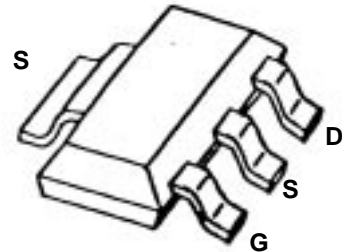


Datasheet

- * Power amplifier for mobile phones
- * For frequencies from 400 MHz to 2.5 GHz
- * Operating voltage range: 2.7 to 6 V
- * P_{OUT} at $V_D=3V$, $f=1.8$ GHz typ. 31.5 dBm
- * Efficiency better 50%



ESD: Electrostatic discharge sensitive device,
observe handling precautions!

Type	Marking	Ordering code (taped)	Package 1)
CLY 15	CLY 15	Q62702-L99	SOT 223

Maximum ratings	Symbol		Unit
Drain-source voltage	V_{DS}	9	V
Drain-gate voltage	V_{DG}	12	V
Gate-source voltage	V_{GS}	-6	V
Drain current	I_D	5	A
Channel temperature	T_{Ch}	150	°C
Storage temperature	T_{stg}	-55...+150	°C
Total power dissipation ($T_s \leq 80^\circ\text{C}$) Ts: Temperature at soldering point	P_{tot}	4.7	W
Thermal resistance Channel-soldering point (GND)	R_{thChS}	< 15	K/W

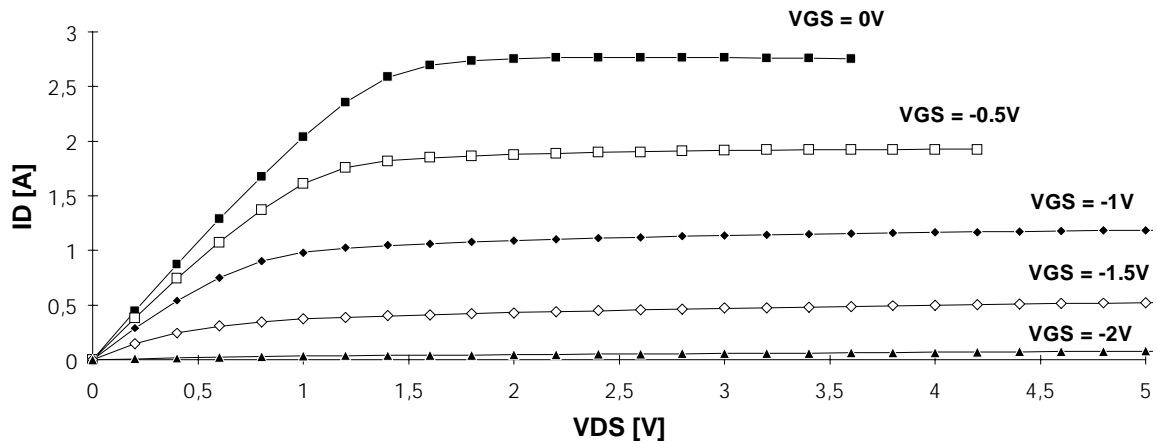
1) Dimensions see chapter Package Outlines

Electrical characteristics ($T_A = 25^\circ\text{C}$, unless otherwise specified)

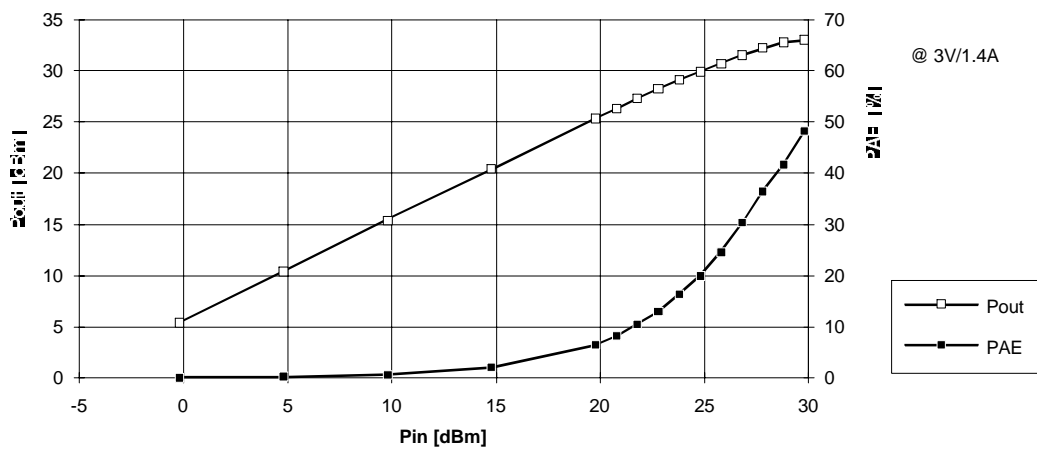
Characteristics	Symbol	min	typ	max	Unit
Drain-source saturation current *) $V_{DS} = 3\text{V}$ $V_{GS} = 0\text{V}$	I_{DSS}	2.4	3.2	4.8	A
Cut-off current $V_{DS} = 3\text{V}$ $V_{GS} = -3.8\text{V}$	I_D	-	-	400	μA
Gate cut-off current $V_{DS} = 3\text{V}$ $V_{GS} = -3.8\text{V}$	I_G	-	20	70	μA
Pinch-off Voltage $V_{DS}=3\text{V}$ $I_D=400\mu\text{A}$	$V_{GS(p)}$	-3.8	-2.8	-1.8	V
Small Signal Gain *) $V_{DS} = 3\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$ $P_{in} = 5\text{dBm}$	G	-	6	-	dB
Output Power *) $V_{DS} = 3\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$ $P_{in} = 29\text{dBm}$	P_O	32	32.5	-	dBm
Output Power *) $V_{DS} = 5\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$ $P_{in} = 30\text{ dBm}$	P_O	34.5	35	-	dBm
1dB-Compression Point *) $V_{DS} = 3\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$	$P_{1\text{dB}}$	-	31.5	-	dBm
1dB-Compression Point *) $V_{DS} = 5\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$	$P_{1\text{dB}}$	-	34.5	-	dBm
Power Added Efficiency *) $V_{DS} = 3\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$ $P_{in} = 29\text{dBm}$	η_D	45	50	-	%

*) pulsed measurement; duty cycle 1:10; $t_{on} = 1\text{ms}$, power matching conditions.

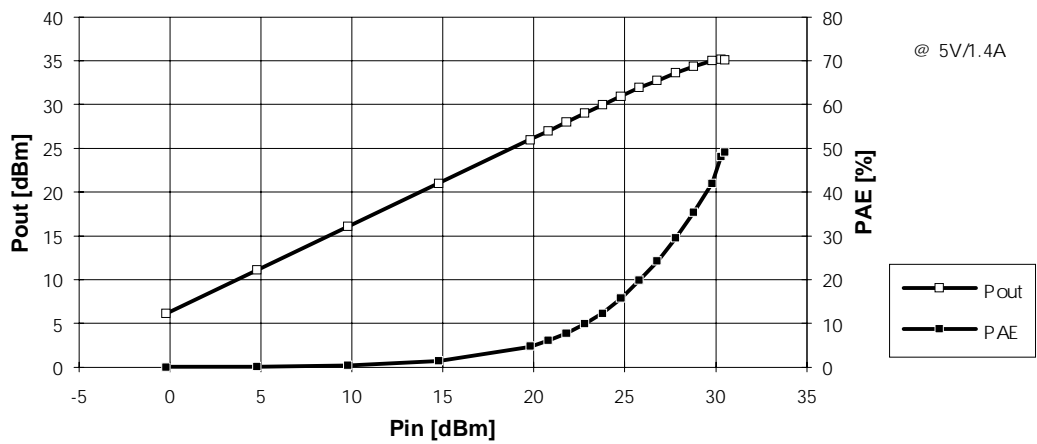
Output Characteristics



Power Characteristics



Power Characteristics



typ. Common Source S-Parameter

 $V_{DS} = 3V$ $I_D = 1.4A$ $Z_0 = 50\Omega$

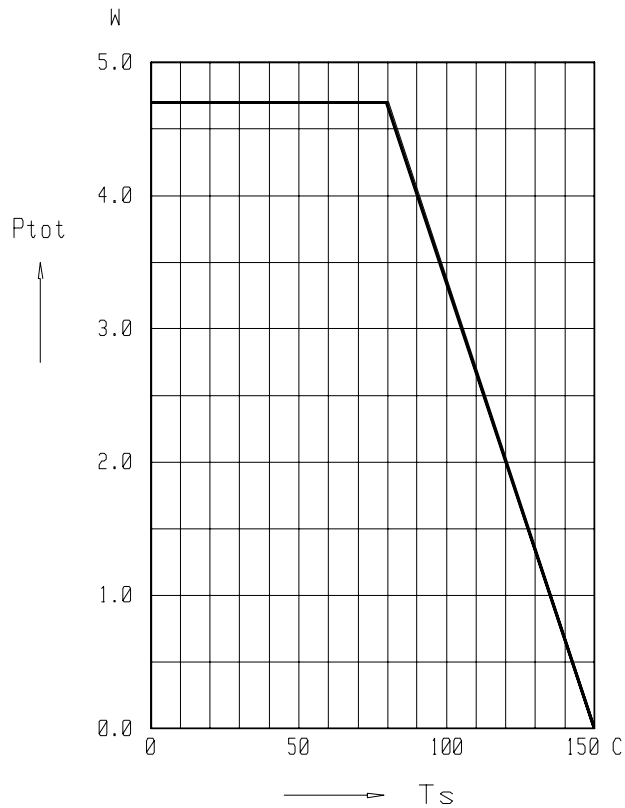
f GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	0.91	-150.9	5.69	99.7	0.01	48.5	0.90	176.0
0.250	0.91	-160.6	4.63	93.5	0.02	45.9	0.87	173.8
0.300	0.90	-167.9	3.89	88.7	0.02	46.8	0.88	171.8
0.350	0.90	-173.7	3.34	84.6	0.02	47.4	0.87	170.8
0.400	0.90	-178.7	2.92	80.9	0.02	47.5	0.87	168.8
0.450	0.90	176.9	2.60	77.5	0.02	47.6	0.87	167.3
0.500	0.90	173.0	2.34	74.6	0.02	48.1	0.87	165.8
0.550	0.90	169.5	2.12	71.4	0.02	47.7	0.87	164.2
0.600	0.90	166.1	1.95	68.7	0.03	47.0	0.87	162.8
0.650	0.90	163.1	1.79	66.1	0.03	47.1	0.87	161.2
0.700	0.90	160.0	1.66	63.5	0.03	46.6	0.87	159.7
0.750	0.90	157.2	1.54	60.9	0.03	45.6	0.87	158.3
0.800	0.90	154.6	1.45	58.6	0.03	45.0	0.87	156.9
0.850	0.90	152.0	1.36	56.1	0.03	43.9	0.87	155.6
0.900	0.90	149.3	1.28	53.8	0.04	43.0	0.87	154.0
0.950	0.90	146.9	1.21	51.5	0.04	41.9	0.87	152.6
1.000	0.90	144.5	1.15	49.0	0.04	41.0	0.87	151.3
1.200	0.91	135.2	0.95	40.3	0.05	36.1	0.87	145.8
1.400	0.91	126.7	0.81	31.8	0.05	31.9	0.88	140.1
1.600	0.92	118.5	0.70	23.8	0.06	26.1	0.88	134.7
1.800	0.92	110.6	0.61	16.3	0.06	20.8	0.88	129.7
2.000	0.93	103.2	0.55	8.7	0.06	15.6	0.89	124.3
2.200	0.93	96.3	0.49	2.1	0.07	10.4	0.88	119.1
2.400	0.93	89.3	0.44	-4.1	0.07	5.2	0.90	114.4
2.600	0.94	82.8	0.40	-10.0	0.07	0.2	0.90	109.3
2.800	0.94	77.0	0.37	-14.9	0.07	-4.2	0.90	104.5
3.000	0.94	71.3	0.34	-19.6	0.08	-9.7	0.91	99.8
3.200	0.93	66.0	0.32	-23.4	0.08	-15.0	0.92	95.1
3.400	0.92	61.6	0.31	-26.8	0.08	-19.4	0.93	90.8
3.600	0.91	57.3	0.30	-29.7	0.07	-23.7	0.92	87.0
3.800	0.90	53.1	0.31	-33.1	0.07	-28.1	0.93	83.1
4.000	0.89	49.2	0.32	-38.1	0.07	-31.9	0.93	79.8
4.200	0.86	46.4	0.34	-44.9	0.07	-35.4	0.92	76.4
4.400	0.83	44.7	0.36	-55.4	0.07	-37.5	0.92	73.4
4.600	0.89	44.2	0.07	-36.2	0.07	-38.1	0.92	71.0
4.800	0.83	43.7	0.34	-80.6	0.07	-39.4	0.92	68.2
5.000	0.85	42.2	0.30	-92.1	0.07	-40.3	0.92	65.2
5.200	0.88	39.4	0.27	-100.8	0.07	-42.5	0.92	62.2
5.400	0.89	36.5	0.24	-107.8	0.07	-45.0	0.92	58.7
5.600	0.90	33.1	0.22	-113.6	0.07	-48.6	0.92	55.7
5.800	0.91	29.6	0.19	-118.9	0.07	-51.4	0.92	52.1
6.000	0.92	26.4	0.18	-124.4	0.07	-54.4	0.92	48.0

typ. Common Source S-Parameter

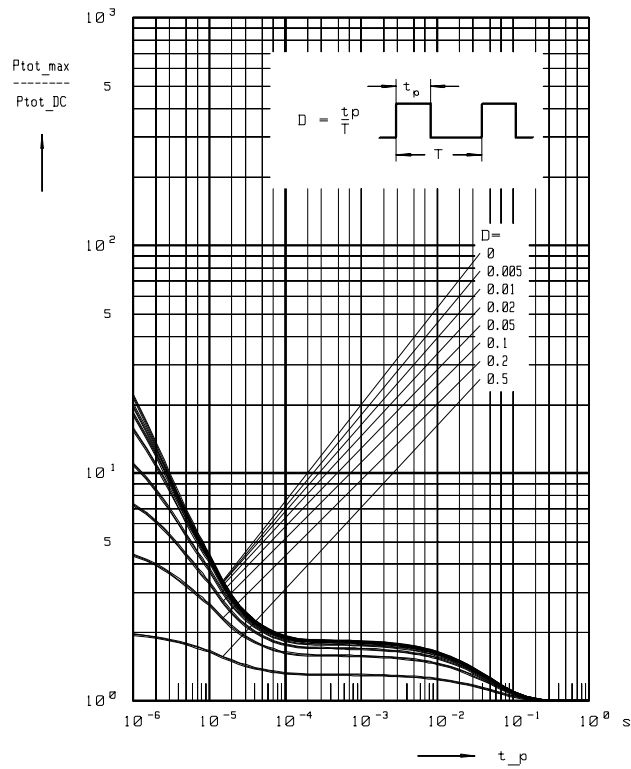
 $V_{DS} = 5V$ $I_D = 1.4A$ $Z_0 = 50\Omega$

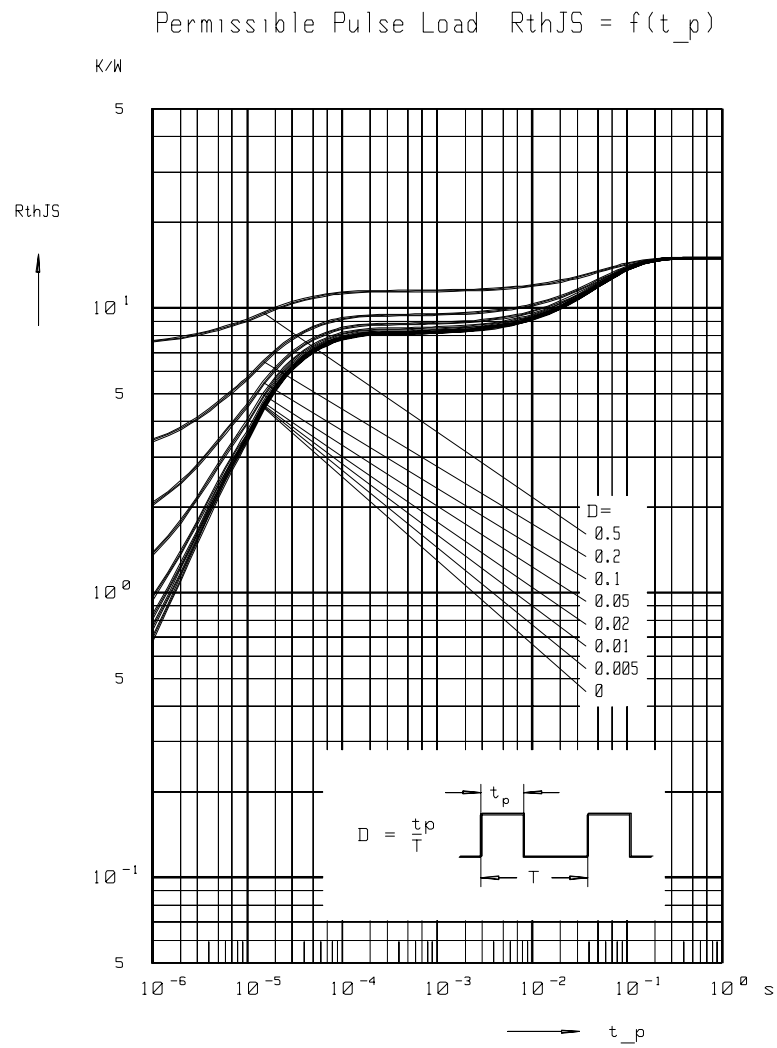
f GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	0.90	-151.1	7.61	98.8	0.01	46.5	0.84	176.7
0.250	0.89	-160.6	6.18	92.4	0.02	43.4	0.82	174.7
0.300	0.89	-167.8	5.19	87.5	0.02	46.5	0.82	172.9
0.350	0.89	-173.7	4.45	83.3	0.02	46.0	0.82	171.8
0.400	0.88	-178.7	3.90	79.4	0.02	46.5	0.82	169.7
0.450	0.89	177.0	3.47	75.9	0.02	47.3	0.82	168.3
0.500	0.88	173.2	3.11	72.8	0.02	47.9	0.82	166.7
0.550	0.88	169.6	2.82	69.5	0.02	47.8	0.82	165.5
0.600	0.89	166.4	2.59	66.6	0.03	47.4	0.82	163.9
0.650	0.88	163.1	2.38	63.9	0.03	47.4	0.82	162.6
0.700	0.89	160.3	2.20	61.1	0.03	46.5	0.82	161.0
0.750	0.89	157.5	2.05	58.4	0.03	45.6	0.82	159.6
0.800	0.89	154.9	1.91	55.9	0.03	45.3	0.82	158.0
0.850	0.89	152.1	1.79	53.2	0.03	44.8	0.82	156.8
0.900	0.89	149.7	1.69	50.7	0.03	43.9	0.82	155.4
0.950	0.89	147.1	1.59	48.4	0.04	42.7	0.82	154.1
1.000	0.89	144.7	1.51	45.7	0.04	42.0	0.82	152.8
1.200	0.89	135.5	1.24	36.2	0.04	37.8	0.83	147.3
1.400	0.90	127.1	1.04	27.1	0.05	32.2	0.83	141.9
1.600	0.91	119.1	0.90	18.3	0.05	27.4	0.84	136.8
1.800	0.92	111.1	0.78	10.1	0.06	22.5	0.84	131.6
2.000	0.92	103.7	0.68	2.1	0.06	18.2	0.85	126.3
2.200	0.93	96.6	0.61	-5.1	0.06	12.5	0.86	121.3
2.400	0.93	89.8	0.54	-12.0	0.07	7.3	0.86	116.1
2.600	0.93	83.2	0.48	-18.6	0.07	2.6	0.87	111.4
2.800	0.93	77.3	0.43	-24.0	0.07	-2.6	0.88	106.3
3.000	0.93	71.8	0.39	-29.3	0.07	-7.2	0.89	101.8
3.200	0.92	66.6	0.37	-33.5	0.07	-12.1	0.90	97.2
3.400	0.92	61.8	0.34	-37.2	0.07	-16.8	0.91	92.5
3.600	0.91	57.9	0.32	-40.5	0.07	-21.1	0.91	88.8
3.800	0.90	54.1	0.32	-43.9	0.07	-24.9	0.92	85.1
4.000	0.88	50.5	0.31	-48.3	0.07	-27.6	0.92	81.4
4.200	0.87	47.8	0.32	-53.8	0.07	-31.5	0.92	78.1
4.400	0.86	45.7	0.32	-60.9	0.07	-33.4	0.92	74.9
4.600	0.85	43.4	0.32	-68.9	0.07	-35.4	0.92	72.2
4.800	0.85	42.3	0.31	-77.5	0.07	-37.2	0.92	69.3
5.000	0.86	40.3	0.30	-86.7	0.07	-39.3	0.92	66.2
5.200	0.87	37.7	0.28	-94.5	0.07	-41.6	0.92	63.1
5.400	0.88	35.2	0.26	-101.8	0.07	-44.0	0.92	59.6
5.600	0.89	32.1	0.24	-108.4	0.08	-48.5	0.92	56.6
5.800	0.90	29.0	0.22	-114.5	0.08	-50.3	0.92	53.0
6.000	0.90	26.0	0.21	-121.1	0.08	-54.0	0.93	49.0

Total Power Dissipation $P_{tot} = f(T_s)$



Permissible Pulse Load $P_{tot_max} / P_{tot_DC} = f(t_p)$







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