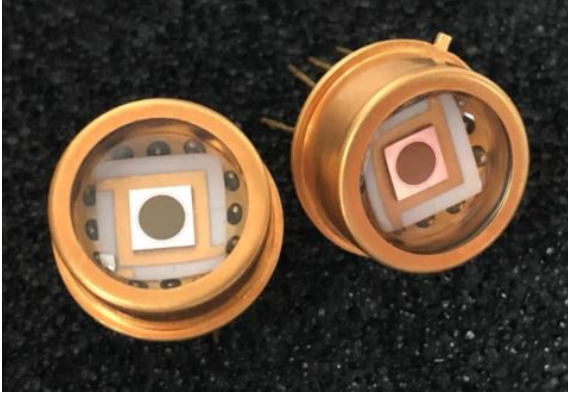


Silicon Avalanched Photodiode



Description

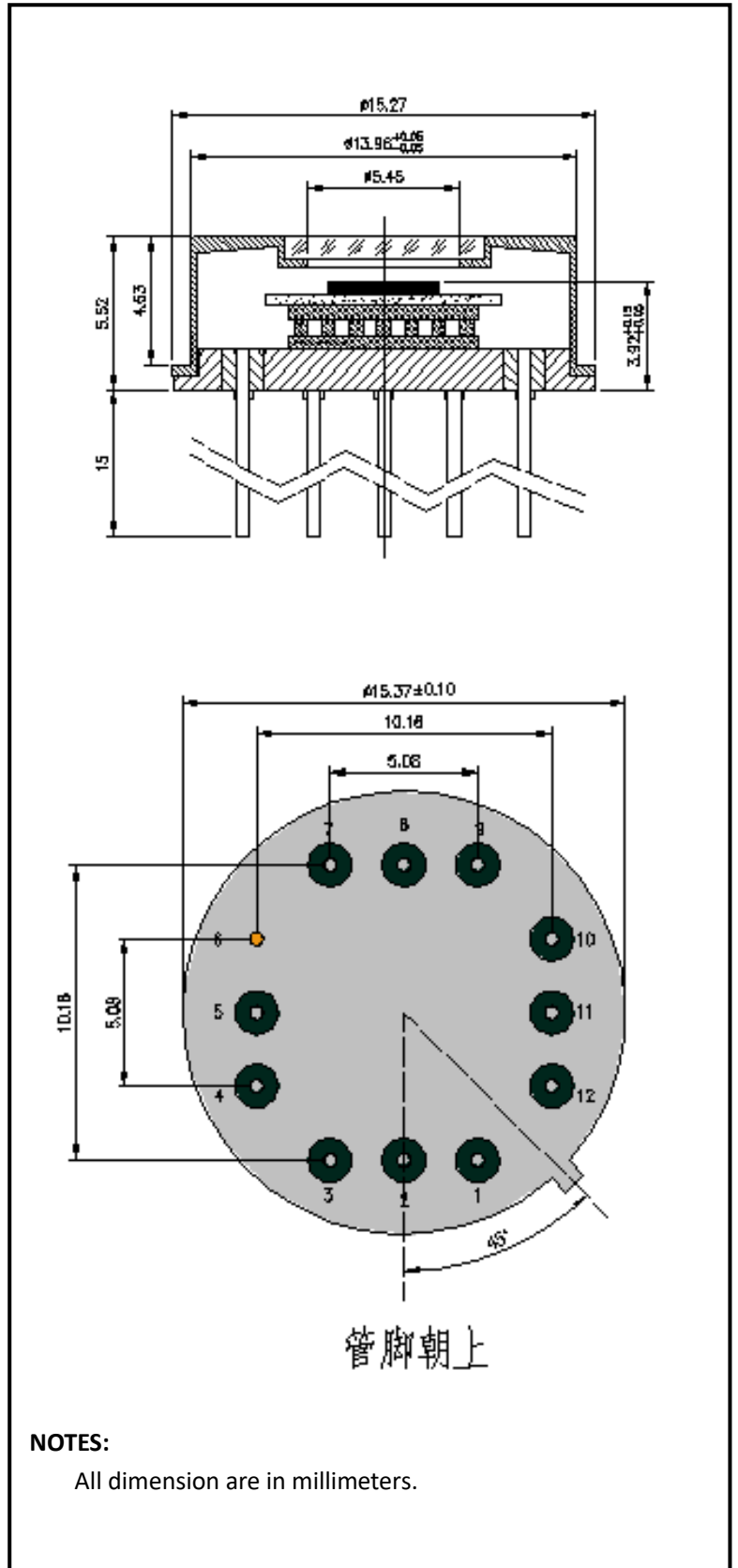
Circular active area APD chip with YAG enhanced Sensitivity. Low dark current APD in hermetic TO type Metal can include peltier element.

Features

- * $\Phi 3000\mu\text{m}$ active area
- * High QE for 850-1064nm
- * TEC for temperature control

Application

- * Pulse 1064nm laser detection
- * Laser range finding
- * Fluorescence detection





APD3000-TEC



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Wavelength range	λ		400-1100			nm
Active diameter	ϕ		3000			μm
Dark current	I_D	M=100		45	500	nA
Junction Capacitance	C	M=100, f=1MHz		12		PF
Reverse breakdown voltage	V_{BR}	ID=2 μ A	200	300	600	V
Operating voltage temperature coefficient	δ	Tc=-40~+85°C	0.9			V/°C
Rise time	t_R	F=1MHz, $\lambda=1064\text{nm}$, 50 Ω		10		ns
Maximum multiplication gain	M_{max}	$\lambda=1064\text{nm}$, $\phi_e=1\mu\text{w}$		100		
Reponsivity	Re	$\lambda=1064\text{nm}$, $\phi_e=1\mu\text{w}$, M=100		30		A/W

Absolute Values

Operating voltage	0.95×V _{BR}
Forward current	1mA
Power dissipation	1mW

Temperature Sensor (NTC)

Temp(°C)	Rmin(K Ω)	Rnor(K Ω)	Rmax(K Ω)	Temp(°C)	Rmin(K Ω)	Rnor(K Ω)	Rmax(K Ω)
-40	286.228	299.113	312.547	3	26.9189	27.467	28.0234
-39	268.577	280.487	292.895	4	25.6571	26.1667	26.6838
-38	252.132	263.145	274.611	5	24.4607	24.9346	25.4151
-37	236.805	246.992	257.591	6	23.3261	23.7666	24.213
-36	222.511	231.937	241.739	7	22.2498	22.6592	23.0737
-35	209.176	217.901	226.967	8	21.2285	21.6088	21.9937
-34	196.727	204.806	213.195	9	20.2591	20.6123	20.9696
-33	185.102	192.584	200.35	10	19.3387	19.6667	19.9981
-32	174.239	181.172	188.362	11	18.4647	18.769	19.0764
-31	164.085	170.51	177.17	12	17.6344	17.9167	18.2017
-30	154.588	160.545	166.715	13	16.8454	17.1072	17.3713
-29	145.702	151.226	156.944	14	16.0955	16.3381	16.5827
-28	137.384	142.508	147.809	15	15.3827	15.6074	15.8338
-27	129.595	134.349	139.264	16	14.7047	14.9127	15.1222
-26	122.296	126.708	131.267	17	14.0599	14.2523	14.4459
-25	115.455	119.551	123.78	18	13.4464	13.6243	13.8031
-24	109.04	112.843	116.767	19	12.8625	13.0268	13.1919
-23	103.021	106.553	110.195	20	12.3067	12.4584	12.6107
-22	97.372	100.653	104.035	21	11.7775	11.9174	12.0577
-21	92.068	95.117	98.257	22	11.2735	11.4024	11.5315



APD3000-TEC

-20	87.086	89.919	92.835	23	10.7934	10.912	11.0307
-19	82.493	85.13	87.842	24	10.336	10.4449	10.554
-18	78.166	80.621	83.144	25	9.9	10	10.1
-17	74.089	76.374	78.722	26	9.4762	9.576	9.676
-16	70.246	72.374	74.558	27	9.0724	9.172	9.2717
-15	66.622	68.603	70.637	28	8.6876	8.7867	8.8861
-14	63.204	65.049	66.941	29	8.3209	8.4194	8.5183
-13	59.979	61.697	63.459	30	7.9713	8.0691	8.1673
-12	56.935	58.536	60.175	31	7.6379	7.7349	7.8323
-11	54.061	55.552	57.078	32	7.3199	7.416	7.5126
-10	51.347	52.735	54.156	33	7.0166	7.1117	7.2073
-9	48.783	50.076	51.398	34	6.7272	6.8211	6.9158
-8	46.36	47.564	48.795	35	6.4509	6.5437	6.6373
-7	44.069	45.19	46.336	36	6.1872	6.2788	6.3712
-6	41.902	42.947	44.013	37	5.9354	6.0258	6.1169
-5	39.853	40.826	41.819	38	5.6949	5.784	5.8739
-4	37.915	38.821	39.744	39	5.4652	5.553	5.6416
-3	36.08	36.923	37.783	40	5.2457	5.3321	5.4194
-2	34.342	35.128	35.928	41	5.036	5.121	5.2069
-1	32.697	33.428	34.173	42	4.8355	4.9191	5.0037
0	31.139	31.819	32.512	43	4.6438	4.726	4.8092
1	29.655	30.289	30.932	44	4.4606	4.5413	4.6231
2	28.25	28.839	29.438	45	4.2853	4.3646	4.445
Temp(°C)	Rmin(KΩ)	Rnor(KΩ)	Rmax(KΩ)	Temp(°C)	Rmin(KΩ)	Rnor(KΩ)	Rmax(KΩ)
46	4.1176	4.1955	4.2744	89	0.8884	0.9191	0.9507
47	3.9572	4.0336	4.1111	90	0.8605	0.8905	0.9214
48	3.8037	3.8787	3.9547	91	0.8336	0.8629	0.8932
49	3.6567	3.7303	3.8049	92	0.8077	0.8364	0.8659
50	3.5161	3.5882	3.6614	93	0.7827	0.8107	0.8397
51	3.3828	3.4534	3.5253	94	0.7586	0.786	0.8143
52	3.2551	3.3244	3.3948	95	0.7353	0.7621	0.7898
53	3.1329	3.2008	3.2698	96	0.7128	0.739	0.7661
54	3.0158	3.0824	3.1501	97	0.6911	0.7168	0.7433
55	2.9037	2.9689	3.0352	98	0.6702	0.6953	0.7212
56	2.7963	2.8601	2.9251	99	0.65	0.6745	0.6999
57	2.6933	2.7558	2.8195	100	0.6305	0.6545	0.6793
58	2.5946	2.6558	2.7182	101	0.6116	0.6351	0.6594
59	2.5	2.5599	2.621	102	0.5934	0.6164	0.6401
60	2.4092	2.4679	2.5277	103	0.5758	0.5983	0.6215
61	2.3222	2.3796	2.4381	104	0.5589	0.5808	0.6035
62	2.2387	2.2949	2.3522	105	0.5424	0.5639	0.5861

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63	2.1586	2.2135	2.2697	106	0.5266	0.5476	0.5693
64	2.0817	2.1355	2.1904	107	0.5112	0.5318	0.5531
65	2.0079	2.0605	2.1143	108	0.4964	0.5165	0.5373
66	1.9371	1.9885	2.0411	109	0.4821	0.5017	0.5221
67	1.8691	1.9194	1.9708	110	0.4682	0.4874	0.5074
68	1.8037	1.8529	1.9033	111	0.4548	0.4736	0.4931
69	1.7409	1.7891	1.8383	112	0.4418	0.4602	0.4794
70	1.6806	1.7277	1.7759	113	0.4293	0.4473	0.466
71	1.6227	1.6687	1.7158	114	0.4171	0.4347	0.4531
72	1.567	1.612	1.6581	115	0.4054	0.4226	0.4406
73	1.5135	1.5574	1.6025	116	0.394	0.4109	0.4284
74	1.462	1.505	1.5491	117	0.383	0.3995	0.4167
75	1.4125	1.4545	1.4976	118	0.3723	0.3885	0.4053
76	1.3648	1.4059	1.4481	119	0.362	0.3778	0.3943
77	1.319	1.3592	1.4005	120	0.352	0.3675	0.3837
78	1.275	1.3143	1.3546	121	0.3423	0.3575	0.3733
79	1.2326	1.271	1.3104	122	0.333	0.3478	0.3633
80	1.1917	1.2293	1.2679	123	0.3239	0.3384	0.3536
81	1.1528	1.1895	1.2272	124	0.3151	0.3293	0.3442
82	1.1152	1.1511	1.188	125	0.3066	0.3205	0.335
83	1.0791	1.1142	1.1503	126	0.2983	0.3119	0.3262
84	1.0443	1.0786	1.1139	127	0.2903	0.3037	0.3176
85	1.0108	1.0443	1.0788	128	0.2825	0.2956	0.3093
86	0.9785	1.0112	1.045	129	0.275	0.2878	0.3012
87	0.9473	0.9794	1.0124	130	0.2677	0.2803	0.2934
88	0.9173	0.9487	0.981	131	0.2607	0.2729	0.2858
Temp(°C)	Rmin(KΩ)	Rnor(KΩ)	Rmax(KΩ)				
132	0.2538	0.2658	0.2784				
133	0.2471	0.2589	0.2712				
134	0.2407	0.2522	0.2643				
135	0.2344	0.2457	0.2576				
136	0.2284	0.2394	0.251				
137	0.2225	0.2333	0.2447				
138	0.2167	0.2274	0.2385				
139	0.2112	0.2216	0.2325				
140	0.2058	0.216	0.2267				
141	0.2006	0.2106	0.221				
142	0.1955	0.2053	0.2156				
143	0.1906	0.2002	0.2102				
144	0.1858	0.1952	0.205				
145	0.1811	0.1903	0.2				

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146	0.1766	0.1856	0.1951
147	0.1722	0.1811	0.1904
148	0.1679	0.1766	0.1857
149	0.1638	0.1723	0.1812
150	0.1598	0.1681	0.1769

$$T = \frac{B \cdot T_N}{B + \ln\left(\frac{R_T}{R_N}\right) \cdot T_N}$$

Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject change without notice

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