

SiRF Device Family for RF Power Amplification
General Catalog

**Better Performance For
Radio Communication Network**



**Telematics
AMPS/GSM**



**Professional
Mobile Radio**



Marine Radio

Features

- Full Line up
- Frequency : 30-900MHz
- Output Power : 0.3-100W
- Operation Voltage : 7.2-12.5V

Select Map

1

Products List

3

Application

7

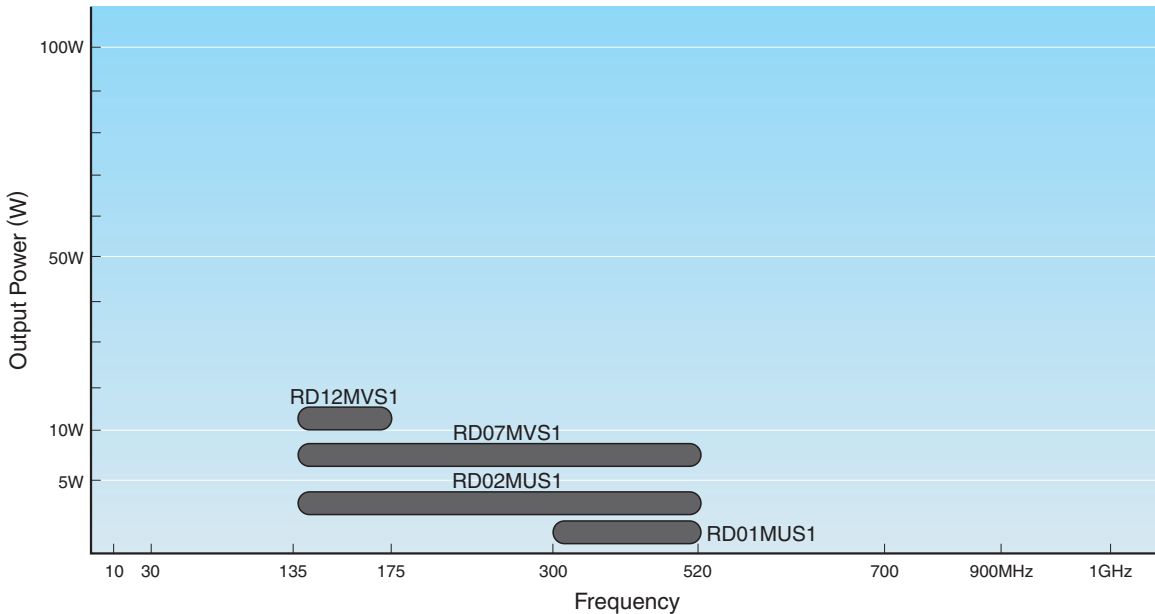
Package Outline

8

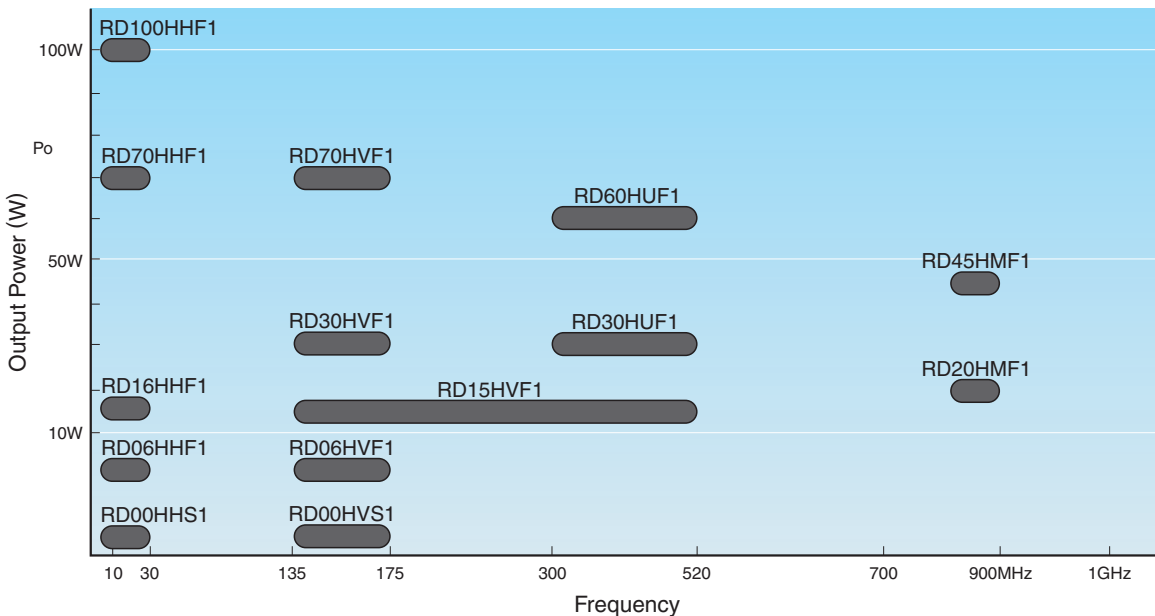
Better Performance For Radio Communication Network

MITSUBISHI SiRF Devices are Key parts of RF Power Amplifications for various kind of Mobile Radio, Professional Mobile Radios, Amateur Radios, Car Phones for GSM/AMPS and TELEMATICS for automotive. MITSUBISHI SiRF Devices strongly support for Radio communication network.

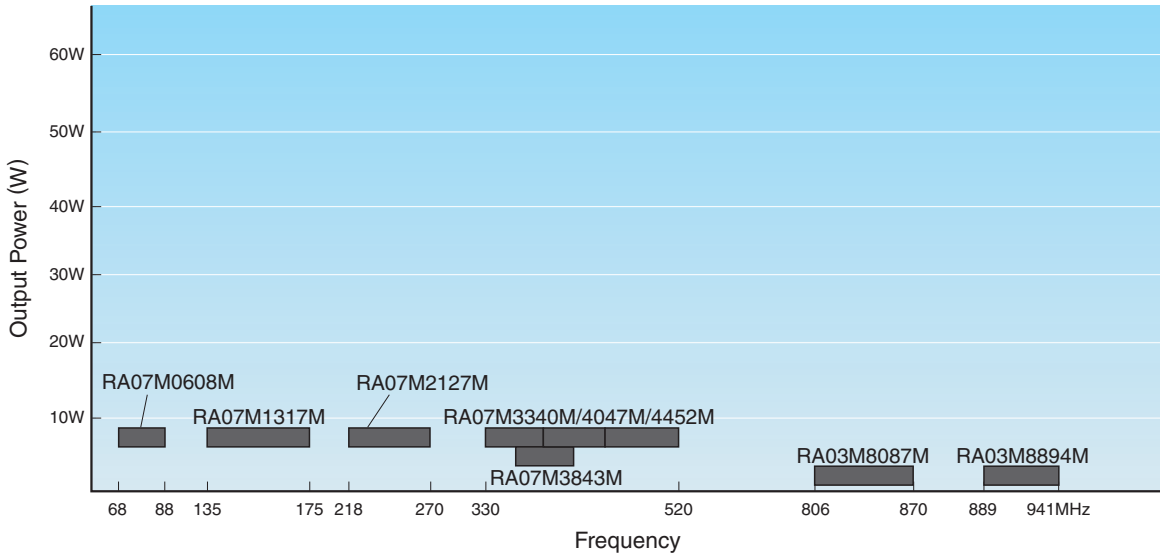
7.2V operation High Output Power Si MOS FET (Discrete)



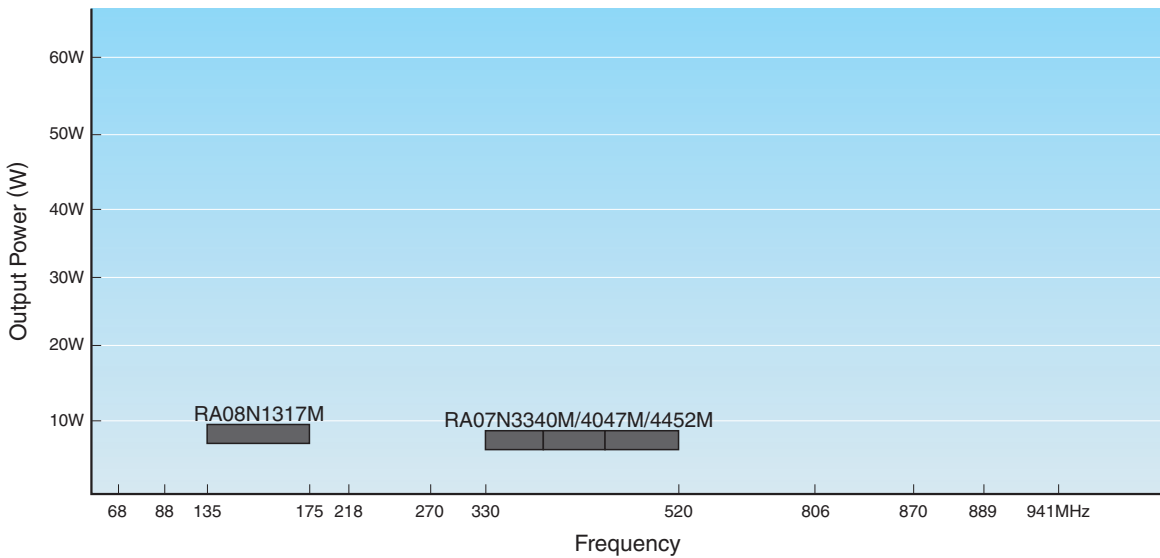
12.5V operation High Output Power Si MOS FET (Discrete)



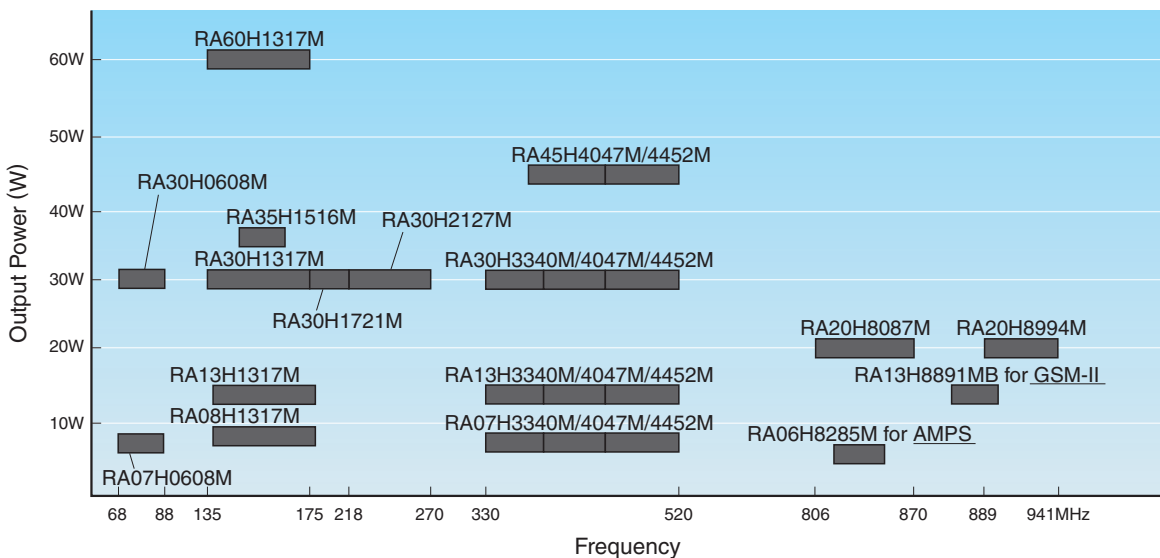
7.2V operation High Output Power Si MOS FET Module



9.6V operation High Output Power Si MOS FET Module



12.5V operation High Output Power Si MOS FET Module



High Output Power Si MOS FET (Discrete)

■30MHz Band

Type Number	Structure	Max.ratings		Vdd (V)	f (MHz)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		VDSS (V)	Pch (W)						
RD00HHS1	Si,MOS	30	3.1	12.5	30	0.004	0.3	55	SOT-89
	Si,MOS	50	27.8	12.5	30	0.15	6	55	TO-220S
RD06HHF1	Si,MOS	50	56.8	12.5	30	0.4	16	55	TO-220S
RD16HHF1	Si,MOS	50	150	12.5	30	3.5	70	55	Ceramic(Large)
RD70HHF1	Si,MOS	50	176.5	12.5	30	7	100	55	Ceramic(Large)

Tc=25°C

■175/520MHz Band

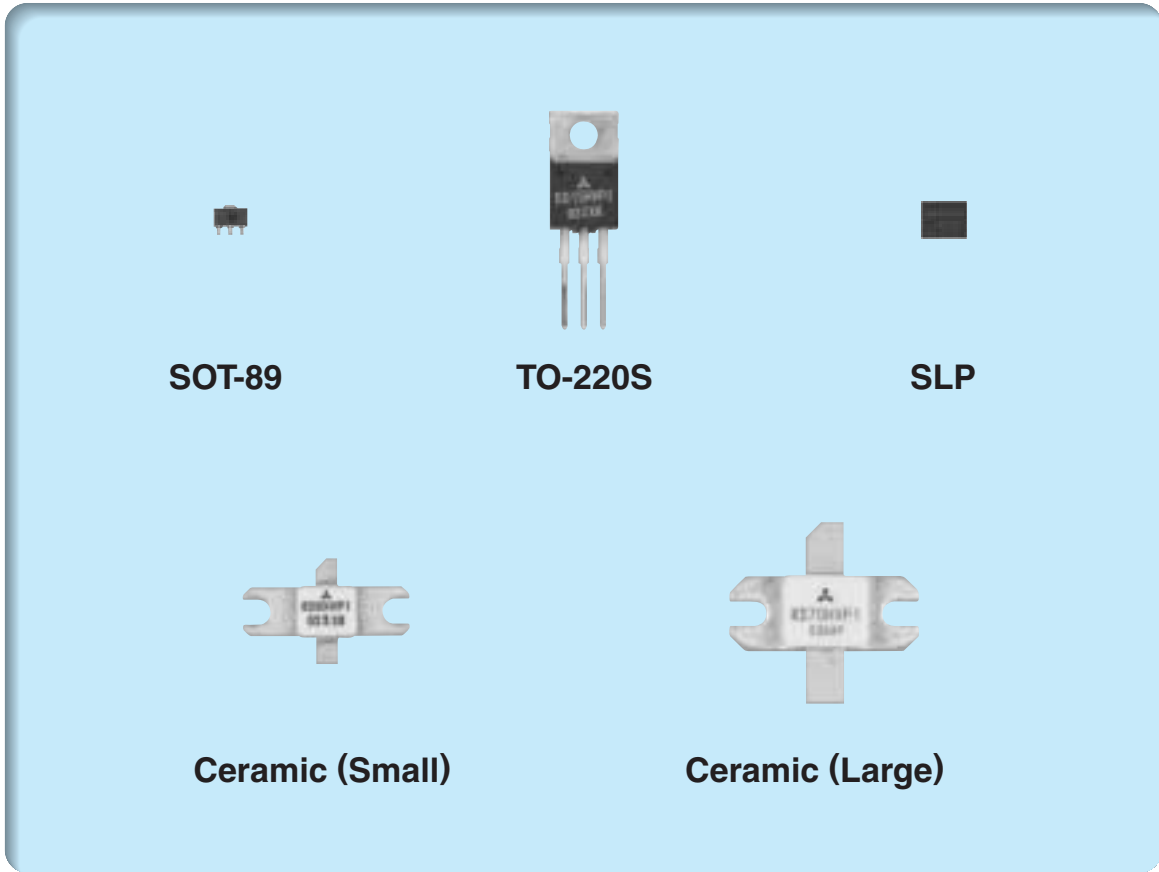
Type Number	Structure	Max.ratings		Vdd (V)	f (MHz)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		VDSS (V)	Pch (W)						
RD00HVS1	Si,MOS	30	3.1	12.5	175	0.005	0.5	50	SOT-89
RD01MUS1	Si,MOS	30	3.6	7.2	520	0.03	0.8	50	SOT-89
RD02MUS1	Si,MOS	30	21.9	7.2	175/520	0.05/0.05	2/2	55/50	SLP
RD06HVF1	Si,MOS	50	27.8	12.5	175	0.3	6	60	TO-220S
RD07MVS1	Si,MOS	30	50	7.2	175/520	0.3/0.7	7/7	55/50	SLP
RD12MVS1	Si,MOS	50	50	7.2	175	1	11.5	55	SLP
RD15HVF1	Si,MOS	30	48	12.5	175/520	0.6/3	15/15	55/50	TO-220S
RD30HVF1	Si,MOS	30	75	12.5	175	1	30	55	Ceramic(Small)
RD30HUF1	Si,MOS	30	75	12.5	520	3	30	50	Ceramic(Small)
RD70HVF1	Si,MOS	30	150	12.5	175/520	6/10	70/50	55/50	Ceramic(Large)
RD60HUF1	Si,MOS	30	150	12.5	520	10	60	50	Ceramic(Large)

Tc=25°C

■900MHz Band

Type Number	Structure	Max.ratings		Vdd (V)	f (MHz)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		VDSS (V)	Pch (W)						
RD20HMF1	Si,MOS	30	71.4	12.5	900	3	20	50	Ceramic(Small)
RD45HMF1	Si,MOS	30	125	12.5	900	15	45	45	Ceramic(Large)

Tc=25°C



Type Number

High Output Power Si MOS FET (Discrete)

RD 07 M V S 1

● Si MOS FET (Discrete)

● Output Power (W)

● Operation Voltage (V)

● Frequency Range (MHz)

● Outline

● Suffix

Symbol	Voltage
M	7.2V
N	9.6V
H	12.5V

Symbol	Frequency Range
H	30MHz
V	175MHz
U	520MHz
M	800MHz

Symbol	Segment
S	Mold
F	Flange

Note: Type number show the outline of products. For detail specification, Please confirm a formal specification.

High Output Power Si MOS FET Module

■66-88MHz Band

Type Number	Max.ratings Vdd(V)	f(MHz)		Vdd (V)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		min	max					
RA07M0608M	9.2	66	88	7.2	0.03	7	45	H46S
RA07H0608M	13.2	68	88	12.5	0.03	7	38	H46S
RA30H0608M	17	66	88	12.5	0.05	30	40	H2S

Tc=25°C

■135-215MHz Band

Type Number	Max.ratings Vdd(V)	f(MHz)		Vdd (V)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		min	max					
RA07M1317M	9.2	135	175	7.2	0.02	6.5	45	H46S
RA08N1317M	12.5	135	175	9.6	0.02	8	50	H46S
RA08H1317M	13.2	135	175	12.5	0.02	8	40	H46S
RA13H1317M	17	135	175	12.5	0.05	13	40	H2S
RA30H1317M	17	135	175	12.5	0.05	30	40	H2S
RA60H1317M	17	135	175	12.5	0.05	60	40	H2S
RA35H1516M	17	154	162	12.5	0.05	40	50	H2S
RA30H1721M	17	175	215	12.5	0.05	30	40	H2S

Tc=25°C

■215-270MHz Band

Type Number	Max.ratings Vdd(V)	f(MHz)		Vdd (V)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		min	max					
RA07M2127M	9.2	215	270	7.2	0.02	7	45	H46S
RA30H2127M	17	210	270	12.5	0.05	30	40	H2S

Tc=25°C

■330-520MHz Band

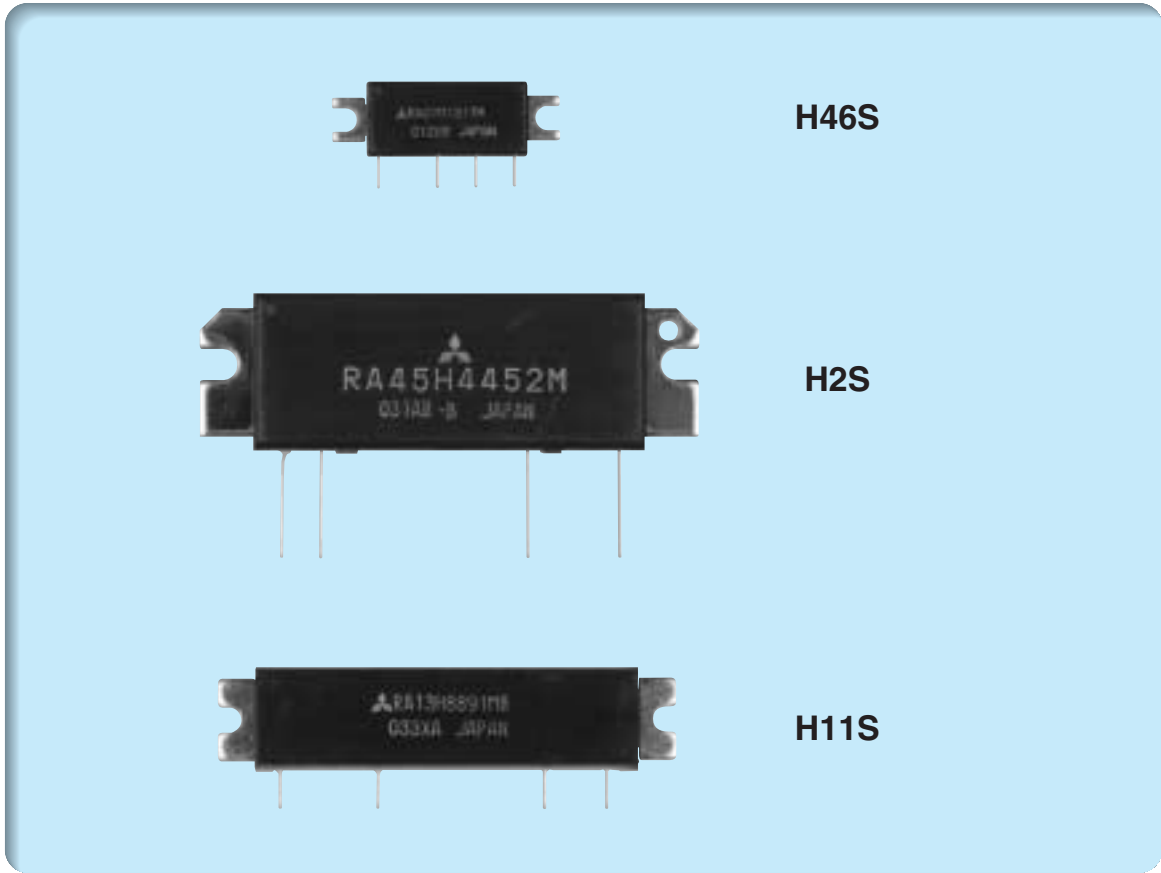
Type Number	Max.ratings Vdd(V)	f(MHz)		Vdd (V)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		min	max					
RA07M3340M	9.2	330	400	7.2	0.05	7	40	H46S
RA07M3843M	9.2	378	430	7.2	0.05	7	40	H46S
RA07M4047M	9.2	400	470	7.2	0.05	7	40	H46S
RA07M4452M	9.2	440	520	7.2	0.05	7	40	H46S
RA07N3340M	12.5	330	400	9.6	0.02	7.5	43	H46S
RA07N4047M	12.5	400	470	9.6	0.02	7.5	43	H46S
RA07N4452M	12.5	440	520	9.6	0.02	7.5	43	H46S
RA07H3340M	13.2	330	400	12.5	0.02	7	40	H46S
RA07H4047M	13.2	400	470	12.5	0.02	7	40	H46S
RA07H4452M	13.2	440	520	12.5	0.02	7	40	H46S
RA13H3340M	17	330	400	12.5	0.05	13	40	H2S
RA13H4047M	17	400	470	12.5	0.05	13	40	H2S
RA13H4452M	17	440	520	12.5	0.05	13	40	H2S
RA30H3340M	17	330	400	12.5	0.05	30	40	H2S
RA30H4047M	17	400	470	12.5	0.05	30	40	H2S
RA30H4452M	17	440	520	12.5	0.05	30	40	H2S
RA45H4047M	17	400	470	12.5	0.05	45	35	H2S
RA45H4045MR	17	400	450	12.5	0.05	45	35	H2RS
RA45H4452M	17	440	520	12.5	0.05	45	35	H2S

Tc=25°C

■900MHz Band

Type Number	Max.ratings Vdd(V)	f(MHz)		Vdd (V)	Pin (W)	Po(min) (W)	nd(min) (%)	Package outline
		min	max					
RA03M8087M	9.2	806	870	7.2	0.05	3.6	32	H46S
RA03M8894M	9.2	889	941	7.2	0.05	3.6	32	H46S
RA06H8285M	17	820	851	12.5	0.001	6	35	H11S
RA13H8891MA	17	889	915	12.5	0.2	13	30	H2S
RA13H8891MB	17	880	915	12.5	0.001	13	35	H11S
RA20H8087M	17	806	870	12.5	0.05	20	25	H2S
RA20H8994M	17	896	941	12.5	0.05	20	25	H2S

Tc=25°C



Type Number

High Output Power Si MOS FET Module

RA 07 M 4452 M

- Module
- Output Power (W)
- Operation Voltage (V)
- Frequency Range (MHz)
- Frequency Unit

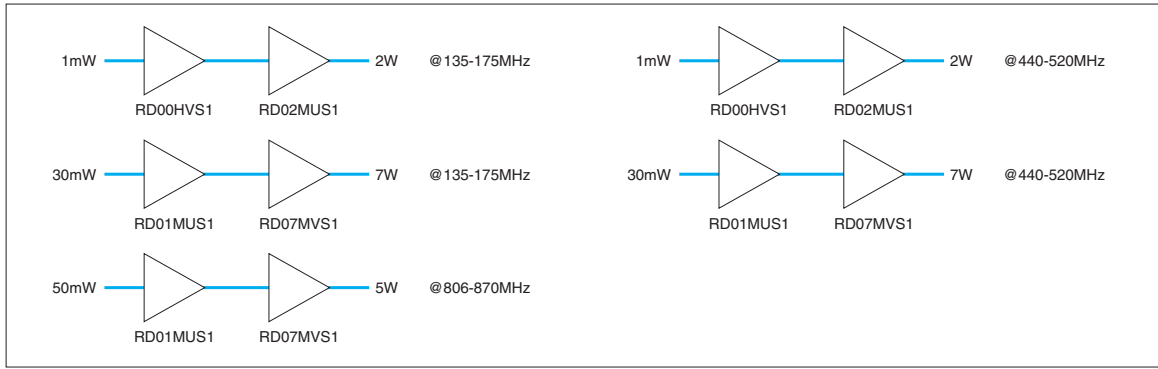
Symbol	Voltage
M	7.2V
N	9.6V
H	12.5V

Symbol (Example)	Frequency Range (Example)
4452	440~520MHz
1317	135~175MHz

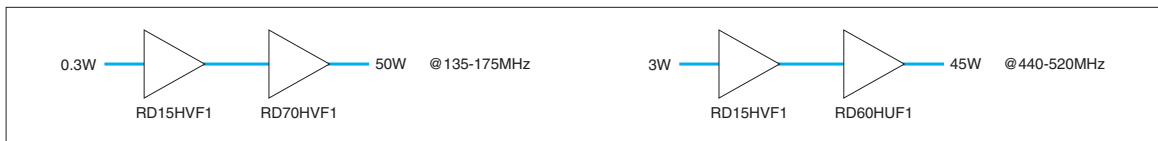
Symbol	Unit
M	MHz
G	GHz

Note: Type number show the outline of products. For detail specification, Please confirm a formal specification.

VHF~800MHz Band 7.2V operation Recommended Line up



VHF~UHF Band 12.5V operation Recommended Line up



Application Note

ANGEN006B	SiRF power devices precaution & recommendation
ANGEN030B	SiRF power devices reliability concept
ANGEN026A	RA series ESD data
ANGEN042	Thermal compound apply method
ANGEN001	Thermal compound characteristic
ANGEN034B	RD07MVS1, RD02MUS1 mount & precaution
ANGEN038	RD series ESD data
ANUHF019	RD01MUS1 VHF UHF RF characteristic
ANUHF017	RD02MUS1 VHF UHF RF characteristic
ANUHF018B	RD07MVS1 VHF UHF RF characteristic
ANUHF027B	RD07MVS1 450MHz Amp
AN900006	RD07MVS1, RD01MUS1 1 stage 800MHz Amp
ANVHF013	RD07MVS1+RD01MUS1 2 stage VHF Amp
AN900008	RD07MVS1+RD01MUS1 2 stage 800MHz Amp

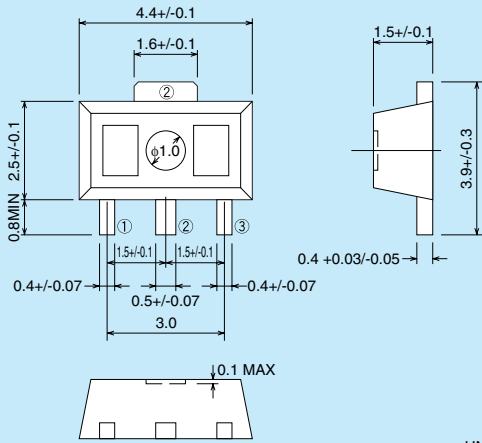
Precautions

MITSUBISHI ELECTRIC's Si RF Power Products are designed for consumer Mobile Communication terminals.

Please contact Mitsubishi Electronic Corporation or an authorized MITSUBISHI semiconductor product distributor when considering the use without above application.

SOT-89

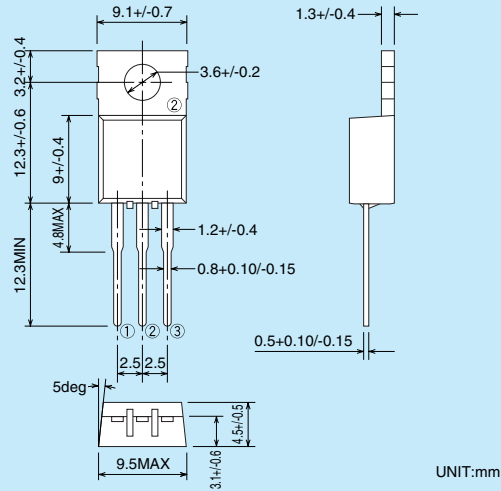
① Gate ③ Drain
② Source



UNIT:mm

TO-220

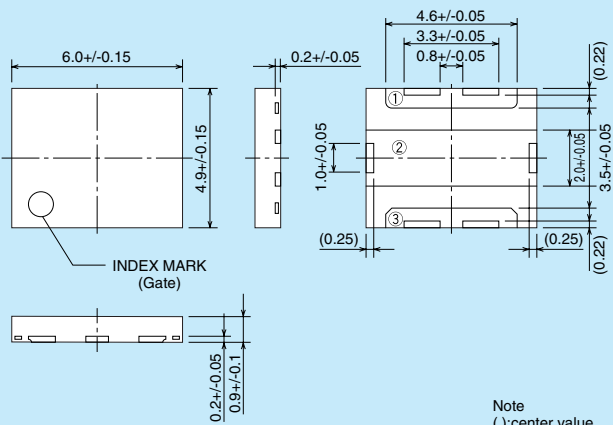
① Gate ③ Drain
② Source



UNIT:mm

SLP

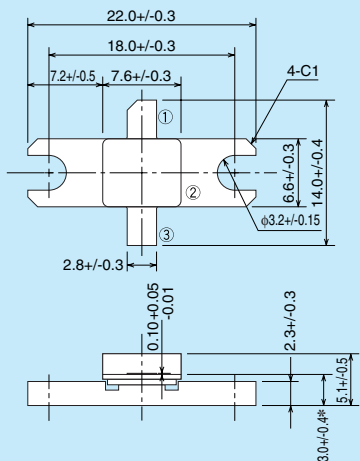
① Drain ③ Gate
② Source



Note
() : center value
UNIT:mm

Ceramic(Small)

① Drain ③ Gate
② Source

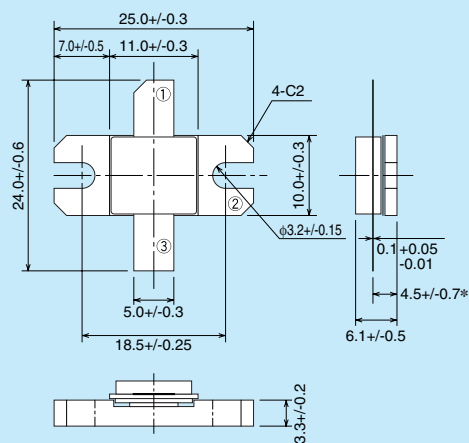


*The height of terminals shows root.

UNIT:mm

Ceramic(Large)

① Drain ③ Gate
② Source

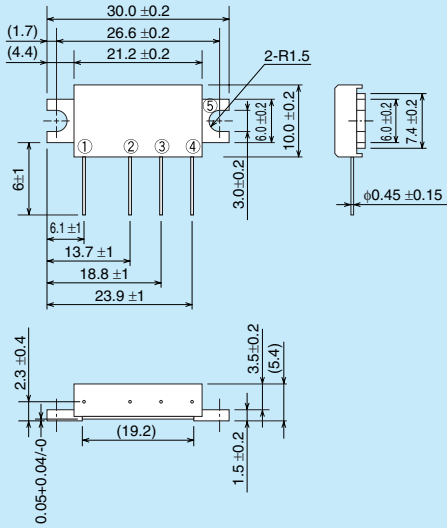


*The height of terminals shows root.

UNIT:mm

H46S

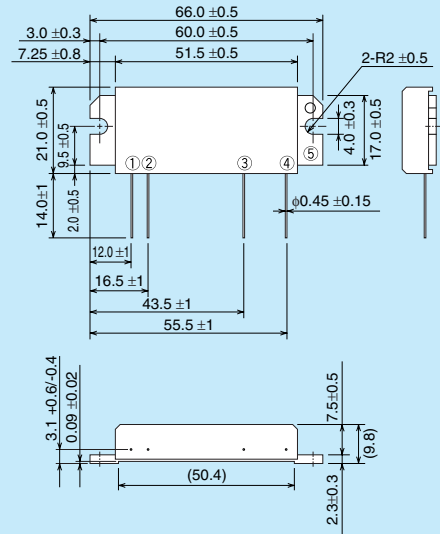
- ① RF Input(P_{in}) ③ Drain Voltage(V_{DD}) ⑤ RF Ground(Fin)
- ② Gate Voltage(V_{GS}) ④ RF Output(P_{out})



UNIT:mm

H2S

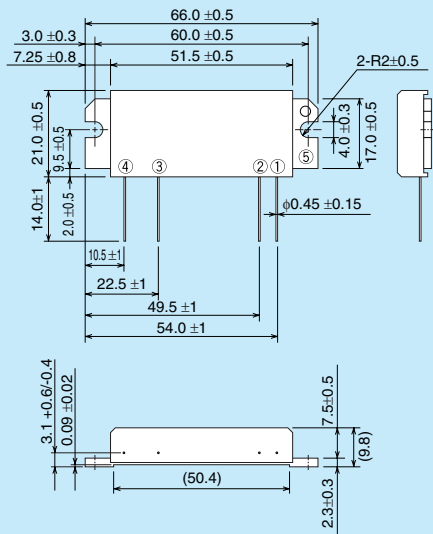
- ① RF Input(P_{in}) ③ Drain Voltage(V_{DD}) ⑤ RF Ground(Fin)
- ② Gate Voltage(V_{GS}) ④ RF Output(P_{out})



UNIT:mm

H2RS

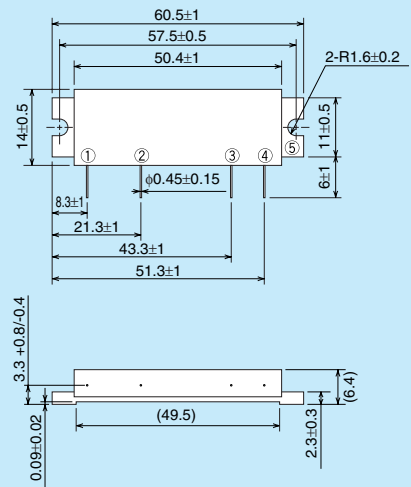
- ① RF Input(P_{in}) ③ Drain Voltage(V_{DD}) ⑤ RF Ground(Fin)
- ② Gate Voltage(V_{GS}) ④ RF Output(P_{out})



UNIT:mm

H11S

- ① RF Input(P_{in}) ③ Drain Voltage(V_{DD}) ⑤ RF Ground(Fin)
- ② Gate Voltage(V_{GS}) ④ RF Output(P_{out})



UNIT:mm

MEMO

A series of horizontal dashed lines for writing.

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<2005-06-15>



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HEAD OFFICE: 2-2-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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