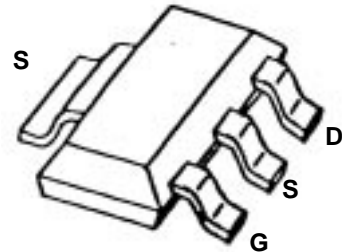


*Datasheet*

- \* 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
<b>Thermal resistance</b> Channel-soldering point (GND)	$R_{thChS}$	< 15	K/W

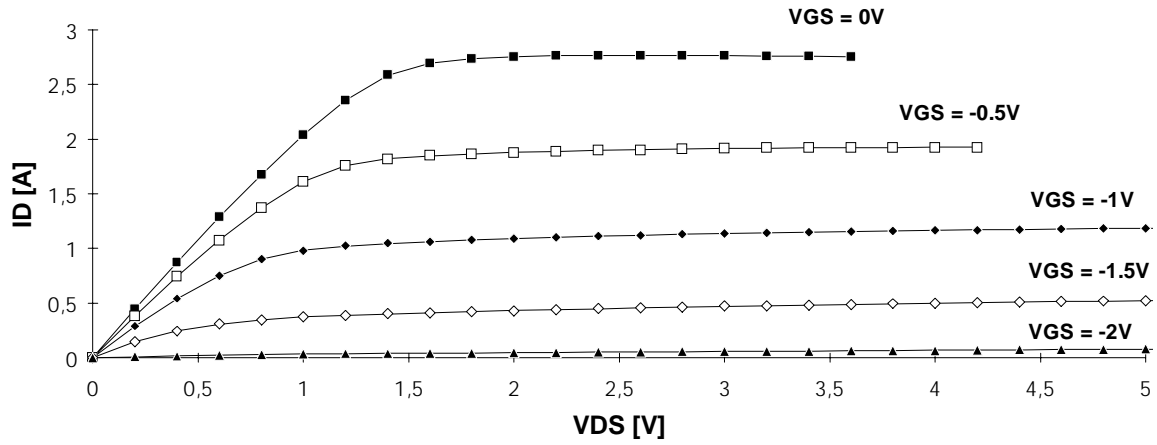
1) Dimensions see chapter Package Outlines

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

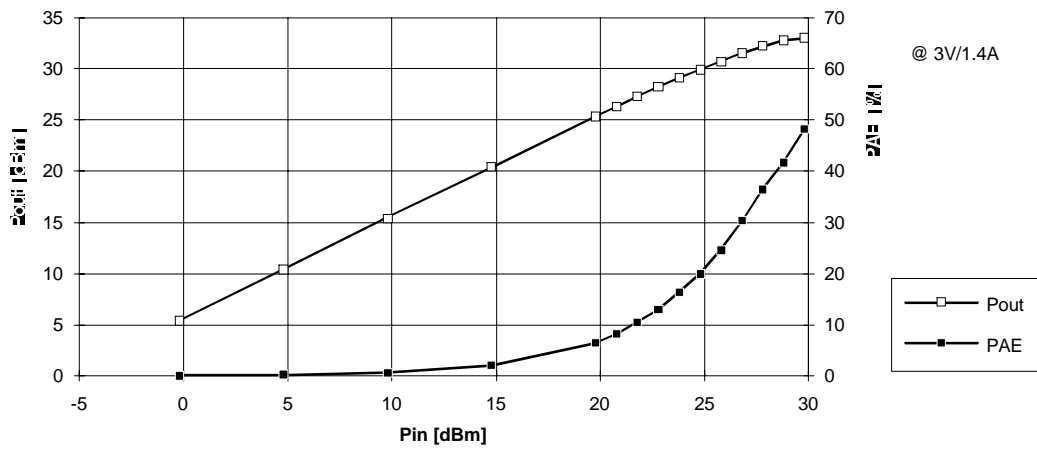
Characteristics	Symbol	min	typ	max	Unit
Drain-source saturation current *) $V_{DS} = 3\text{V}$ $V_{GS} = 0\text{V}$	$I_{DSS}$	2.4	3.2	4.8	A
Cut-off current $V_{DS} = 3\text{V}$ $V_{GS} = -3.8\text{V}$	$I_D$	-	-	400	$\mu\text{A}$
Gate cut-off current $V_{DS} = 3\text{V}$ $V_{GS} = -3.8\text{V}$	$I_G$	-	20	70	$\mu\text{A}$
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 *) $V_{DS} = 3\text{V}$ $I_D = 1.4\text{A}$ $f = 1.8\text{GHz}$ $P_{in} = 29\text{dBm}$	$\eta_D$	45	50	-	%

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

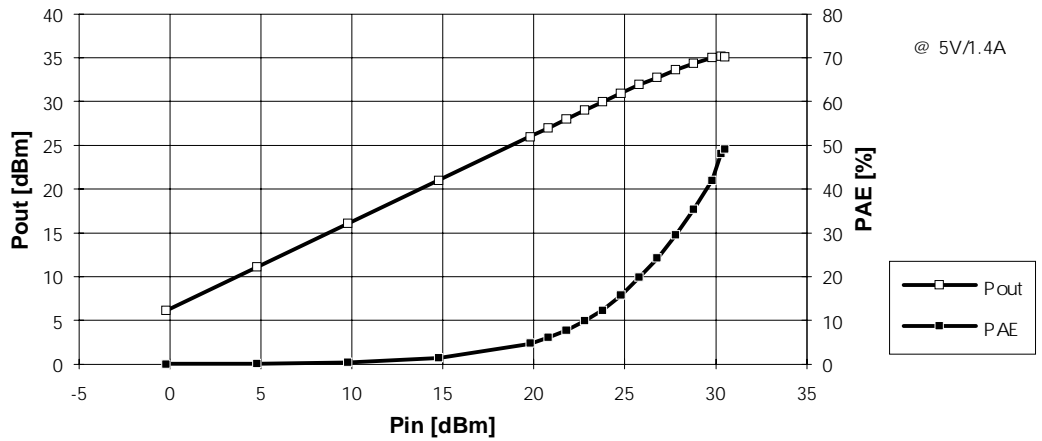
**Output Characteristics**



**Power Characteristics**



**Power Characteristics**



## typ. Common Source S-Parameter

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

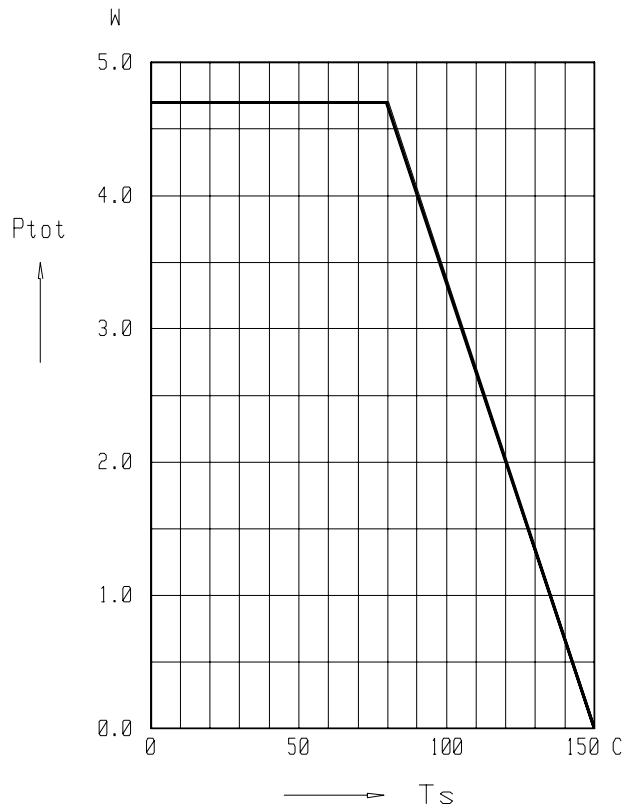
f GHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	0.91	-150.9	5.69	99.7	0.01	48.5	0.90	176.0
0.250	0.91	-160.6	4.63	93.5	0.02	45.9	0.87	173.8
0.300	0.90	-167.9	3.89	88.7	0.02	46.8	0.88	171.8
0.350	0.90	-173.7	3.34	84.6	0.02	47.4	0.87	170.8
0.400	0.90	-178.7	2.92	80.9	0.02	47.5	0.87	168.8
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  $P_{tot\_max} / P_{tot\_DC} = f(t_p)$

