

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

MITSUBISHI RF POWER MOS FET

RD00HVS1

Silicon MOSFET Power Transistor 175MHz,0.5W

DESCRIPTION

RD00HVS1 is a MOS FET type transistor specifically designed for VHF/UHF RF amplifiers applications.

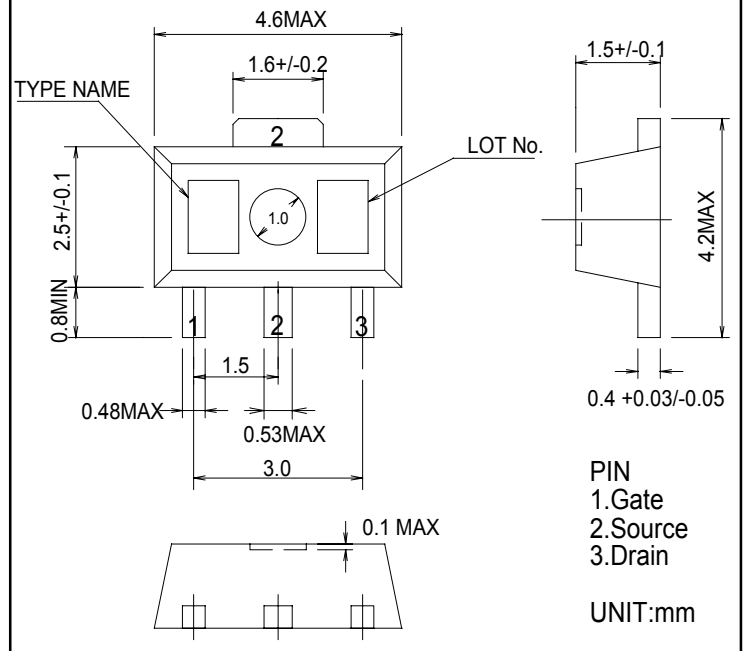
FEATURES

- High power gain
Pout>0.5W, Gp>20dB @Vdd=12.5V,f=175MHz

APPLICATION

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

OUTLINE DRAWING



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		+/-10	V
Pch	Channel dissipation	Tc=25°C	3.1	W
Tj	Junction Temperature		150	°C
Tstg	Storage temperature		-40 to +125	°C
Rth-c	Thermal resistance	Junction to case	40	°C/W

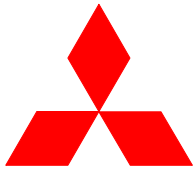
Note : Above parameters are guaranteed independently.

ELECTRICAL CHARACTERISTICS

(Tc=25deg.C , UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX.	
Idss	Zero gate voltage drain current	VDS=17V, VGS=0V	-	-	25	uA
IGSS	Gate to source leak current	VGS=10V, VDS=0V	-	-	1	uA
Vth	Gate threshold Voltage	VDS=12V, IDS=1mA	1	2	3	V
Pout	Output power	VDD=12.5V, Pin=5mW,	0.5	0.8	-	W
ηD	Drain efficiency	f=175MHz, Idq=50mA	50	60	-	%

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



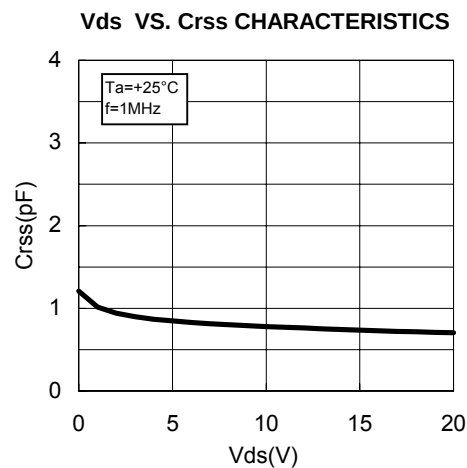
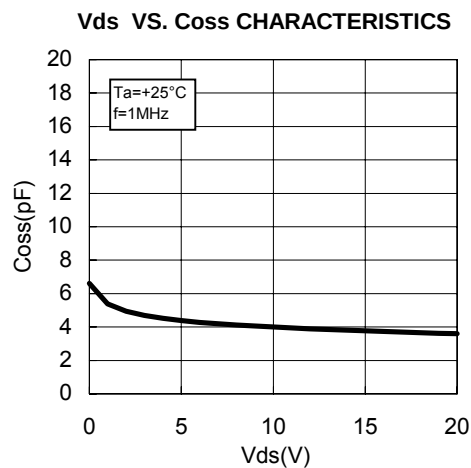
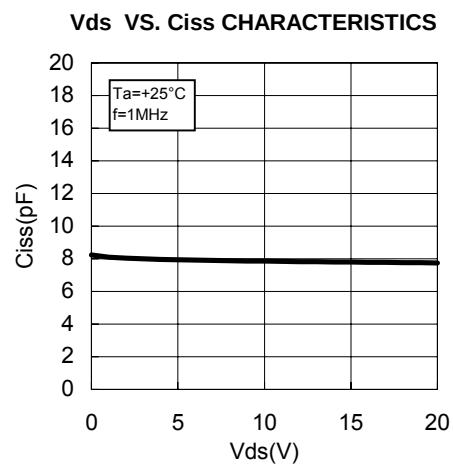
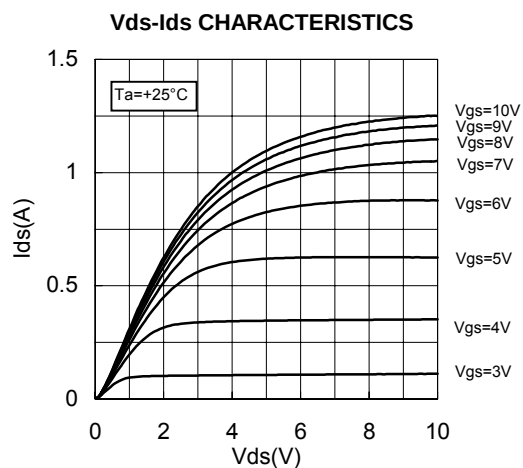
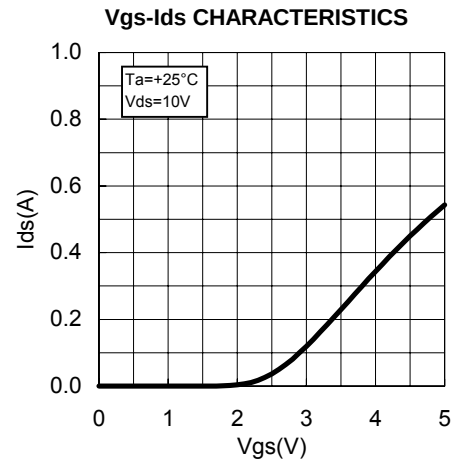
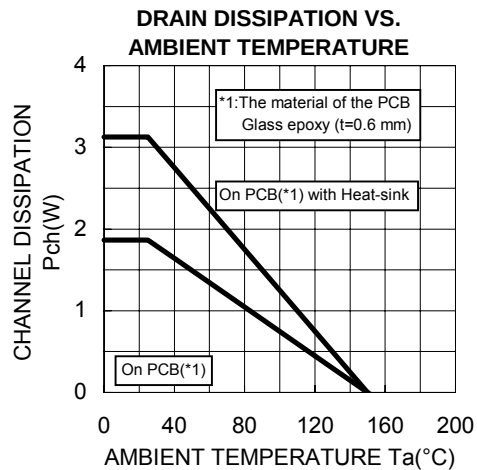
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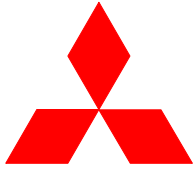
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TYPICAL CHARACTERISTICS





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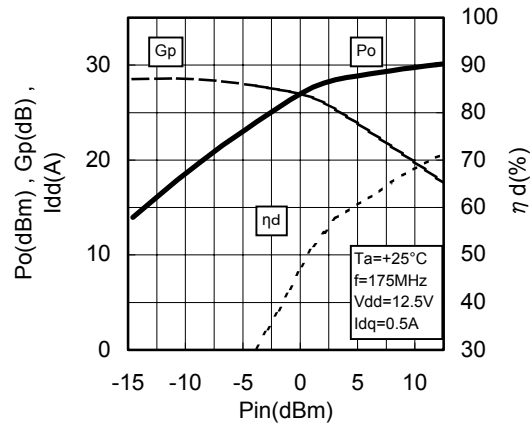
MITSUBISHI RF POWER MOS FET

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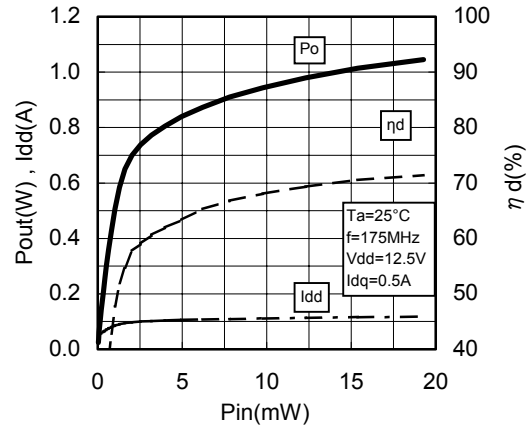
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TYPICAL CHARACTERISTICS

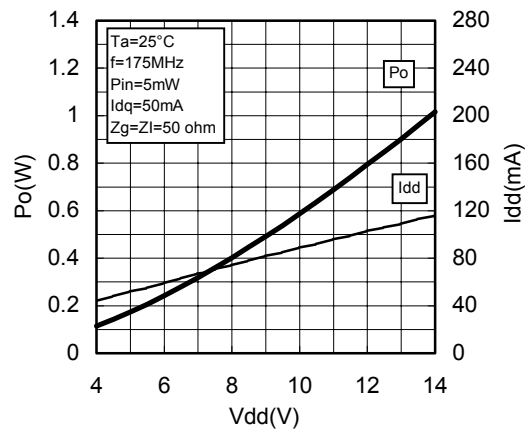
Pin-Po CHARACTERISTICS

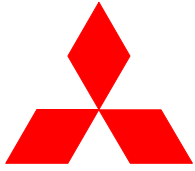


Pin-Po CHARACTERISTICS



Vdd-Po CHARACTERISTICS





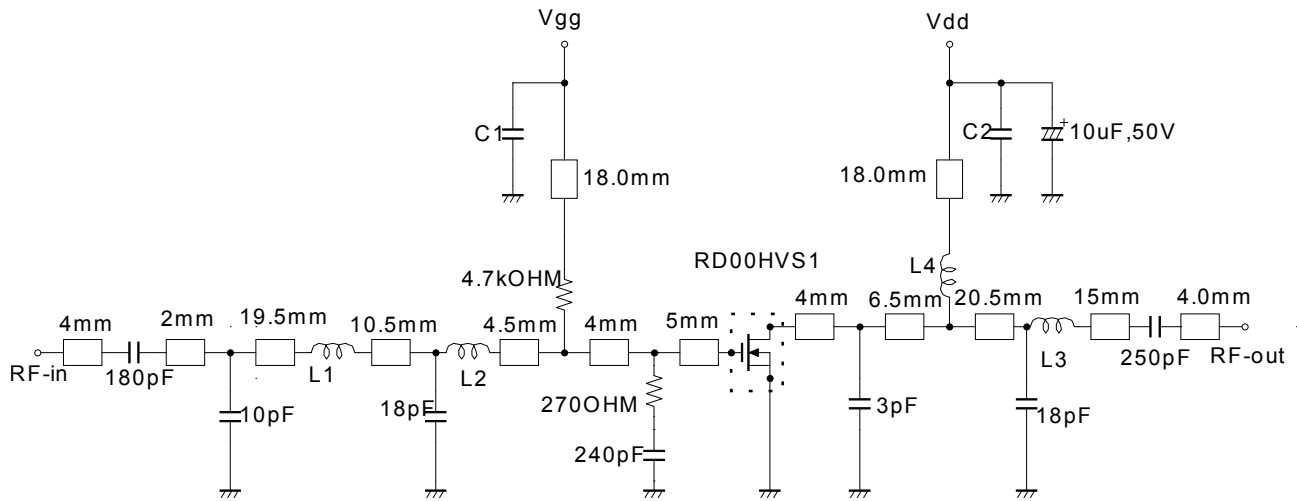
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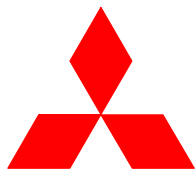
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EQUIVALENT CIRCUIT(f=175MHz)



L1: Enameled wire 4Turns,D:0.43mm,2.46mmO.D
L2:LQG11A68N(68nH,murata)
L3: Enameled wire 9Turns,D:0.43mm,2.46mmO.D
L4: Enameled wire 7Turns,D:0.43mm,2.46mmO.D
C1,C2:1000pF,0.022uF in parallel

Note:Board material-glass epoxi substrate
Micro strip line width=1.0mm/50 OHM,er:4.8,t=0.6mm



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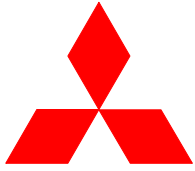
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RD00HVS1 S-PARAMETER DATA (@Vdd=7.2V, Id=50mA)

Freq. [MHz]	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
100	1.004	-35.2	0.027	66.7	13.480	158.7	0.928	-24.7
150	0.987	-51.9	0.039	56.1	12.911	147.1	0.889	-36.5
175	0.972	-59.7	0.043	50.7	12.500	141.6	0.865	-42.0
200	0.957	-67.1	0.048	45.6	12.035	136.2	0.843	-47.2
250	0.929	-80.1	0.054	37.5	11.030	126.6	0.796	-56.4
300	0.898	-91.5	0.058	30.2	10.055	118.7	0.754	-64.4
350	0.875	-101.4	0.060	23.7	9.157	111.3	0.716	-71.5
400	0.857	-110.0	0.062	18.2	8.322	104.9	0.688	-77.6
450	0.844	-117.3	0.063	13.3	7.642	99.3	0.668	-83.4
500	0.831	-124.1	0.063	8.5	6.991	93.9	0.652	-88.7
550	0.824	-130.0	0.064	4.8	6.432	89.5	0.640	-93.3
600	0.815	-135.0	0.063	1.1	5.963	84.9	0.633	-97.9
650	0.810	-139.9	0.062	-2.3	5.480	80.7	0.627	-102.1
700	0.809	-144.1	0.061	-5.4	5.103	77.0	0.626	-105.9
750	0.807	-148.1	0.060	-8.6	4.769	73.1	0.625	-109.6
800	0.806	-151.8	0.058	-11.0	4.420	69.9	0.627	-113.4
850	0.808	-155.1	0.056	-13.5	4.161	66.8	0.630	-116.8
900	0.808	-158.0	0.054	-16.2	3.900	63.1	0.634	-120.0
950	0.810	-161.1	0.053	-17.8	3.639	60.3	0.639	-123.3
1000	0.811	-163.9	0.051	-20.0	3.466	57.7	0.645	-126.4
1050	0.814	-166.5	0.048	-22.1	3.254	54.1	0.654	-129.3
1100	0.817	-168.9	0.046	-23.5	3.045	51.9	0.661	-132.1

RD00HVS1 S-PARAMETER DATA (@Vdd=12.5V, Id=50mA)

Freq. [MHz]	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
100	1.005	-33.4	0.024	68.3	13.343	160.0	0.898	-22.6
150	0.995	-49.7	0.034	57.9	12.874	149.0	0.865	-33.1
175	0.980	-57.5	0.038	53.2	12.525	143.6	0.845	-38.0
200	0.967	-64.6	0.042	47.8	12.108	138.3	0.826	-42.9
250	0.943	-77.5	0.047	39.3	11.193	129.0	0.781	-51.3
300	0.916	-88.9	0.052	32.3	10.249	121.2	0.743	-58.9
350	0.891	-98.7	0.054	26.2	9.403	113.9	0.709	-65.6
400	0.877	-107.6	0.056	20.6	8.582	107.3	0.681	-71.5
450	0.862	-115.0	0.057	15.7	7.916	101.9	0.661	-77.0
500	0.852	-121.9	0.057	11.2	7.273	96.4	0.644	-82.0
550	0.844	-128.1	0.057	7.5	6.706	91.9	0.633	-86.6
600	0.835	-133.3	0.058	3.4	6.224	87.3	0.625	-91.2
650	0.828	-138.3	0.056	0.2	5.755	83.0	0.619	-95.2
700	0.824	-142.7	0.056	-2.5	5.358	79.3	0.618	-99.0
750	0.823	-146.8	0.054	-5.8	5.024	75.4	0.616	-102.9
800	0.820	-150.6	0.053	-8.4	4.671	72.0	0.615	-106.6
850	0.821	-153.9	0.051	-10.5	4.398	68.9	0.618	-110.1
900	0.822	-157.2	0.050	-13.3	4.134	65.2	0.622	-113.2
950	0.823	-160.2	0.048	-15.2	3.853	62.3	0.628	-116.5
1000	0.822	-163.1	0.047	-17.2	3.677	59.7	0.633	-119.8
1050	0.826	-165.9	0.044	-19.5	3.459	56.3	0.640	-122.9
1100	0.828	-168.4	0.042	-20.2	3.241	53.9	0.646	-125.7



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—————Keep safety first in your circuit designs! —————

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.