

LDMOS 射频功率晶体管

HTM7G06S035P

1. 产品描述

HTM7G06S035P 是一款为 VHF/UHF 频段射频功率放大器而设计的 LDMOS 射频功率晶体管。器件内部集成静电保护电路。

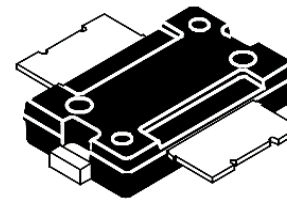
**100-600MHz, 35W, 12.5V
WIDE BAND
RF POWER LDMOS TRANSISTOR**

2. 典型性能

Frequency (MHz)	VDD (V)	Pin (W)	Pout (W)	Eff (%)
400-470 ⁽¹⁾	12.5	2.5	38.9	61.4

1. 基于 12.5V, UHF 频段, 35W 参考设计性能测试

2. 上述性能为参考设计整个带内的最低性能



封装: TO-270

3. 产品应用

- VHF 频段车载台
- UHF 频段车载台
- 100-600MHz 其他应用驱动或末级功放

4. 极限参数

参数	符号	条件	值	单位
漏源电压	V_{DSS}	-	-0.5~48	V
栅源电压	V_{GG}	-	-5~10	V
工作电压	V_{DD}	-	24, +0	V
温度存储	T_{stg}	-	-55~150	°C
工作结温	T_J	-	-40~225	°C
热阻	$Z_{th(j-c)}$	-	0.81	°C/W

5. 电气特性

参数	符号	测试条件	最小值	典型值	最大值	单位
击穿电压	$V_{(BR)DDS}$	$V_{GG}=0V, I_D=100\mu A$	48	-	-	V
漏极漏电流	I_{DSS}	$V_{DD}=17V, V_{GG}=0V$	-	-	10	μA
栅极漏电流	I_{GGS}	$V_{DD}=0V, V_{GG}=5V$	-	-	1	μA
阈值电压	V_{th}	$V_{DD}=V_{GG}, I_D=100\mu A$	0.8	1.3	1.8	V
输出功率	P_{out}	$V_{DD}=12.5V, P_{in}=2.5W$ $f=435MHz, I_{dq}=500mA$	-	46	-	W
漏极效率	η_d		-	70	-	%

6. ESD 特性

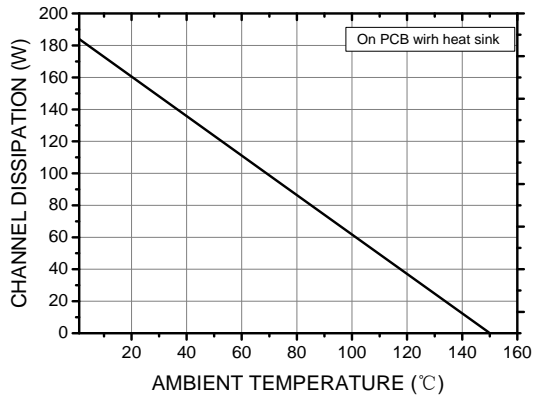
条件	等级
HBM (JESD22 - A114)	1B
MM (EIA/JESD22 - A115)	A
CDM (JESD22 - C101)	III

7. 负载失配测试（基于华太 Demo PA 测试板）

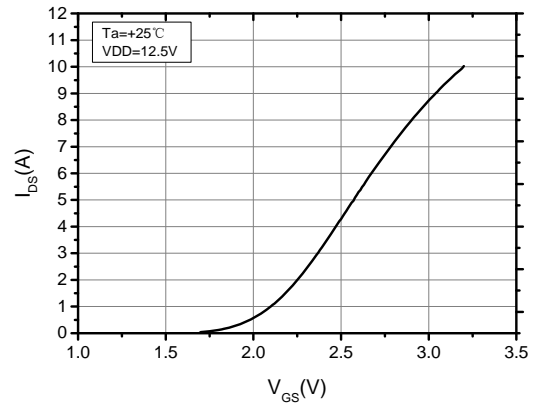
条件	结果
VSWR = 20:1 at all Phase Angles CW: $V_{DD}=17V, I_{DQ}=500mA, f=435MHz, P_{out}=47.8dBm$ (@3dB Gain Compression).	晶体管性能不变

8. 典型直流性能

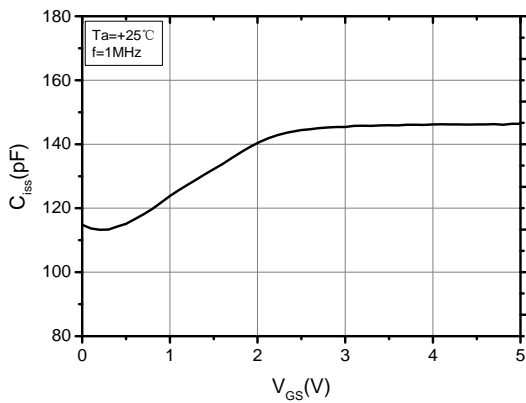
**CHANNEL DISSIPATION VS.
AMBIENT TEMPERATURE**



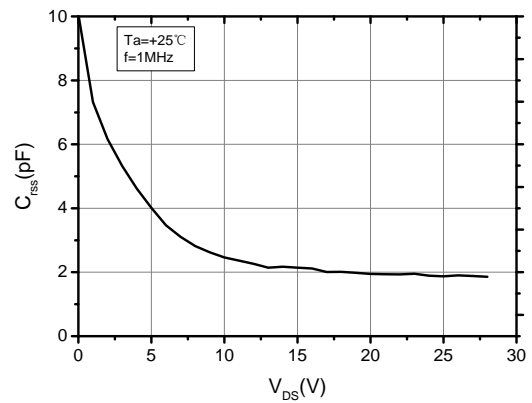
I_{DS} VS. V_{GS}



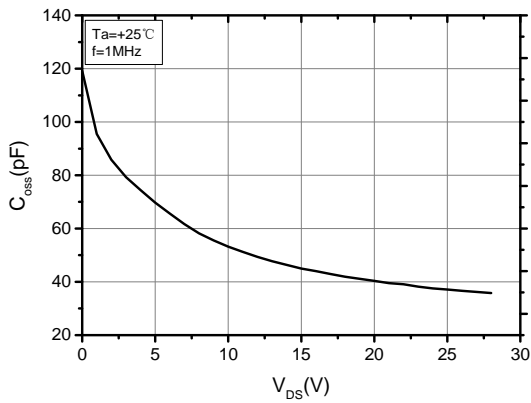
C_{iss} VS. V_{GS}



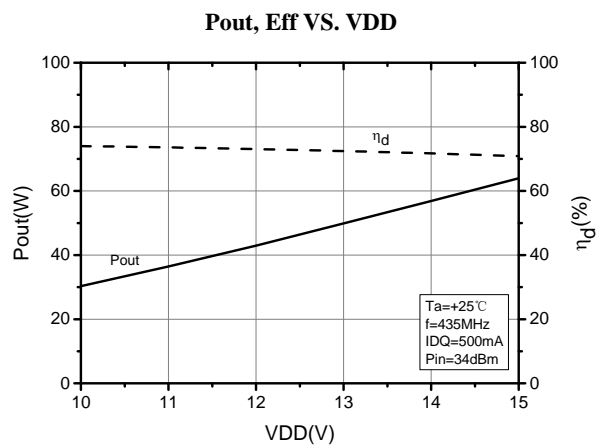
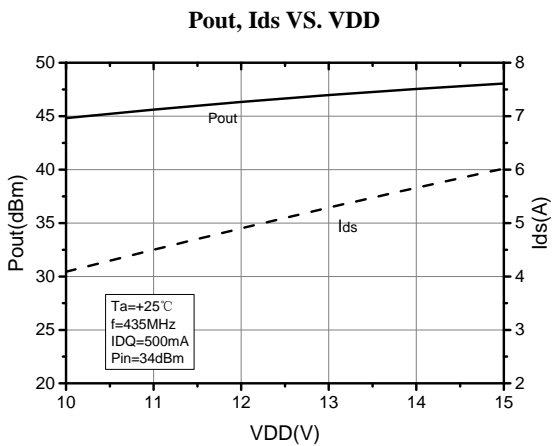
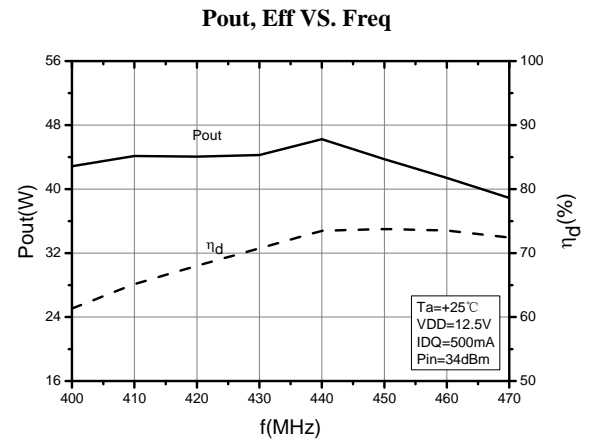
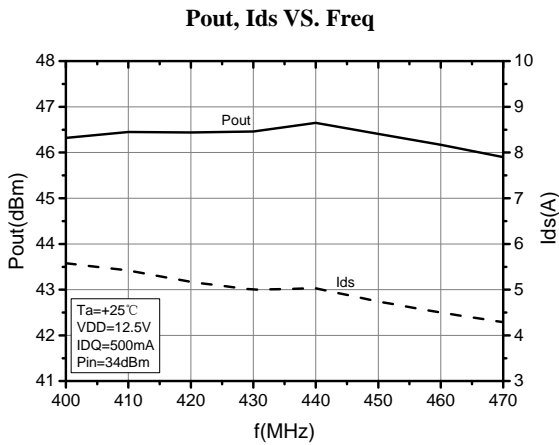
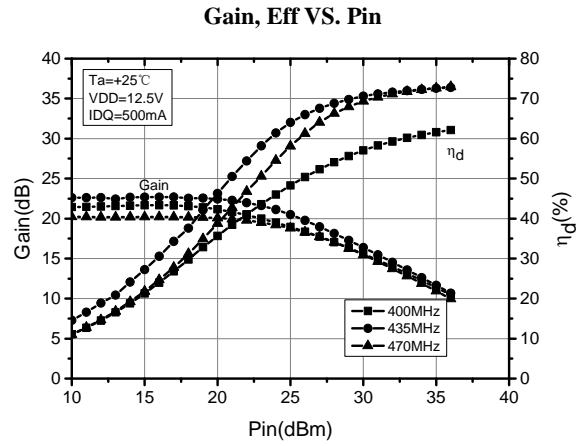
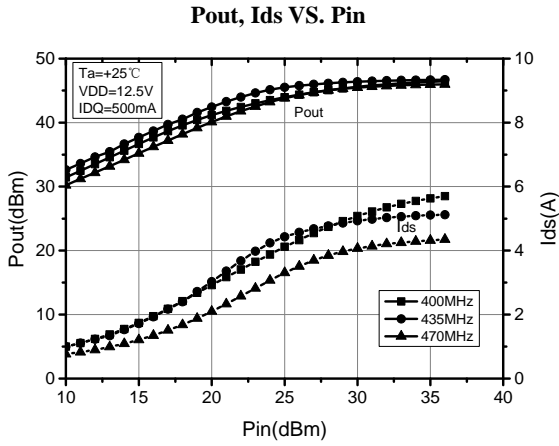
C_{rss} VS. V_{DS}



C_{oss} VS. V_{DS}

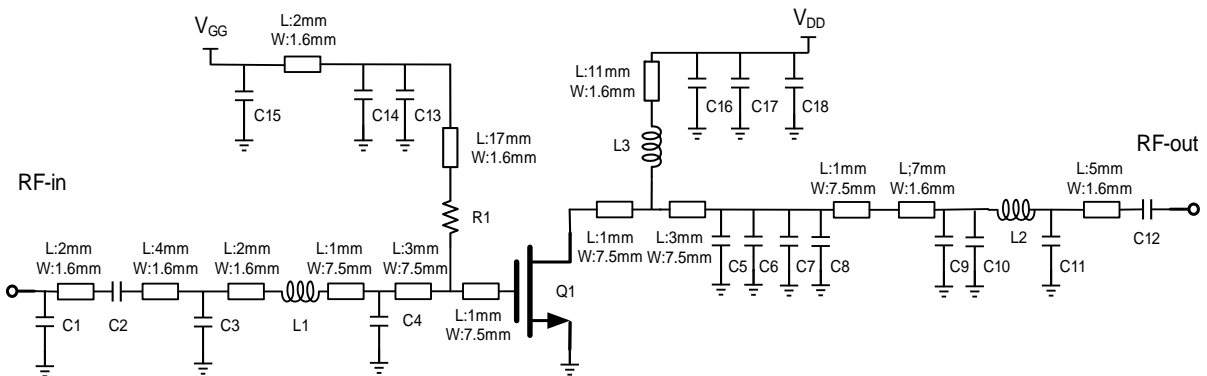


9. UHF-Band 35W 典型性能(f=400-470MHz, VDD=12.5V)



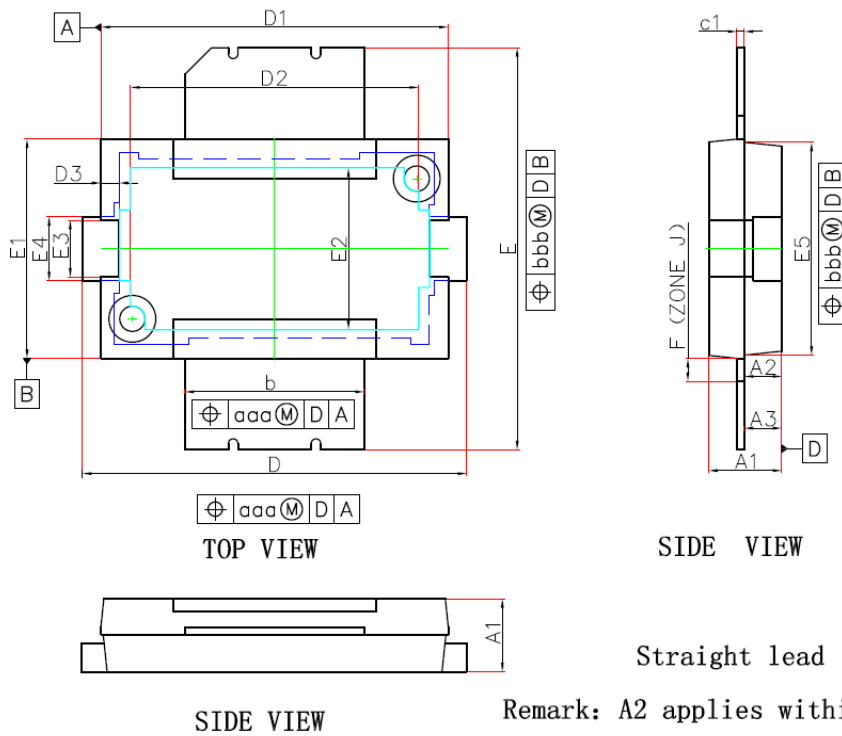
10. UHF-Band 12.5V 35W 参考设计

400-470MHz (@VDD=12.5V, IDQ = 500mA)



编号	描述	型号	制造商
C1,	3pF Chip Ceramic Capacitors	GRM1885C1H3R0JA01	Murata
C2	30pF Chip Ceramic Capacitors	GRM1885C1H300JA01	Murata
C3, C7	22pF Chip Ceramic Capacitors	GRM1885C1H220JA01	Murata
C4, C5	18pF Chip Ceramic Capacitors	GRM1885C1H180JA01	Murata
C6	2pF Chip Ceramic Capacitors	GRM1885C1H2R0JA01	Murata
C8	27pF Chip Ceramic Capacitors	GRM1885C1H270JA01	Murata
C9, C10	20pF Chip Ceramic Capacitors	GRM1885C1H200JA01	Murata
C11	9pF Chip Ceramic Capacitors	GRM1885C1H9R0JA01	Murata
C12, C13, C16	100pF Chip Ceramic Capacitors	GRM1885C1H101JA01	Murata
C14, C17	1nF Chip Ceramic Capacitors	GRM32ER61H102JA01	Murata
C15, C18	10uF Chip Ceramic Capacitors	GRM32ER61H105KA12L	Murata
L1	D: 0.51mm, Inside: 1.2mm, 1 Turns	Enameled wire	Arbitrary
L2	D: 0.51mm, Inside: 1.8mm, 2 Turns	Enameled wire	Arbitrary
L3	D: 1mm, Inside: 3mm, 4 Turns	Enameled wire	Arbitrary
R1	51Ω Chip Resistors	Arbitrary	Arbitrary
Q1	RF LDMOS	HTM7G06S035P	Kunshan Huatai Electronics Ltd.
PCB	H=0.8mm, εr=4.3	FR4	Arbitrary

11. 封装尺寸及管脚分布



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A1	1.980	2.080	0.078	0.082
A2	1.020	1.070	0.040	0.042
A3	0.990	1.090	0.039	0.043
D	10.570	10.770	0.416	0.424
D1	9.600	9.700	0.378	0.382
D2	7.370MIN		0.290MIN	
D3	0.410	0.610	0.016	0.024
E	11.080	11.280	0.436	0.444
E1	6.050	6.150	0.238	0.242
E2	3.810MIN		0.150MIN	
E3	1.480	1.680	0.058	0.066
E4	1.680	1.880	0.066	0.074
E5	5.870	5.970	0.231	0.235
F	0.640BSC		0.025BSC	
b	4.900	5.060	0.193	0.199
c1	0.203REF		0.080REF	
aaa	0.100		0.004	
bbb	0.200		0.008	