Ordering number : ENA1910A

CPH6021

RF Transistor
12V, 100mA, f_T=10GHz, NPN Single CPH6

ON Semiconductor®

http://onsemi.com

Features

- Low-noise use : NF=1.2dB typ (f=1GHz)
- High cut-off frequency : f_T=10GHz typ (V_{CE}=5V)
- High gain : $|S21e|^2$=14dB typ (f=1GHz)
- Halogen free compliance

Specifications

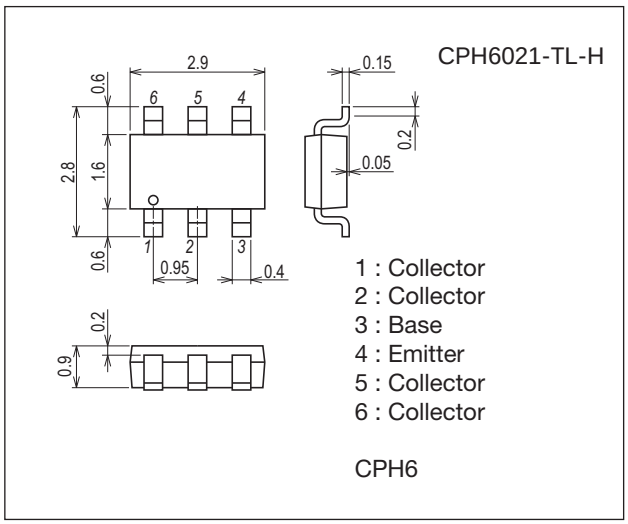
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to- Base Voltage	V_{CBO}		20	V
Collector-to-Emitter Voltage	V_{CEO}		12	V
Emitter-to-Base Voltage	V_{EBO}		2	V
Collector Current	I_C		100	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (250mm²×0.8mm)	700	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

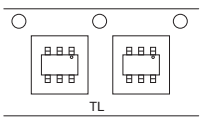
unit : mm (typ)
7018A-002



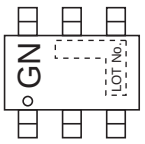
Product & Package Information

- Package : CPH6
- JEITA, JEDEC : SC-74, SOT-26, SOT-457
- Minimum Packing Quantity : 3,000 pcs./reel

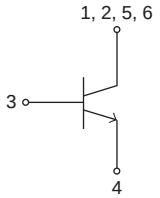
Packing Type: TL



Marking



Electrical Connection



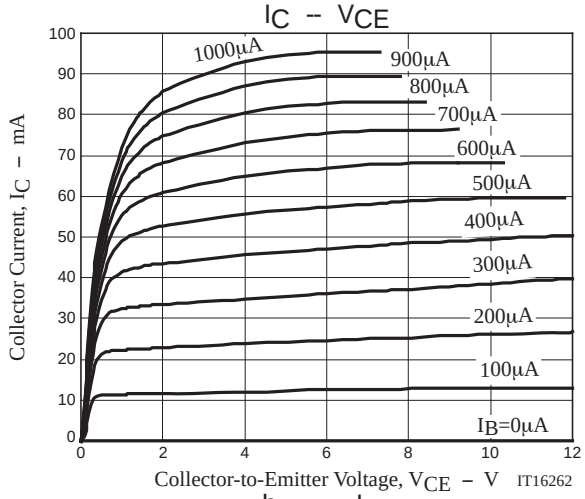
Electrical Characteristics at Ta=25°C

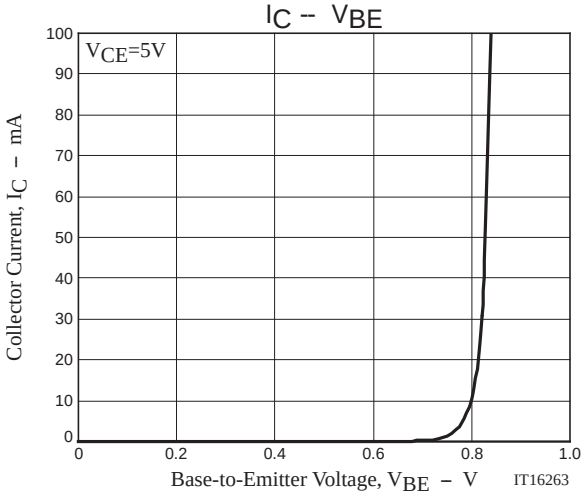
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=5V, I_E=0A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0A			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=50mA	60		150	
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=30mA	8	10		GHz
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=5V, I_C=30mA, f=1GHz	10	14		dB
Noise Figure	NF	V_{CE}=5V, I_C=10mA, f=1GHz		1.2	1.8	dB

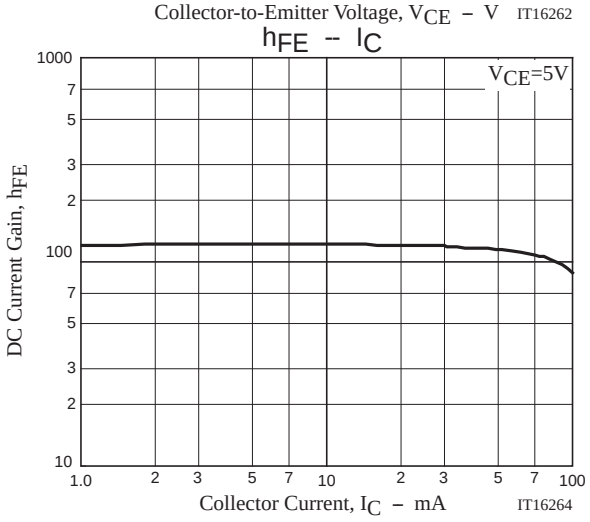
Notre) Pay attention to handling since it is liable to be affected by static electricity due to the high-frequency process adopted.

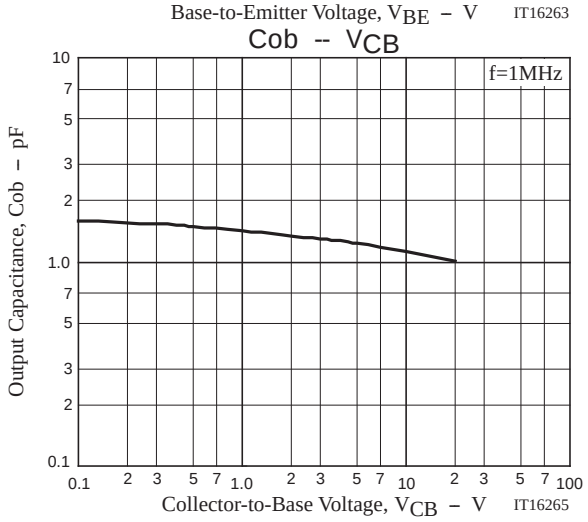
Ordering Information

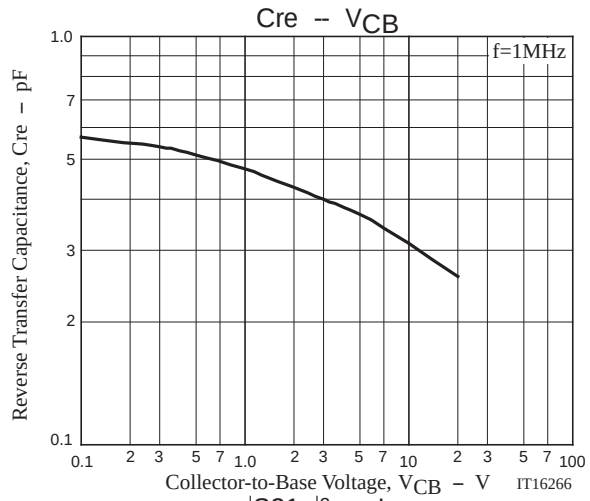
Device	Package	Shipping	memo
CPH6021-TL-H	CPH6	3,000pcs./reel	Pb Free and Halogen Free

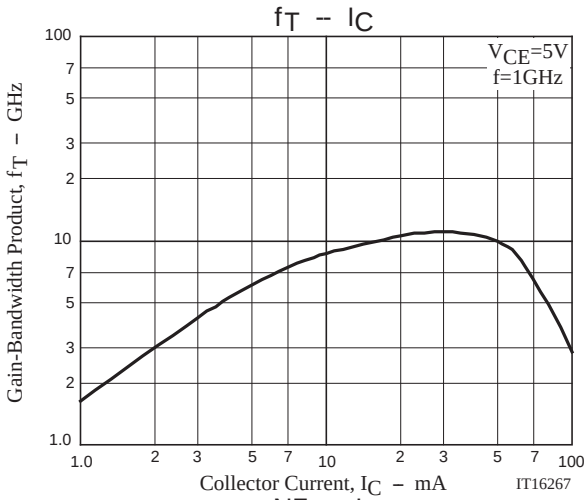


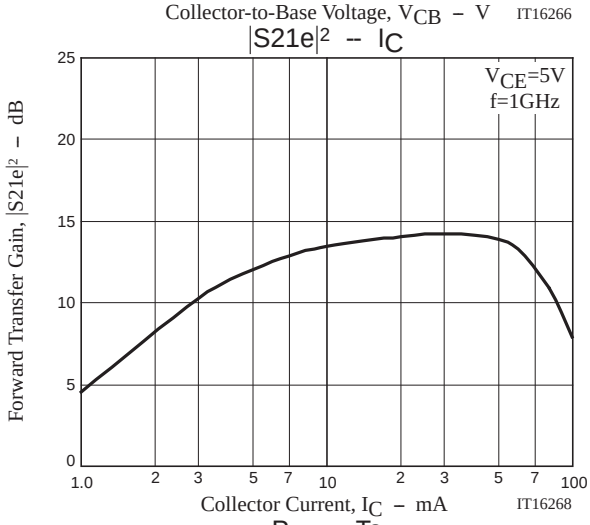


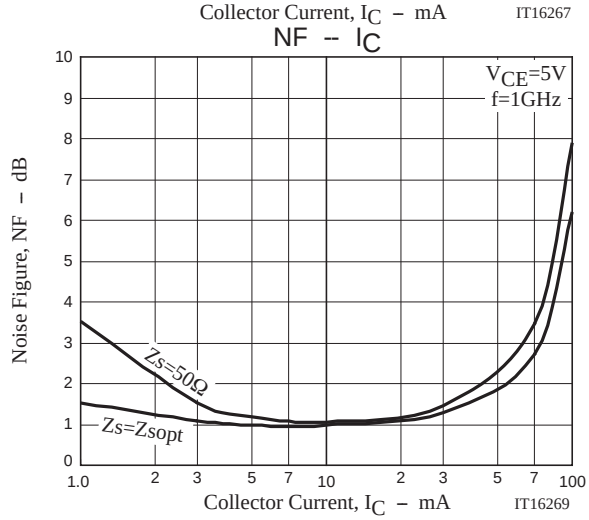


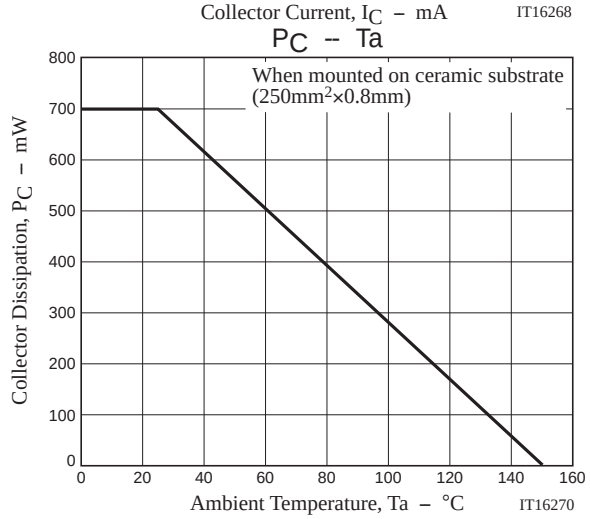



Cre -- VCB
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
IT16266


fT -- IC
VCE=5V
f=1GHz
Gain-Bandwidth Product, fT – GHz
Collector Current, IC – mA
IT16267


|S21e|2 -- IC
VCE=5V
f=1GHz
Forward Transfer Gain, |S21e|2 – dB
Collector Current, IC – mA
IT16268


NF -- IC
VCE=5V
f=1GHz
Zs=50Ω
Zs=Zsopt
Noise Figure, NF – dB
Collector Current, IC – mA
IT16269


PC -- Ta
When mounted on ceramic substrate
(250mm2×0.8mm)
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
IT16270

S Parameters (Common emitter)

V_{CE}=3V, I_C=10mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.758	-26.8	14.284	149.0	0.021	74.1	0.878	-24.0
200	0.630	-56.2	13.720	131.4	0.033	66.6	0.711	-38.2
300	0.503	-82.5	12.164	116.0	0.044	65.4	0.593	-46.0
400	0.414	-103.1	10.315	104.5	0.053	65.8	0.512	-51.3
500	0.368	-117.9	8.649	96.7	0.062	67.0	0.457	-55.3
600	0.341	-129.4	7.360	90.8	0.072	68.0	0.419	-58.7
700	0.326	-138.7	6.370	86.0	0.081	68.6	0.391	-61.8
800	0.313	-147.1	5.629	81.7	0.091	69.2	0.370	-64.6
900	0.307	-154.2	5.036	78.0	0.101	69.2	0.353	-67.3
1000	0.302	-160.2	4.556	74.7	0.112	69.2	0.342	-69.9
1200	0.299	-170.7	3.832	68.6	0.133	68.5	0.325	-75.2
1400	0.298	-179.6	3.316	63.1	0.155	67.4	0.316	-80.5
1600	0.301	172.7	2.931	57.9	0.177	66.0	0.312	-86.0
1800	0.305	165.8	2.634	53.0	0.199	64.4	0.311	-91.4
2000	0.309	159.4	2.398	48.3	0.222	62.7	0.312	-96.9
2200	0.315	153.4	2.204	43.8	0.244	60.7	0.314	-102.6
2400	0.320	147.8	2.044	39.5	0.267	58.7	0.316	-108.0
2600	0.326	142.7	1.911	35.4	0.290	56.6	0.321	-113.1
2800	0.334	137.8	1.799	31.3	0.314	54.3	0.327	-118.8
3000	0.338	133.2	1.700	27.7	0.337	52.2	0.333	-123.7

V_{CE}=3V, I_C=30mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.422	-60.6	29.590	135.2	0.016	71.4	0.722	-33.7
200	0.307	-104.4	21.814	112.1	0.025	72.9	0.519	-44.2
300	0.268	-126.8	15.788	100.5	0.037	76.0	0.425	-48.4
400	0.256	-140.7	12.124	93.3	0.047	77.3	0.373	-51.5
500	0.254	-150.8	9.776	88.0	0.058	78.3	0.340	-54.4
600	0.255	-158.5	8.161	83.9	0.070	78.3	0.317	-57.4
700	0.258	-164.9	6.998	80.2	0.081	77.8	0.300	-60.3
800	0.259	-170.4	6.125	77.0	0.093	77.5	0.288	-63.2
900	0.262	-175.2	5.448	74.1	0.105	76.6	0.278	-66.1
1000	0.265	-179.3	4.911	71.3	0.117	75.3	0.272	-68.8
1200	0.270	173.0	4.110	66.2	0.141	73.4	0.263	-74.5
1400	0.275	166.2	3.546	61.3	0.165	71.1	0.259	-80.3
1600	0.281	160.2	3.126	56.7	0.189	68.6	0.259	-86.1
1800	0.287	154.6	2.804	52.3	0.212	66.2	0.260	-91.9
2000	0.292	149.3	2.549	48.0	0.236	63.6	0.263	-97.7
2200	0.299	144.3	2.343	43.7	0.259	61.0	0.266	-103.5
2400	0.305	139.4	2.170	39.7	0.282	58.5	0.269	-109.0
2600	0.310	135.1	2.028	35.9	0.305	56.0	0.275	-114.2
2800	0.317	130.7	1.908	32.0	0.329	53.3	0.280	-119.9
3000	0.320	126.7	1.803	28.5	0.352	50.9	0.287	-124.7

S Parameters (Common emitter)

V_{CE}=3V, I_C=50mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.317	-109.4	31.770	125.5	0.013	75.2	0.630	-35.4
200	0.309	-140.2	20.342	105.6	0.023	76.4	0.452	-42.0
300	0.303	-153.5	14.403	96.2	0.034	78.9	0.381	-44.4
400	0.305	-161.9	10.996	89.9	0.045	79.8	0.343	-46.8
500	0.310	-168.1	8.862	85.1	0.057	80.6	0.319	-49.5
600	0.315	-172.9	7.391	81.2	0.068	80.1	0.303	-52.5
700	0.321	-177.3	6.332	77.7	0.080	80.0	0.291	-55.6
800	0.324	178.9	5.544	74.6	0.092	79.1	0.282	-58.6
900	0.329	175.4	4.934	71.7	0.104	78.4	0.275	-61.6
1000	0.332	172.3	4.448	69.0	0.116	77.4	0.271	-64.6
1200	0.338	166.2	3.725	63.8	0.140	75.1	0.267	-70.7
1400	0.344	160.6	3.216	58.9	0.164	72.7	0.265	-77.0
1600	0.351	155.5	2.838	54.1	0.188	70.3	0.267	-83.3
1800	0.356	150.7	2.545	49.6	0.212	67.8	0.270	-89.5
2000	0.362	146.0	2.316	45.2	0.237	65.2	0.275	-95.7
2200	0.369	141.3	2.128	40.9	0.260	62.5	0.279	-101.9
2400	0.374	136.9	1.973	36.8	0.284	60.0	0.284	-107.8
2600	0.379	132.8	1.843	32.9	0.308	57.4	0.290	-113.3
2800	0.387	128.7	1.735	29.0	0.332	54.6	0.297	-119.4
3000	0.389	124.8	1.640	25.5	0.357	52.1	0.304	-124.5

V_{CE}=3V, I_C=80mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.476	-152.5	23.097	116.2	0.016	68.9	0.452	-34.8
200	0.527	-167.4	12.902	98.8	0.025	72.7	0.341	-36.3
300	0.540	-174.6	8.790	90.8	0.034	76.2	0.305	-37.7
400	0.547	-179.4	6.612	85.1	0.045	78.8	0.288	-40.3
500	0.553	176.8	5.303	80.5	0.056	79.7	0.277	-43.6
600	0.557	173.5	4.423	76.6	0.068	79.6	0.270	-47.4
700	0.561	170.5	3.794	72.9	0.079	79.6	0.266	-51.2
800	0.564	167.7	3.328	69.7	0.092	79.3	0.264	-55.1
900	0.566	165.0	2.969	66.5	0.104	78.6	0.262	-59.0
1000	0.569	162.4	2.683	63.4	0.116	77.8	0.261	-62.7
1200	0.573	157.4	2.259	57.7	0.141	76.0	0.264	-70.5
1400	0.577	152.6	1.960	52.2	0.166	73.8	0.268	-78.1
1600	0.581	148.0	1.739	47.0	0.191	71.5	0.274	-85.7
1800	0.585	143.4	1.567	42.1	0.218	69.1	0.281	-93.1
2000	0.588	138.9	1.432	37.5	0.244	66.5	0.289	-100.4
2200	0.591	134.4	1.321	33.1	0.270	63.7	0.296	-107.6
2400	0.594	130.1	1.229	29.1	0.297	61.1	0.304	-114.4
2600	0.596	125.9	1.152	25.3	0.323	58.2	0.311	-120.7
2800	0.600	121.6	1.087	21.7	0.350	55.2	0.319	-127.6
3000	0.600	117.6	1.032	18.6	0.377	52.5	0.328	-133.5

S Parameters (Common emitter)

V_{CE}=5V, I_C=10mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.766	-25.4	14.421	149.8	0.020	72.1	0.889	-22.0
200	0.640	-53.7	13.939	132.3	0.031	67.6	0.734	-35.1
300	0.512	-78.9	12.421	117.0	0.041	66.8	0.620	-42.4
400	0.418	-98.6	10.572	105.3	0.049	67.1	0.541	-47.2
500	0.366	-113.3	8.897	97.5	0.058	68.5	0.488	-50.9
600	0.335	-124.8	7.581	91.4	0.067	69.8	0.450	-54.1
700	0.318	-134.3	6.565	86.6	0.076	70.4	0.423	-57.0
800	0.302	-142.8	5.808	82.3	0.086	70.7	0.401	-59.6
900	0.294	-150.2	5.196	78.6	0.096	70.9	0.385	-62.1
1000	0.289	-156.4	4.700	75.2	0.106	70.9	0.373	-64.7
1200	0.284	-167.3	3.953	69.1	0.127	70.3	0.356	-69.6
1400	0.282	-176.6	3.421	63.5	0.148	69.3	0.347	-74.8
1600	0.285	175.3	3.022	58.3	0.169	68.0	0.342	-80.2
1800	0.288	168.1	2.715	53.4	0.191	66.5	0.340	-85.5
2000	0.292	161.5	2.470	48.7	0.213	64.8	0.341	-90.9
2200	0.298	155.4	2.270	44.2	0.236	62.8	0.343	-96.6
2400	0.304	149.6	2.104	39.9	0.258	60.8	0.345	-102.0
2600	0.310	144.4	1.966	35.8	0.281	58.8	0.350	-107.1
2800	0.318	139.3	1.849	31.7	0.305	56.5	0.355	-112.9
3000	0.322	134.7	1.747	28.0	0.329	54.5	0.361	-117.8

V_{CE}=5V, I_C=30mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.447	-51.2	31.013	137.1	0.015	72.3	0.749	-30.3
200	0.303	-94.5	22.794	113.5	0.024	74.5	0.556	-39.8
300	0.254	-118.0	16.483	101.5	0.033	76.9	0.464	-43.7
400	0.237	-133.0	12.654	94.1	0.044	78.3	0.412	-46.5
500	0.232	-144.2	10.199	88.7	0.055	79.6	0.378	-49.1
600	0.231	-152.7	8.520	84.4	0.066	79.4	0.356	-51.8
700	0.233	-159.7	7.304	80.7	0.077	79.3	0.338	-54.5
800	0.234	-165.7	6.390	77.5	0.088	78.6	0.325	-57.1
900	0.236	-171.0	5.681	74.6	0.100	77.8	0.315	-59.9
1000	0.239	-175.6	5.120	71.8	0.111	77.1	0.308	-62.5
1200	0.244	176.1	4.285	66.7	0.134	74.8	0.298	-67.8
1400	0.249	168.9	3.693	61.9	0.157	72.7	0.293	-73.4
1600	0.255	162.5	3.255	57.2	0.180	70.2	0.292	-79.0
1800	0.260	156.7	2.919	52.8	0.203	67.9	0.293	-84.6
2000	0.266	151.2	2.651	48.5	0.226	65.5	0.295	-90.3
2200	0.274	146.0	2.435	44.3	0.249	62.9	0.297	-96.1
2400	0.279	141.0	2.254	40.3	0.272	60.4	0.300	-101.6
2600	0.285	136.4	2.104	36.4	0.295	58.0	0.305	-106.8
2800	0.293	132.0	1.979	32.6	0.318	55.4	0.310	-112.6
3000	0.297	127.9	1.869	29.1	0.341	53.1	0.316	-117.4

S Parameters (Common emitter)

V_{CE}=5V, I_C=50mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.286	-86.2	35.792	128.9	0.013	76.8	0.686	-31.3
200	0.249	-124.8	22.813	107.7	0.022	78.3	0.508	-37.7
300	0.242	-142.0	16.061	97.7	0.032	80.1	0.435	-40.2
400	0.242	-152.3	12.234	91.2	0.042	81.7	0.394	-42.4
500	0.247	-160.1	9.830	86.3	0.053	82.4	0.368	-45.0
600	0.252	-166.1	8.194	82.3	0.064	82.1	0.350	-47.8
700	0.258	-171.3	7.020	78.9	0.075	81.6	0.336	-50.6
800	0.262	-175.7	6.139	75.8	0.087	80.9	0.326	-53.4
900	0.266	-179.8	5.460	72.9	0.098	80.1	0.318	-56.1
1000	0.270	176.6	4.918	70.2	0.110	78.9	0.313	-58.9
1200	0.276	169.9	4.112	65.1	0.133	76.8	0.305	-64.5
1400	0.283	163.8	3.545	60.3	0.156	74.3	0.303	-70.4
1600	0.290	158.3	3.124	55.7	0.179	71.9	0.302	-76.3
1800	0.296	153.1	2.801	51.2	0.203	69.5	0.304	-82.2
2000	0.303	148.2	2.545	46.9	0.226	67.0	0.307	-88.1
2200	0.310	143.4	2.336	42.7	0.249	64.4	0.310	-94.2
2400	0.316	138.8	2.163	38.6	0.273	61.9	0.314	-99.9
2600	0.322	134.6	2.019	34.8	0.296	59.4	0.319	-105.2
2800	0.330	130.3	1.898	30.9	0.320	56.6	0.324	-111.2
3000	0.334	126.4	1.792	27.4	0.344	54.3	0.331	-116.4

V_{CE}=5V, I_C=80mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.345	-137.6	29.631	121.2	0.013	65.7	0.593	-27.9
200	0.398	-159.0	16.989	102.4	0.020	76.7	0.468	-29.9
300	0.414	-168.4	11.622	93.6	0.029	79.1	0.426	-31.5
400	0.425	-174.1	8.756	87.6	0.039	82.5	0.403	-34.1
500	0.433	-178.6	7.015	83.0	0.049	83.3	0.388	-36.9
600	0.438	177.7	5.843	79.0	0.059	83.9	0.378	-40.2
700	0.443	174.4	5.008	75.5	0.070	83.5	0.370	-43.6
800	0.448	171.3	4.383	72.3	0.081	83.3	0.364	-46.8
900	0.452	168.5	3.903	69.3	0.092	82.6	0.360	-50.3
1000	0.455	165.7	3.519	66.4	0.104	81.8	0.357	-53.6
1200	0.460	160.5	2.952	60.9	0.127	80.1	0.354	-60.4
1400	0.466	155.5	2.552	55.7	0.151	78.1	0.355	-67.3
1600	0.472	150.8	2.254	50.7	0.175	75.9	0.357	-74.2
1800	0.477	146.2	2.025	45.9	0.200	73.5	0.361	-81.1
2000	0.482	141.7	1.845	41.3	0.226	71.0	0.366	-87.9
2200	0.488	137.2	1.695	36.9	0.251	68.4	0.370	-94.6
2400	0.493	132.9	1.572	32.8	0.278	65.7	0.375	-101.3
2600	0.498	128.8	1.469	28.9	0.304	63.0	0.380	-107.5
2800	0.504	124.6	1.382	25.0	0.331	60.1	0.386	-114.1
3000	0.506	120.6	1.307	21.6	0.359	57.4	0.392	-120.1

S Parameters (Common emitter)

V_{CE}=8V, I_C=10mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.779	-24.4	14.321	150.5	0.018	70.1	0.899	-20.2
200	0.654	-51.5	13.927	133.2	0.029	68.6	0.755	-32.2
300	0.527	-75.6	12.487	118.0	0.038	67.5	0.647	-39.1
400	0.427	-94.7	10.692	106.3	0.047	68.6	0.571	-43.6
500	0.371	-109.3	9.024	98.3	0.055	69.6	0.518	-47.3
600	0.337	-120.7	7.706	92.1	0.063	70.6	0.482	-50.3
700	0.316	-130.2	6.683	87.2	0.072	71.5	0.454	-52.9
800	0.298	-139.0	5.917	82.8	0.082	72.0	0.433	-55.5
900	0.288	-146.5	5.295	79.0	0.091	72.2	0.416	-58.0
1000	0.282	-152.8	4.792	75.6	0.101	72.4	0.404	-60.4
1200	0.275	-164.1	4.032	69.5	0.121	72.0	0.387	-65.2
1400	0.273	-173.8	3.486	63.8	0.141	71.0	0.378	-70.3
1600	0.274	177.9	3.080	58.6	0.162	69.9	0.373	-75.5
1800	0.277	170.5	2.765	53.7	0.183	68.4	0.371	-80.8
2000	0.282	163.6	2.518	49.0	0.205	66.8	0.372	-86.2
2200	0.288	157.4	2.312	44.4	0.227	64.9	0.373	-91.8
2400	0.293	151.4	2.142	40.1	0.250	63.0	0.375	-97.2
2600	0.299	146.0	2.001	36.0	0.273	61.1	0.380	-102.4
2800	0.308	140.8	1.881	31.8	0.297	58.8	0.385	-108.1
3000	0.313	136.1	1.775	28.1	0.321	56.8	0.391	-113.1

V_{CE}=8V, I_C=30mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.474	-47.3	31.092	138.3	0.014	73.7	0.770	-27.4
200	0.315	-88.1	23.124	114.6	0.023	74.9	0.588	-36.2
300	0.256	-111.3	16.805	102.3	0.032	77.7	0.499	-39.7
400	0.232	-126.8	12.923	94.7	0.041	79.9	0.449	-42.3
500	0.224	-138.4	10.426	89.2	0.052	80.5	0.416	-44.8
600	0.221	-147.5	8.709	84.8	0.062	80.5	0.393	-47.4
700	0.221	-155.2	7.470	81.1	0.072	80.4	0.376	-50.0
800	0.222	-161.5	6.535	77.9	0.083	79.9	0.362	-52.5
900	0.223	-167.2	5.812	74.9	0.094	79.0	0.351	-55.1
1000	0.225	-172.0	5.238	72.1	0.106	78.3	0.344	-57.6
1200	0.229	179.1	4.379	67.0	0.128	76.4	0.334	-62.8
1400	0.234	171.6	3.774	62.1	0.150	74.2	0.329	-68.2
1600	0.240	164.8	3.324	57.4	0.173	72.0	0.327	-73.7
1800	0.246	158.8	2.980	53.0	0.195	69.7	0.327	-79.2
2000	0.252	153.1	2.706	48.7	0.218	67.4	0.329	-84.8
2200	0.259	147.7	2.484	44.4	0.240	64.9	0.330	-90.5
2400	0.266	142.5	2.299	40.4	0.263	62.5	0.333	-96.0
2600	0.272	137.9	2.145	36.6	0.285	60.2	0.338	-101.2
2800	0.280	133.4	2.017	32.7	0.309	57.5	0.343	-107.0
3000	0.284	129.2	1.903	29.1	0.332	55.3	0.349	-112.0

S Parameters (Common emitter)

V_{CE}=8V, I_C=50mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.306	-72.7	36.956	130.9	0.011	71.4	0.720	-28.3
200	0.240	-113.2	23.684	109.1	0.020	79.6	0.548	-34.3
300	0.225	-133.1	16.651	98.7	0.030	81.1	0.476	-36.5
400	0.223	-145.1	12.680	92.0	0.039	83.0	0.437	-38.8
500	0.226	-154.0	10.188	86.9	0.050	83.4	0.410	-41.3
600	0.230	-160.9	8.491	82.9	0.060	83.2	0.392	-44.0
700	0.235	-166.7	7.273	79.3	0.071	82.8	0.377	-46.7
800	0.239	-171.6	6.356	76.2	0.082	82.1	0.367	-49.3
900	0.243	-176.1	5.651	73.4	0.093	81.0	0.357	-52.1
1000	0.246	180.0	5.089	70.6	0.104	80.5	0.352	-54.7
1200	0.253	172.7	4.254	65.6	0.126	78.2	0.344	-60.2
1400	0.259	166.2	3.665	60.7	0.149	76.0	0.340	-65.8
1600	0.267	160.5	3.229	56.1	0.171	73.6	0.339	-71.6
1800	0.273	155.1	2.892	51.7	0.194	71.3	0.340	-77.2
2000	0.280	149.9	2.627	47.4	0.217	68.8	0.342	-83.0
2200	0.288	145.0	2.411	43.1	0.240	66.3	0.345	-89.0
2400	0.295	140.2	2.230	39.1	0.264	63.9	0.348	-94.6
2600	0.301	135.8	2.080	35.2	0.286	61.5	0.353	-100.0
2800	0.310	131.6	1.954	31.3	0.310	58.8	0.358	-106.0
3000	0.314	127.6	1.844	27.8	0.334	56.5	0.364	-111.1

V_{CE}=8V, I_C=80mA

Freq(MHz)	|S11|	∠S11	|S21|	∠S21	|S12|	∠S12	|S22|	∠S22
100	0.308	-126.7	31.174	123.7	0.011	65.2	0.658	-24.0
200	0.360	-153.8	18.003	104.2	0.019	78.8	0.537	-26.2
300	0.378	-164.8	12.329	95.1	0.027	81.1	0.495	-28.2
400	0.388	-171.5	9.301	89.0	0.035	83.9	0.472	-30.9
500	0.395	-176.6	7.456	84.3	0.045	85.8	0.456	-33.9
600	0.401	179.3	6.212	80.4	0.054	86.0	0.445	-37.1
700	0.407	175.7	5.328	76.9	0.065	86.1	0.436	-40.4
800	0.411	172.4	4.665	73.8	0.075	85.9	0.429	-43.7
900	0.414	169.4	4.154	70.8	0.086	85.4	0.423	-47.0
1000	0.417	166.4	3.748	68.0	0.097	84.7	0.419	-50.3
1200	0.423	160.9	3.144	62.7	0.120	83.0	0.415	-56.9
1400	0.428	155.7	2.718	57.6	0.143	81.1	0.413	-63.6
1600	0.434	150.9	2.403	52.7	0.167	78.9	0.413	-70.3
1800	0.438	146.2	2.158	48.1	0.192	76.5	0.414	-77.0
2000	0.443	141.7	1.966	43.6	0.217	74.0	0.417	-83.6
2200	0.449	137.2	1.808	39.2	0.243	71.3	0.419	-90.3
2400	0.454	132.8	1.676	35.1	0.269	68.7	0.422	-96.7
2600	0.459	128.7	1.567	31.2	0.296	65.8	0.426	-102.9
2800	0.465	124.5	1.474	27.3	0.323	62.9	0.430	-109.3
3000	0.467	120.6	1.394	23.9	0.350	60.1	0.435	-115.2

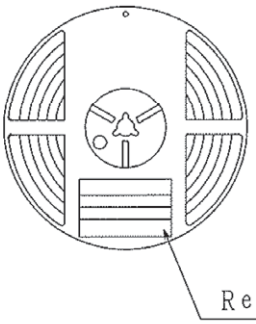
Embossed Taping Specification

CPH6021-TL-H

1. Packing Format

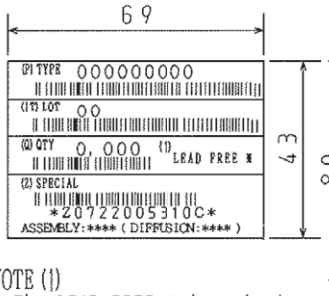
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label

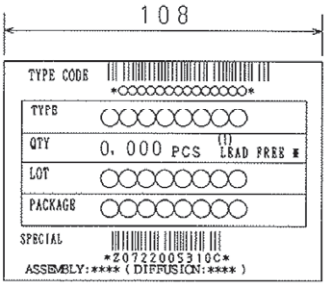
Reel label, Inner box label (unit:mm)



Type No.
LOT No.
Quantity
Origin

Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.

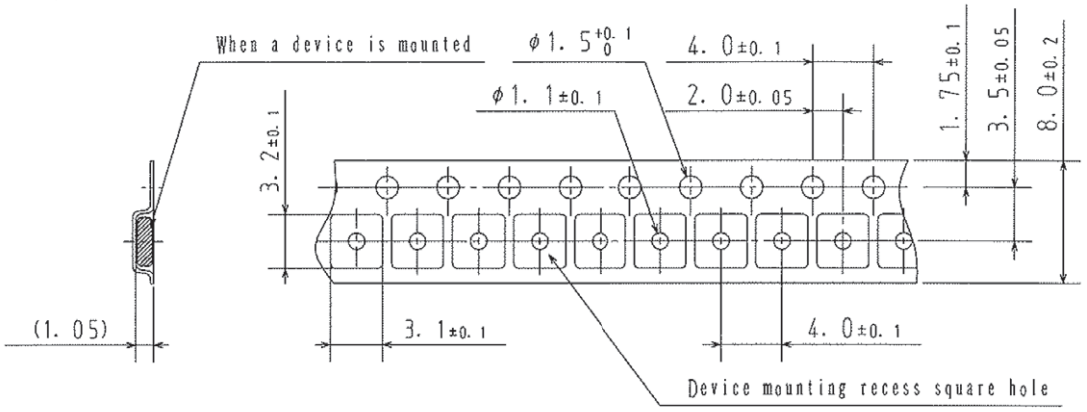


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

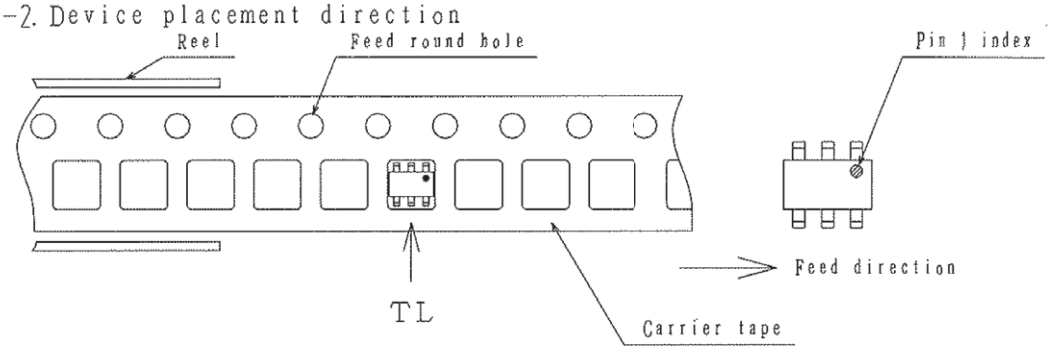
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



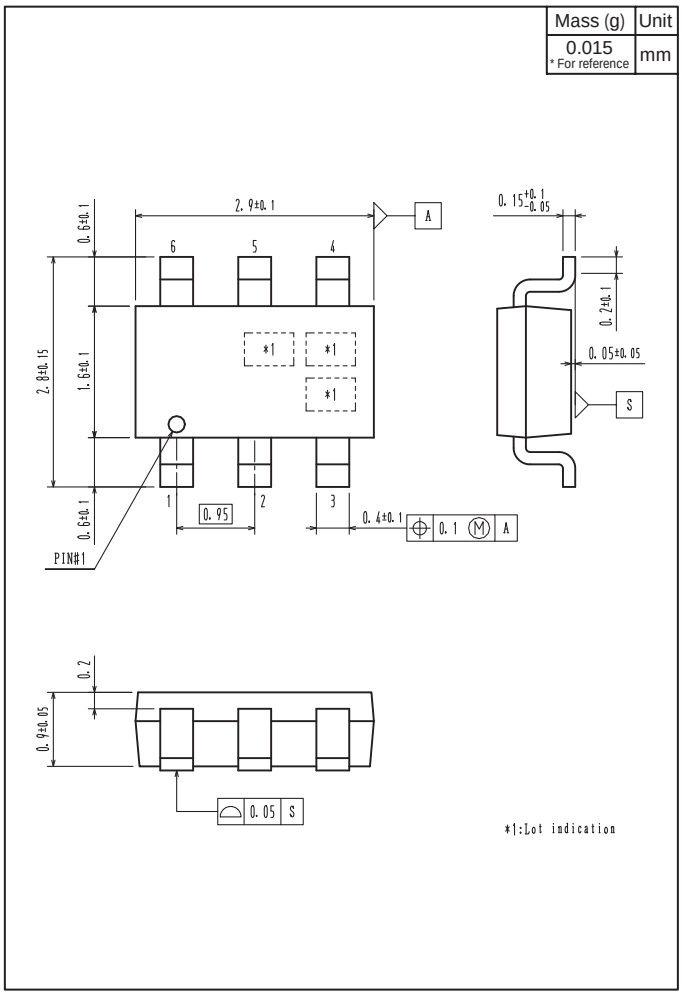
2-2. Device placement direction



Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH6021-TL-H



Land Pattern Example