



**ELECTROSTATIC SENSITIVE DEVICE**  
OBSERVE HANDLING PRECAUTIONS

MITSUBISHI RF POWER MOS FET

# RD60HUF1

Silicon MOSFET Power Transistor 520MHz,60W

## DESCRIPTION

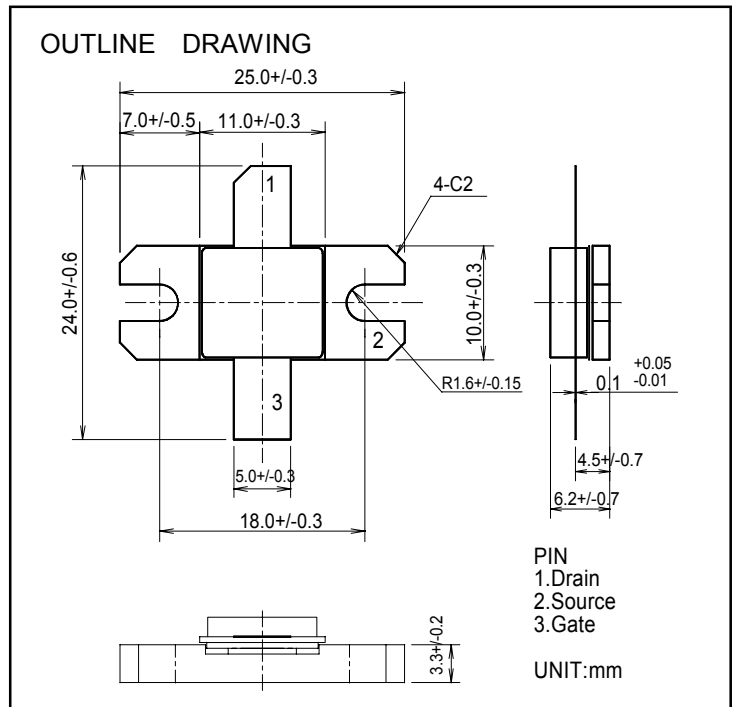
RD60HUF1 is a MOS FET type transistor specifically designed for UHF High power amplifiers applications.

## FEATURES

- High power and High Gain:  
Pout>60W, Gp>7.7dB @Vdd=12.5V,f=520MHz
- High Efficiency: 55%typ.on UHF Band

## APPLICATION

For output stage of high power amplifiers in UHF Band mobile radio sets.



## ABSOLUTE MAXIMUM RATINGS

(Tc=25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	CONDITIONS	RATINGS	UNIT
VDSS	Drain to source voltage		30	V
VGSS	Gate to source voltage		+/-20	V
Pch	Channel dissipation	Tc=25°C	150	W
Tj	Junction Temperature		175	°C
Tstg	Storage temperature		-40 to +175	°C
Rth-c	Thermal resistance	Junction to case	1.0	°C/W

Note 1: Above parameters are guaranteed independently.

## ELECTRICAL CHARACTERISTICS (Tc=25°C , UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX.	
IDSS	Zerogate voltage drain current	VDS=17V, VGS=0V	-	-	400	uA
IGSS	Gate to source leak current	VGS=10V, VDS=0V	-	-	1	uA
VTH	Gate threshold voltage	VDS=12V, IDS=1mA	1.1	1.45	1.8	V
Pout	Output power	f=520MHz, VDD=12.5V	60	65	-	W
ηD	Drain efficiency	Pin=10W, Idq=2.5A	50	55	-	%
	Load VSWR tolerance	VDD=15.2V, Po=60W(PinControl) Idq=2.5A, Zg=50Ω Load VSWR=20:1(All Phase)	No destroy			-

Note : Above parameters , ratings , limits and conditions are subject to change.



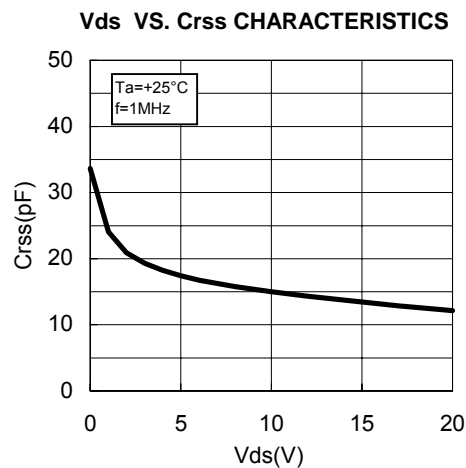
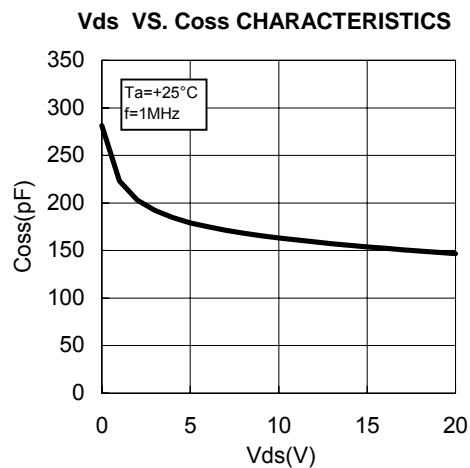
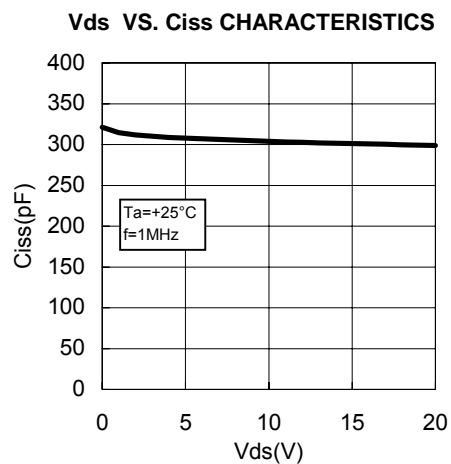
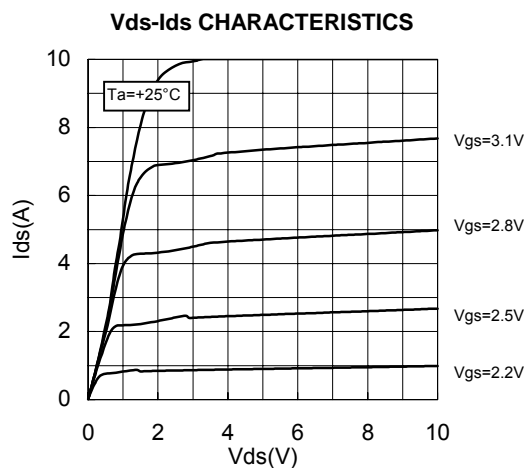
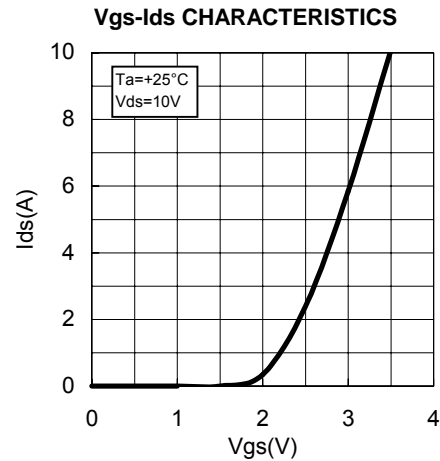
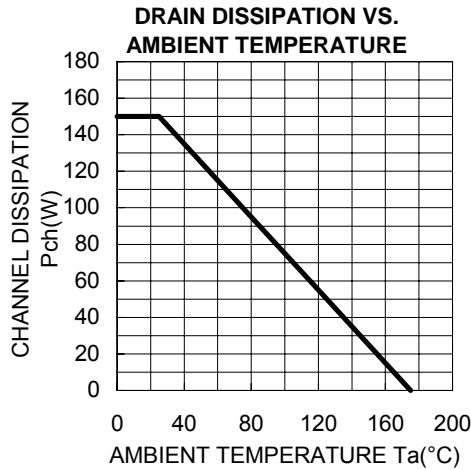
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## TYPICAL CHARACTERISTICS





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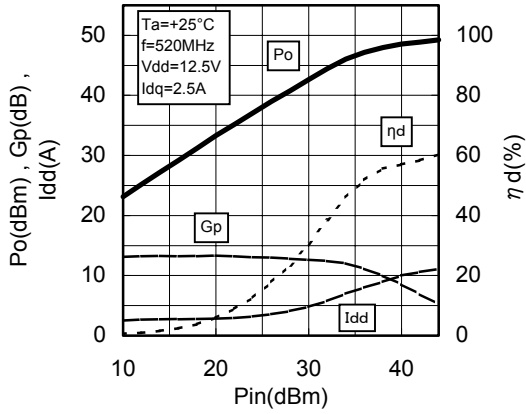
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**RD60HUF1**

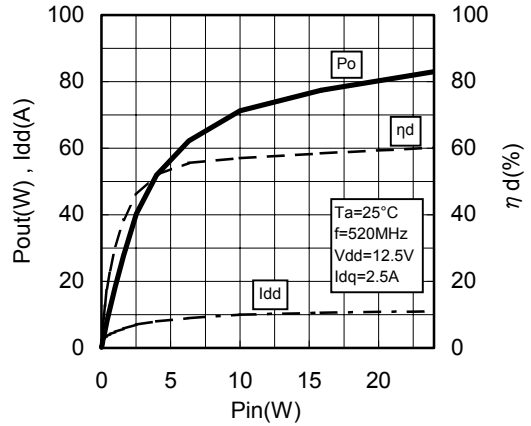
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**TYPICAL CHARACTERISTICS**

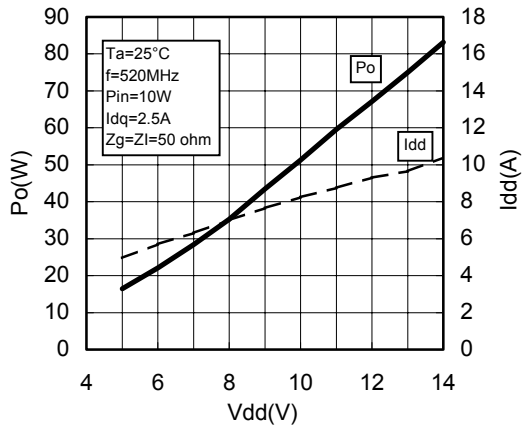
**Pin-Po CHARACTERISTICS**



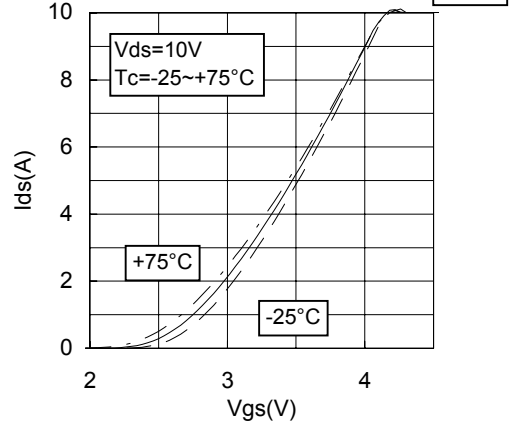
**Pin-Po CHARACTERISTICS**

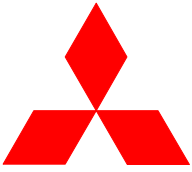


**Vdd-Po CHARACTERISTICS**



**Vgs-Ids CHARACTERISTICS 2**





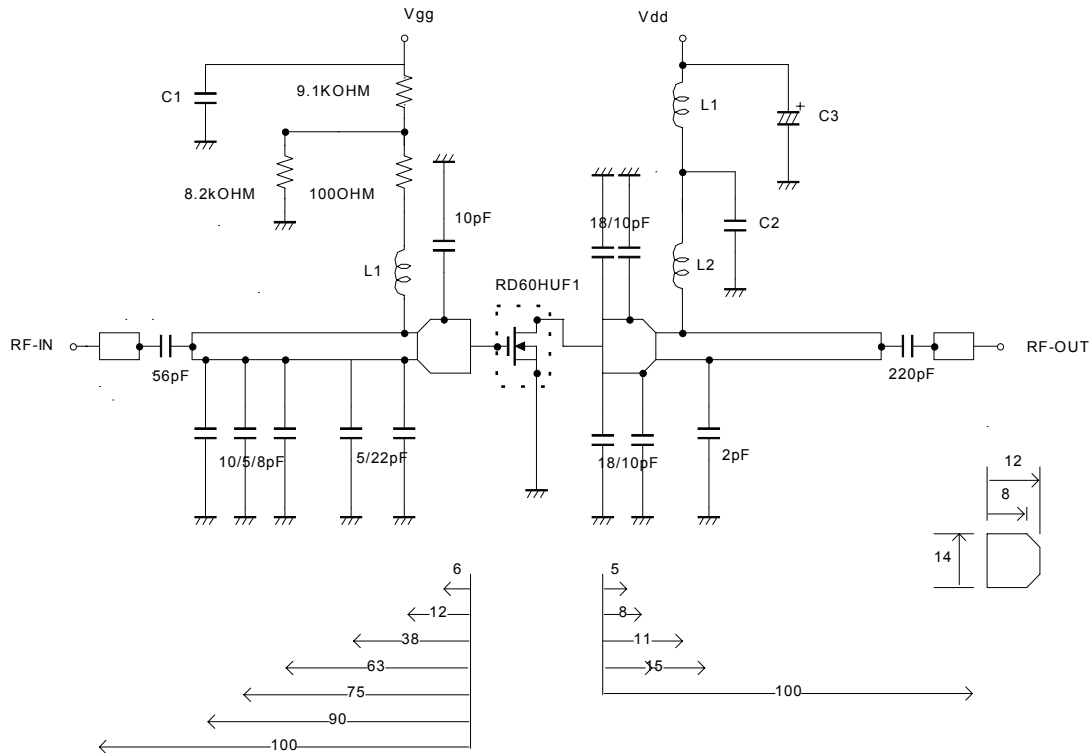
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## TEST CIRCUIT



C1:2200pF,10uF in parallel

C2:2200pF\*2 in parallel

C3:2200pF,330uF in parallel

L1:4Turns,I.D6mm,D1.6mm P=1 silver plated copper wire

L2:3Turns,I.D6mm,D1.6mm P=1 silver plated copper wire

Note:Board material-Teflon substrate

Micro strip line width=4.2mm/50OHM,er:2.7,t=1.6mm

Dimensions:mm



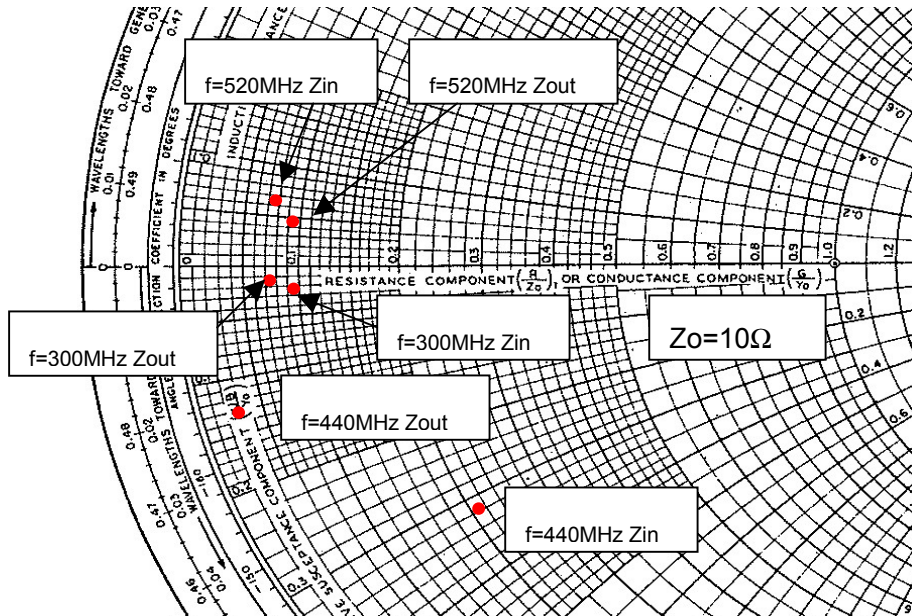
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## INPUT/OUTPUT IMPEDANCE VS.FREQUENCY CHARACTERISTICS



Zin , Zout

f (MHz)	Zin (ohm)	Zout (ohm)	Conditions
300	0.96-j0.22	0.75-j0.12	
440	2.00-j3.10	0.30-j1.40	Po=65W, Vdd=12.5V, Pin=10W
520	0.77+j0.66	0.96+j0.49	Po=60W, Vdd=12.5V, Pin=10W



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RD60HUF1 S-PARAMETER DATA (@Vdd=12.5V, Id=500mA)

Freq. [MHz]	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
10	0.909	-156.8	0.012	8.6	30.933	98.0	0.788	-166.6
50	0.910	-177.1	0.011	-10.8	6.014	75.6	0.811	-177.2
100	0.923	178.6	0.010	-25.0	2.796	60.1	0.845	-178.5
150	0.935	175.5	0.008	-32.2	1.678	46.1	0.869	178.3
175	0.944	173.9	0.008	-39.0	1.351	40.5	0.877	177.0
200	0.949	172.5	0.007	-41.7	1.109	36.2	0.893	175.6
250	0.957	169.2	0.005	-42.3	0.804	27.2	0.930	172.3
300	0.961	166.2	0.004	-40.2	0.583	18.3	0.930	169.2
350	0.964	163.3	0.003	-21.8	0.450	12.0	0.945	166.0
400	0.969	159.8	0.002	-4.8	0.368	6.8	0.957	162.4
450	0.974	157.0	0.002	38.1	0.296	2.3	0.956	159.5
500	0.975	153.8	0.003	38.4	0.238	-3.0	0.962	156.5
550	0.977	151.0	0.003	49.4	0.209	-6.1	0.965	153.4
600	0.978	147.8	0.005	53.8	0.178	-14.1	0.963	150.1
650	0.982	145.1	0.006	54.4	0.155	-17.5	0.971	147.4
700	0.983	141.9	0.006	50.3	0.136	-19.6	0.973	144.5
750	0.979	139.5	0.007	51.8	0.113	-17.5	0.972	141.5
800	0.982	136.7	0.009	56.2	0.104	-20.2	0.980	138.4
850	0.985	133.7	0.009	49.6	0.103	-33.7	0.978	136.2
900	0.980	130.9	0.010	46.5	0.084	-27.4	0.975	133.1
950	0.981	128.0	0.010	47.2	0.083	-35.1	0.983	130.4
1000	0.981	124.9	0.012	43.8	0.071	-28.7	0.984	128.0



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Keep safety first in your circuit designs!

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