MITSUBISHI
ELECTRONIC DEVICE GROUP

Die MGFC1402
Package MGF1302
MGF1402
MGF1902B

DESCRIPTION

Devices in this family are constructed using the MGFC1402 die. These devices are N-channel Schottky gate type and are suitable for use in amplifier and oscillator applications. MGF1302/1402/1902B feature hermetically sealed metal-ceramics packages. The MGF1902B devices are packaged in Super 12 tape for tape and reel applications.

FEATURES

- Low noise figure NF = 1.3 dB (TYP) @ f = 4 GHz
- High associated gain G_S = 13 dB (TYP) @ 4 GHz
- High reliability

APPLICATION

- Low cost devices for amplifiers and oscillators

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

SYMBOL	PARAMETER	TYPE	RATINGS	UNIT
V_{GDO}	Gate to drain voltage		-6	V
V_{GSO}	Gate to source voltage		-6	V
I_D	Drain current		100	mA
P_T	Total power dissipation	MGFC1402	550	mW
		MGF1302/1402/1902B	360	
T_{ch}	Channel temperature		175	°C
T_{stg}*	Storage temperature		-55 ~ +175	°C
R_{TH}	Thermal resistance	MGFC1402	158	°C/W
		MGF1302/1402/1902B	416	

*Stored in super 12 tamp (MGF1902) -3- ~ +40°C.

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

SYMBOL	PARAMETER	TEST CONDITIONS		TYPE	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
$V_{(BR)GDO}$	Gate to drain breakdown voltage	I_G = -100 μA			-6			V
$V_{(BR)GSO}$	Gate to source breakdown voltage	I_G = -100 μA			-6			V
I_{GSS}	Gate to source leakage current	V_{GS} = -3V, V_{DS} = 0V					10	μA
I_{DSS}	Saturated drain current	V_{GS} = 0V, V_{DS} = 3V			30	60	100	mA
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS} = 3V, I_D = 100 μA			-0.3		-3.5	V
g_m	Transconductance	V_{DS} = 3V, I_D = 10 mA		MGF(C)1402/1302/1902B	25	45		mS
NF_{min}	Minimum noise figure	V_{DS} = 3V, I_D = 10 mA	f = 4 GHz	MGFC1402		1.0	1.4	dB
			f = 12 GHz			3.0	4.0	
			f = 4 GHz	MGF1302/1402/1902B		1.1	1.4	
			f = 12 GHz			3.0		
G_S	Associated gain	V_{DS} = 3V, I_D = 10 mA	f = 4 GHz	MGFC1402	11	13		dB
			f = 12 GHz		5.5	8		
			f = 4 GHz	MGF1302/1402/1902B	11	13		
			f = 12 GHz		5	8		
P_{1dB}	Output power at 1dB gain compression	V_{DS} = 3V, I_D = 10 mA	f = 4 GHz			+14		dBm

Low Noise GaAs FETs