Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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ADVANCED POWER TECHNOLOGY RF®

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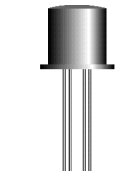
MRF904

RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

Features

- Silicon NPN, high Frequency, To-72 packaged, Transistor
- High Power Gain - GU(max): 11 dB (typ) @ f = 450 MHz
  7 dB (typ) @ f = 1 GHz
- Low Noise Figure
  NF = 1.5 dB (typ) @ f = 450 MHz
- High F_T - 4 GHz (typ) @ IC = 15 mAdc



1. Emitter
2. Base
3. Collector
4. Case

TO-72

DESCRIPTION:
Designed primarily for use in High Gain, low noise general-purpose amplifiers.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	15	Vdc
V_{CBO}	Collector-Base Voltage	25	Vdc
V_{EBO}	Emitter-Base Voltage	3.0	Vdc
I_C	Collector Current	30	mA

Thermal Data

P_D	Total Device Dissipation @ T_A = 25ºC Derate above 25ºC	200 1.14	mWatts mW/ ºC
T_{JMAX}	Junction Temperature	200	°C
$T_{STORAGE}$	Storage Temperature	-65 to +200	°C

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

(off)

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BVCEO	Collector-Emitter Breakdown Voltage (IC = 1.0 mAdc, IB = 0)	15	-	-	Vdc
BVCBO	Collector-Base Breakdown Voltage (IC= .1 mAdc, IE=0)	25	-	-	Vdc
BVEBO	Emitter-Base Breakdown Voltage (IE = 0.1 mAdc, IC = 0)	3.0	-	-	Vdc
ICBO	Collector Cutoff Current (VCE = 15 Vdc, IE = 0 Vdc)	-	-	50	nA

(on)

HFE	DC Current Gain (IC = 5.0 mAdc, VCE = 5 Vdc)	30	-	200	-

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
f_T	Current-Gain - Bandwidth Product (IC = 15 mAdc, VCE = 10 Vdc, f = 1 GHz)	-	4.0	-	GHz
CCB	Junction Capacitance (VCB = 10Vdc, IE=0, f=1 MHz)	-	-	1.5	pF
NF	Noise Figure (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 450 MHz)	-	1.5	-	dB

Functional

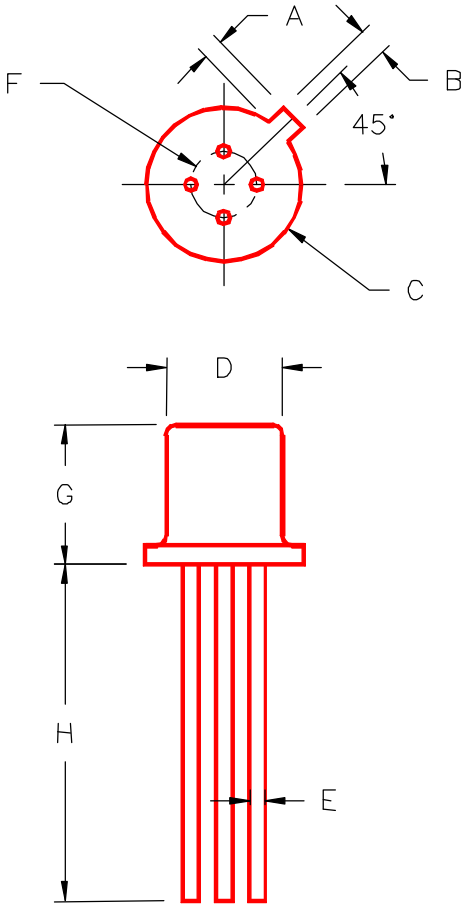
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
G_U max	Maximum Unilateral Gain (1) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 500 MHz) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 1 GHz)	- -	11 7	- -	dB
$S\|21\|^2$	Maximum Available Gain (1) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 500 MHz) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 1 GHz)	9.5 -	10.5 6.5	- -	dB
MAG	Maximum Available Gain (1) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 500 MHz) (IC = 5.0 mAdc, VCE = 6.0 Vdc, f = 1 GHz)	- -	11 7	- -	dB

(1) Maximum Unilateral Gain = $|S21|^2 / (1 - |S11|^2) (1 - |S22|^2)$

Table 1. Common Emitter S-Parameters, @ VCE = 5 V, IC = 6 mA

f	S11		S21		S12		S22	
(MHz)	|S11|	∠ϕ	|S21|	∠ϕ	|S12|	∠ϕ	|S22|	∠ϕ
100	.66	-37	10.5	131	.040	71	.781	-23
200	.41	-52	7.03	111	.065	71	.597	-27
300	.31	-54	5.33	98	.093	70	.551	-26
400	.26	-59	4.00	90	.111	69	.517	-30
500	.20	-61	3.38	87	.136	71	.467	-30
600	.18	-59	3.00	81	.162	68	.455	-32
700	.16	-60	2.69	75	.186	66	.438	-36
800	.16	-66	2.30	70	.200	63	.437	-42
900	.15	-74	2.16	71	.215	65	.409	-47
1000	.15	-76	2.16	63	.243	62	.413	-48

PACKAGE STYLE M244



TO-72

	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.020/0,51	.048/1,22			
B	.036/0,91	.046/1,17			
C	.209/5,31	.230/5,84			
D	.178/4,52	.195/4,95			
E	.016/0,41	.020/0,51			
F	.100/2,54				
G	.170/4,32	.210/5,33			
H	.500/12,70				