

MGFC42V5867

5.8~6.75GHz BAND 16W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC42V5867 device is an internally impedance-matched GaAs power FET especially designed for use in 5.8 ~ 6.75GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class A operation
- Internally matched to 50(ohm) system
- High output power
P1dB = 42.5dBm (TYP.) @ f=5.8 ~ 6.75 GHz
- High power gain
GLP = 9 dB (TYP.) @ f=5.8 ~ 6.75 GHz

APPLICATION

VSAT

RECOMMENDED BIAS CONDITIONS

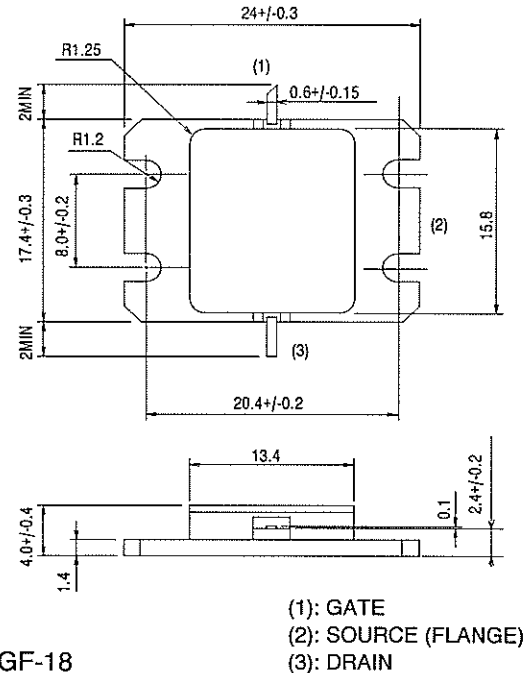
VDS = 10 (V)

ID=4.5(A)

RG=25 (ohm)

OUTLINE DRAWING

Unit: millimeters (inches)



ABSOLUTE MAXIMUM RATINGS (Ta=25deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	12	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT *1	Total power dissipation	78.9	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25deg.C

< Keep safety first in your circuit design! >
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 (1) placement of substitutive, auxiliary circuits, (2) use of non-flammable material or (3) prevention against any malfunction or mishap.

ELECTRICAL CHARACTERISTICS (Ta=25deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	9	12	
gm	Transconductance	VDS=3V, ID=4.4A	-	4		
VGS(off)	Pinch-off voltage	VDS=3V, ID=80mA	-2	-3	-4	V
P1dB	Output power at 1dB gain	VDS=10V, ID(RF off)=4.5A. f=5.8 ~ 6.75GHz	41.0	42.5	-	dBm
GLP	Linear power gain		7.0	9.0	-	dB
ID	Drain Current		-	4.5	-	A
P.A.E.	Power added efficiency		-	31	-	%
Rth(ch-c)	Thermal resistance	*1 delta Vf method	-	-	1.9	deg.C/W

*1 : Channel-case

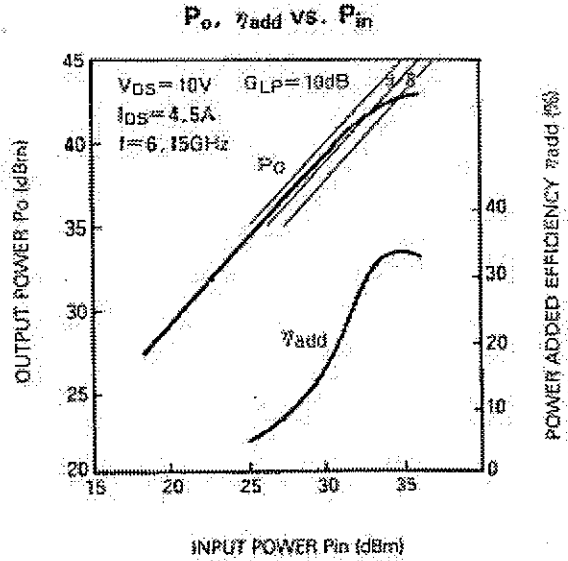
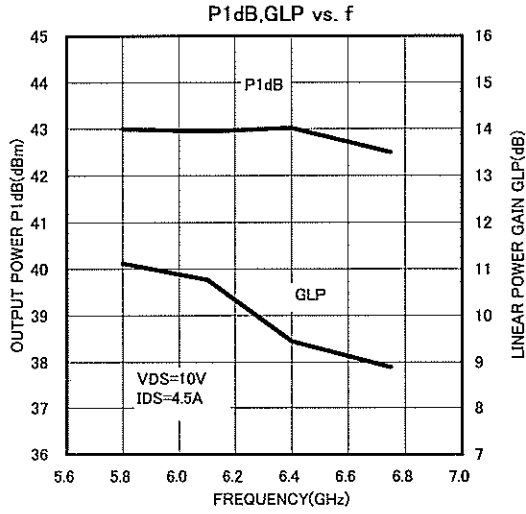


MITSUBISHI
ELECTRIC

MGFC42V5867

5.8 - 6.75GHz BAND 16W INTERNALLY MATCHED GaAs FET

TYPICAL CHARACTERISTICS (Ta=25deg.C)



S parameters (Ta=25deg.C , VDS=10(V),IDS=4.5(A))

f (GHz)	S-Parameters (TYP.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)
5.8	0.419	152	3.353	-10	0.058	-62	0.115	-148
5.9	0.401	120	3.304	-30	0.060	-84	0.161	164
6.0	0.414	91	3.177	-49	0.064	-102	0.231	139
6.1	0.438	65	2.981	-69	0.065	-123	0.297	124
6.2	0.460	48	2.819	-85	0.066	-140	0.359	115
6.3	0.479	35	2.686	-99	0.066	-153	0.408	107
6.4	0.492	23	2.571	-112	0.067	-169	0.449	101
6.5	0.494	13	2.473	-125	0.070	-178	0.480	96
6.6	0.488	2	2.400	-138	0.069	168	0.506	91
6.7	0.472	-10	2.351	-153	0.073	157	0.541	84
6.8	0.447	-21	2.333	-166	0.075	142	0.557	79



MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGFC42V5867

5.8 ~ 6.75GHz BAND 16W INTERNALLY MATCHED GaAs FET