005	33.165	33.326	33.486
21	33.646	33.806	33.966	34.127	34.287	34.447	34.607	34.768	34.928	35.088
22	35.248	35.408	35.569	35.729	35.889	36.049	36.209	36.370	36.530	36.690
23	36.850	37.011	37.171	37.331	37.491	37.651	37.812	37.972	38.132	38.292
24	38.453	38.613	38.773	38.933	39.093	39.254	39.414	39.574	39.734	39.895
25	40.055	40.215	40.375	40.535	40.696	40.856	41.016	41.176	41.336	41.497
26	41.657	41.817	41.977	42.138	42.298	42.458	42.618	42.778	42.939	43.099
27	43.259	43.419	43.580	43.740	43.900	44.060	44.220	44.381	44.541	44.701
28	44.861	45.022	45.182	45.342	45.502	45.662	45.823	45.983	46.143	46.303
29	46.463	46.624	46.784	46.944	47.104	47.265	47.425	47.585	47.745	47.905
30	48.066	48.226	48.386	48.546	48.707	48.867	49.027	49.187	49.347	49.508
31	49.668	49.828	49.988	50.149	50.309	50.469	50.629	50.789	50.950	51.110
32	51.270	51.430	51.590	51.751	51.911	52.071	52.231	52.392	52.552	52.712
33	52.872	53.032	53.193	53.353	53.513	53.673	53.834	53.994	54.154	54.314
34	54.474	54.635	54.795	54.955	55.115	55.276	55.436	55.596	55.756	55.916
35	56.077	56.237	56.397	56.557	56.717	56.878	57.038	57.198	57.358	57.519
36	57.679	57.839	57.999	58.159	58.320	58.480	58.640	58.800	58.961	59.121
37	59.281	59.441	59.601	59.762	59.922	60.082	60.242	60.403	60.563	60.723
38	60.883	61.043	61.204	61.364	61.524	61.684	61.845	62.005	62.165	62.325
39	62.485	62.646	62.806	62.966	63.126	63.286	63.447	63.607	63.767	63.927
40	64.088	64.248	64.408	64.568	64.728	64.889	65.049	65.209	65.369	65.530
41	65.690	65.850	66.010	66.170	66.331	66.491	66.651	66.811	66.972	67.132
42	67.292	67.452	67.612	67.773	67.933	68.093	68.253	68.413	68.574	68.734
43	68.894	69.054	69.215	69.375	69.535	69.695	69.855	70.016	70.176	70.336
44	70.496	70.657	70.817	70.977	71.137	71.297	71.458	71.618	71.778	71.938
45	72.099	72.259	72.419	72.579	72.739	72.900	73.060	73.220	73.380	73.540
46	73.701	73.861	74.021	74.181	74.342	74.502	74.662	74.822	74.982	75.143
47	75.303	75.463	75.623	75.784	75.944	76.104	76.264	76.424	76.585	76.745
48	76.905	77.065	77.226	77.386	77.546	77.706	77.866	78.027	78.187	78.347
49	78.507	78.667	78.828	78.988	79.118	79.308	79.469	79.629	79.789	79.949

续表 1

J ($\times 10^{-19}$) eV	eV									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
50	80.109	80.270	80.430	80.590	80.750	80.911	81.071	81.231	81.391	81.551
51	81.712	81.872	82.032	82.192	82.353	82.513	82.673	82.833	82.993	83.154
52	83.314	83.474	83.634	83.794	83.955	84.115	84.275	84.435	84.596	84.756
53	84.916	85.076	85.236	85.397	85.557	85.717	85.877	86.038	86.198	86.358
54	86.518	86.678	86.839	86.999	87.159	87.319	87.480	87.640	87.800	87.960
55	88.120	88.281	88.441	88.601	88.761	88.922	89.082	89.242	89.402	89.562
56	89.723	89.883	90.043	90.203	90.363	90.524	90.684	90.844	91.004	91.165
57	91.325	91.485	91.645	91.805	91.966	92.126	92.286	92.446	92.607	92.767
58	92.927	93.087	93.247	93.408	93.568	93.728	93.888	94.049	94.209	94.369
59	94.529	94.689	94.850	95.010	95.170	95.330	95.490	95.651	95.811	95.971
60	96.131	96.292	96.452	96.612	96.772	96.932	97.093	97.253	97.413	97.573
61	97.734	97.894	98.054	98.214	98.374	98.535	98.695	98.855	99.015	99.176
62	99.336	99.496	99.656	99.816	99.977	100.14	100.30	100.46	100.62	100.78
63	100.94	101.10	101.26	101.42	101.58	101.74	101.90	102.06	102.22	102.38
64	102.54	102.70	102.86	103.02	103.18	103.34	103.50	103.66	103.82	103.98
65	104.14	104.30	104.46	104.62	104.78	104.94	105.10	105.26	105.42	105.58
66	105.74	105.90	106.06	106.23	106.39	106.55	106.71	106.87	107.03	107.19
67	107.35	107.51	107.67	107.83	107.99	108.15	108.31	108.47	108.63	108.79
68	108.95	109.11	109.27	109.43	109.59	109.75	109.91	110.07	110.23	110.39
69	110.55	110.71	110.87	111.03	111.19	111.35	111.51	111.67	111.83	111.99
70	112.15	112.31	112.47	112.63	112.79	112.95	113.11	113.27	113.43	113.60
71	113.76	113.92	114.08	114.24	114.40	114.56	114.72	114.88	115.04	115.20
72	115.36	115.52	115.68	115.84	116.00	116.16	116.32	116.48	116.64	116.80
73	116.96	117.12	117.28	117.44	117.60	117.76	117.92	118.08	118.24	118.40
74	118.56	118.72	118.88	119.04	119.20	119.36	119.52	119.68	119.84	120.00
75	120.16	120.32	120.48	120.64	120.81	120.97	121.13	121.29	121.45	121.61
76	121.77	121.93	122.09	122.25	122.41	122.57	122.73	122.89	123.05	123.21
77	123.37	123.53	123.69	123.85	124.01	124.17	124.33	124.49	124.65	124.81
78	124.97	125.13	125.29	125.45	125.61	125.77	125.93	126.09	126.25	126.41
79	126.57	126.73	126.89	127.05	127.21	127.37	127.53	127.69	127.85	128.01
80	128.18	128.34	128.50	128.66	128.82	128.98	129.14	129.30	129.46	129.62
81	129.78	129.94	130.10	130.26	130.42	130.58	130.74	130.90	131.06	131.22
82	131.38	131.54	131.70	131.86	132.02	132.18	132.34	132.50	132.66	132.82
83	132.98	133.14	133.30	133.46	133.62	133.78	133.94	134.10	134.26	134.42
84	134.58	134.74	134.90	135.06	135.22	135.38	135.55	135.71	135.87	136.03
85	136.19	136.35	136.51	136.67	136.83	136.99	137.15	137.31	137.47	137.63
86	137.79	137.95	138.11	138.27	138.43	138.59	138.75	138.91	139.07	139.23
87	139.39	139.55	139.71	139.87	140.03	140.19	140.35	140.51	140.67	140.83
88	140.99	141.15	141.31	141.47	141.63	141.79	141.95	142.11	142.27	142.43
89	142.59	142.76	142.92	143.08	143.24	143.40	143.56	143.72	143.88	144.04

续表 1

<div>J ($\times 10^{-19}$) eV</div>	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
90	144.20	144.36	144.52	144.68	144.84	145.00	145.16	145.32	145.48	145.64
91	145.80	145.96	146.12	146.28	146.44	146.60	146.76	146.92	147.08	147.24
92	147.40	147.56	147.72	147.88	148.04	148.20	148.36	148.52	148.68	148.84
93	149.00	149.16	149.32	149.48	149.64	149.80	149.96	150.13	150.29	150.45
94	150.61	150.77	150.93	151.09	151.25	151.41	151.57	151.73	151.89	152.05
95	152.21	152.37	152.53	152.69	152.85	153.01	153.17	153.33	153.49	153.65
96	153.81	153.97	154.13	154.29	154.45	154.61	154.77	154.93	155.09	155.25
97	155.41	155.57	155.73	155.89	156.05	156.21	156.37	156.53	156.69	156.85
98	157.01	157.17	157.33	157.50	157.66	157.82	157.98	158.14	158.30	158.46
99	158.62	158.78	158.94	159.10	159.26	159.42	159.58	159.74	159.90	160.06
100	160.22	160.38	160.54	160.70	160.86	161.02	161.18	161.34	161.50	161.66

表 2 焦耳至电子伏特的换算表
1 J=1/1.602 189 2 $\times 10^{19}$ eV

<div>eV ($\times 10^{19}$) J</div>	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0.0000	0.0624	0.1248	0.1872	0.2497	0.3121	0.3745	0.4369	0.4993	0.5617
1	0.6241	0.6866	0.7490	0.8114	0.8738	0.9362	0.9986	1.0610	1.1235	1.1859
2	1.2483	1.3107	1.3731	1.4355	1.4980	1.5604	1.6228	1.6852	1.7476	1.8100
3	1.8724	1.9349	1.9973	2.0597	2.1221	2.1845	2.2469	2.3093	2.3718	2.4342
4	2.4966	2.5590	2.6214	2.6838	2.7462	2.8087	2.8711	2.9335	2.9959	3.0583
5	3.1207	3.1831	3.2456	3.3080	3.3704	3.4328	3.4952	3.5576	3.6200	3.6825
6	3.7449	3.8073	3.8697	3.9321	3.9945	4.0569	4.1194	4.1818	4.2442	4.3066
7	4.3690	4.4314	4.4939	4.5563	4.6187	4.6811	4.7435	4.8059	4.8683	4.9308
8	4.9932	5.0556	5.1180	5.1804	5.2428	5.3052	5.3677	5.4301	5.4925	5.5549
9	5.6173	5.6797	5.7421	5.8046	5.8670	5.9294	5.9918	6.0542	6.1166	6.1790
10	6.2415	6.3039	6.3663	6.4287	6.4911	6.5535	6.6159	6.6784	6.7408	6.8032
11	6.8656	6.9280	6.9904	7.0528	7.1153	7.1777	7.2401	7.3025	7.3649	7.4273
12	7.4898	7.5522	7.6146	7.6770	7.7394	7.8018	7.8642	7.9267	7.9891	8.0515
13	8.1139	8.1763	8.2387	8.3011	8.3636	8.4260	8.4884	8.5508	8.6132	8.6756
14	8.7380	8.8005	8.8629	8.9253	8.9877	9.0501	9.1125	9.1749	9.2374	9.2998
15	9.3622	9.4246	9.4870	9.5494	9.6118	9.6743	9.7367	9.7991	9.8615	9.9239
16	9.9863	10.049	10.111	10.174	10.236	10.298	10.361	10.423	10.486	10.548
17	10.610	10.673	10.735	10.798	10.860	10.923	10.985	11.047	11.110	11.172
18	11.235	11.297	11.359	11.422	11.484	11.547	11.609	11.672	11.734	11.796
19	11.859	11.921	11.984	12.046	12.108	12.171	12.233	12.296	12.358	12.421

续表 2

eV ($\times 10^{19}$)	J										
		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
20		12.483	12.545	12.608	12.670	12.733	12.795	12.857	12.920	12.982	13.045
21		13.107	13.169	13.232	13.294	13.357	13.419	13.482	13.544	13.606	13.669
22		13.731	13.794	13.856	13.918	13.981	14.043	14.106	14.168	14.231	14.293
23		14.355	14.418	14.480	14.543	14.605	14.667	14.730	14.792	14.855	14.917
24		14.980	15.042	15.104	15.167	15.229	15.292	15.354	15.416	15.479	15.541
25		15.604	15.666	15.728	15.791	15.853	15.916	15.978	16.041	16.103	16.165
26		16.228	16.290	16.353	16.415	16.477	16.540	16.602	16.665	16.727	16.790
27		16.852	16.914	16.977	17.039	17.102	17.164	17.226	17.289	17.351	17.414
28		17.476	17.539	17.601	17.663	17.726	17.788	17.851	17.913	17.975	18.038
29		18.100	18.163	18.225	18.287	18.350	18.412	18.475	18.537	18.600	18.662
30		18.724	18.787	18.849	18.912	18.974	19.036	19.099	19.161	19.224	19.286
31		19.349	19.411	19.473	19.536	19.598	19.661	19.723	19.785	19.848	19.910
32		19.973	20.035	20.098	20.160	20.222	20.285	20.347	20.410	20.472	20.534
33		20.597	20.659	20.722	20.784	20.846	20.909	20.971	21.034	21.096	21.159
34		21.221	21.283	21.346	21.408	21.471	21.533	21.595	21.658	21.720	21.783
35		21.845	21.908	21.970	22.032	22.095	22.157	22.220	22.282	22.344	22.407
36		22.469	22.532	22.594	22.657	22.719	22.781	22.844	22.906	22.969	23.031
37		23.093	23.156	23.218	23.281	23.343	23.405	23.468	23.530	23.593	23.655
38		23.718	23.780	23.842	23.905	23.967	24.030	24.092	24.154	24.217	24.279
39		24.342	24.404	24.467	24.529	24.591	24.654	24.716	24.779	24.841	24.903
40		24.966	25.028	25.091	25.153	25.215	25.278	25.340	25.403	25.465	25.528
41		25.590	25.652	25.715	25.777	25.840	25.902	25.964	26.027	26.089	26.152
42		26.214	26.277	26.339	26.401	26.464	26.526	26.589	26.651	26.713	26.776
43		26.838	26.901	26.963	27.026	27.088	27.150	27.213	27.275	27.338	27.400
44		27.462	27.525	27.587	27.650	27.712	27.774	27.837	27.899	27.962	28.024
45		28.087	28.149	28.211	28.274	28.336	28.399	28.461	28.523	28.586	28.648
46		28.711	28.773	28.836	28.898	28.960	29.023	29.085	29.148	29.210	29.272
47		29.335	29.397	29.460	29.522	29.585	29.647	29.709	29.772	29.834	29.897
48		29.959	30.021	30.084	30.146	30.209	30.271	30.333	30.396	30.458	30.521
49		30.583	30.646	30.708	30.770	30.833	30.895	30.958	31.020	31.082	31.145
50		31.207	31.270	31.332	31.395	31.457	31.519	31.582	31.644	31.707	31.769
51		31.831	31.894	31.956	32.019	32.081	32.144	32.206	32.268	32.331	32.393
52		32.456	32.518	32.580	32.643	32.705	32.768	32.830	32.892	32.955	33.017
53		33.080	33.142	33.205	33.267	33.329	33.392	33.454	33.517	33.579	33.641
54		33.704	33.766	33.829	33.891	33.954	34.016	34.078	34.141	34.203	34.266
55		34.328	34.390	34.453	34.515	34.578	34.640	34.703	34.765	34.827	34.890
56		34.952	35.015	35.077	35.139	35.202	35.264	35.327	35.389	35.451	35.514
57		35.576	35.639	35.701	35.764	35.826	35.888	35.951	36.013	36.076	36.138
58		36.200	36.263	36.325	36.388	36.450	36.513	36.575	36.637	36.700	36.762
59		36.825	36.887	36.949	37.012	37.074	37.137	37.199	37.262	37.324	37.386

续表 2

eV ($\times 10^{19}$)	J										
		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
60		37.449	37.511	37.574	37.636	37.698	37.761	37.823	37.886	37.948	38.010
61		38.073	38.135	38.198	38.260	38.323	38.385	38.447	38.510	38.572	38.635
62		38.697	38.759	38.822	38.884	38.947	39.009	39.072	39.134	39.196	39.259
63		39.321	39.384	39.446	39.508	39.571	39.633	39.696	39.758	39.821	39.883
64		39.945	40.008	40.070	40.133	40.195	40.257	40.320	40.382	40.445	40.507
65		40.569	40.632	40.694	40.757	40.819	40.882	40.944	41.006	41.069	41.131
66		41.194	41.256	41.318	41.381	41.443	41.506	41.568	41.631	41.693	41.755
67		41.818	41.880	41.943	42.005	42.067	42.130	42.192	42.255	42.317	42.380
68		42.442	42.504	42.567	42.629	42.692	42.754	42.816	42.879	42.941	43.004
69		43.066	43.128	43.191	43.253	43.316	43.378	43.441	43.503	43.565	43.628
70		43.690	43.753	43.815	43.877	43.940	44.002	44.065	44.127	44.190	44.252
71		44.314	44.377	44.439	44.502	44.564	44.626	44.689	44.751	44.814	44.876
72		44.939	45.001	45.063	45.126	45.188	45.251	45.313	45.375	45.438	45.500
73		45.563	45.625	45.687	45.750	45.812	45.875	45.937	46.000	46.062	46.124
74		46.187	46.249	46.312	46.374	46.436	46.499	46.561	46.624	46.686	46.749
75		46.811	46.873	46.936	46.998	47.061	47.123	47.185	47.248	47.310	47.373
76		47.435	47.498	47.560	47.622	47.685	47.747	47.810	47.872	47.934	47.997
77		48.059	48.122	48.184	48.246	48.309	48.371	48.434	48.496	48.559	48.621
78		48.683	48.746	48.808	48.871	48.933	48.995	49.058	49.120	49.183	49.245
79		49.308	49.370	49.432	49.495	49.557	49.620	49.682	49.744	49.807	49.869
80		49.932	49.994	50.057	50.119	50.181	50.244	50.306	50.369	50.431	50.493
81		50.556	50.618	50.681	50.743	50.805	50.868	50.930	50.993	51.055	51.118
82		51.180	51.242	51.305	51.367	51.430	51.492	51.554	51.617	51.679	51.742
83		51.804	51.867	51.929	51.991	52.054	52.116	52.179	52.241	52.303	52.366
84		52.428	52.491	52.553	52.616	52.678	52.740	52.803	52.865	52.928	52.990
85		53.052	53.115	53.177	53.240	53.302	53.364	53.427	53.489	53.552	53.614
86		53.677	53.739	53.801	53.864	53.926	53.989	54.051	54.113	54.176	54.238
87		54.301	54.363	54.426	54.488	54.550	54.613	54.675	54.738	54.800	54.862
88		54.925	54.987	55.050	55.112	55.175	55.237	55.299	55.362	55.424	55.487
89		55.549	55.611	55.674	55.736	55.799	55.861	55.923	55.986	56.048	56.111
90		56.173	56.236	56.298	56.360	56.423	56.485	56.548	56.610	56.672	56.735
91		56.797	56.860	56.922	56.985	57.047	57.109	57.172	57.234	57.297	57.359
92		57.421	57.484	57.546	57.609	57.671	57.734	57.796	57.858	57.921	57.983
93		58.046	58.108	58.170	58.233	58.295	58.358	58.420	58.482	58.545	58.607
94		58.670	58.732	58.795	58.857	58.919	58.982	59.044	59.107	59.169	59.231
95		59.294	59.356	59.419	59.481	59.544	59.606	59.668	59.731	59.793	59.856
96		59.918	59.980	60.043	60.105	60.168	60.230	60.293	60.355	60.417	60.480
97		60.542	60.605	60.667	60.729	60.792	60.854	60.917	60.979	61.041	61.104
98		61.166	61.229	61.291	61.354	61.416	61.478	61.541	61.603	61.666	61.728
99		61.790	61.853	61.915	61.978	62.040	62.103	62.165	62.227	62.290	62.352
100		62.415	62.477	62.539	62.602	62.664	62.727	62.789	62.852	62.914	62.976

附加说明：

本标准由全国量和单位标准化技术委员会提出并审查通过。主任委员杜庆华，副主任委员陈明绍。由该委员会第一分委员会负责起草，其成员如下：主任委员余梦生，副主任委员张士相，委员（按姓氏笔划为序）王家石，王建辉，史光筠，吕东明，陈业勤，陈铭铮，俞鸿儒，黄最明，彭秉璞。

本标准主要起草人吕东明。