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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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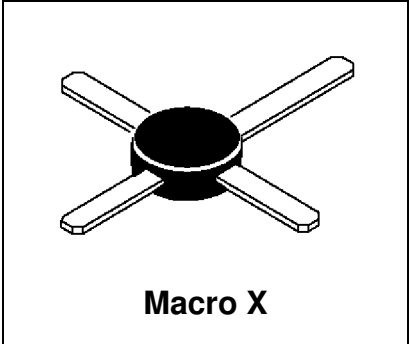
MRF559
MRF559G

* G Denotes RoHS Complaint, Pb Free Terminal Finish

**RF & MICROWAVE DISCRETE
LOW POWER TRANSISTORS**

Features

- Specified @ 12.5 V, 870 MHz Characteristics
- Output Power = .5 W
- Minimum Gain = 8.0 dB
- Efficiency 50%
- Cost Effective Macro X Package
- Electroless Tin Plated Leads for Improved Solderability



DESCRIPTION: Designed primarily for wideband large signal stages in the UHF frequency range.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V _{CEO}	Collector-Emitter Voltage	16	Vdc
V _{CBO}	Collector-Base Voltage	30	Vdc
V _{EBO}	Emitter-Base Voltage	3.0	Vdc
I _C	Collector Current	150	mA

Thermal Data

P _D	Total Device Dissipation @ TC = 75°C Derate above 75°C	2.0 20	Watts mW/°C
T _{stg}	Storage Temperature Range	-65 to +150	°C

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)
STATIC

(off)

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BVCEO	Collector-Emitter Breakdown Voltage (IC = 5.0 mAdc, IB = 0)	16	-	-	Vdc
BVCBO	Collector-Base Breakdown Voltage (IC = 0.1 mAdc, IB = 0)	30	-	-	Vdc
BVEBO	Emitter-Base Breakdown Voltage (IE = 0.1 mAdc, IC = 0)	3.0	-	-	Vdc
ICES	Collector Cutoff Current (VCE = 15 Vdc, VBE = 0 Vdc)	-	-	1.0	mA

(on)

HFE	DC Current Gain (IC = 50 mAdc, VCE = 10 Vdc)	30	-	200	-
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DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
COB	Output Capacitance (VCB = 12.5 Vdc, IE = 0, f = 1.0 MHz)	-	2.5	3.0	pF

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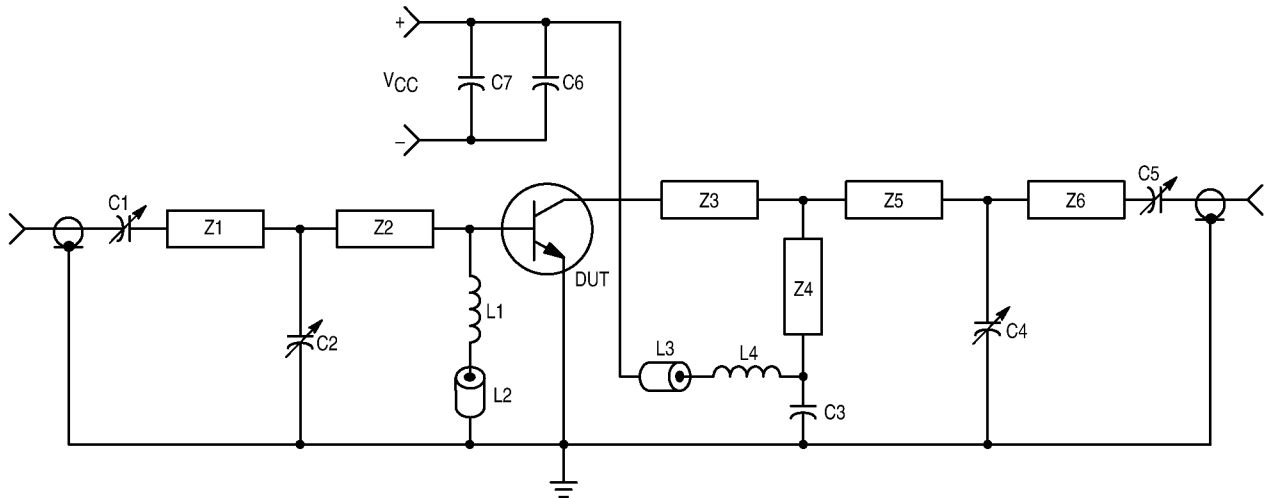
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FUNCTIONAL

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
G_{PE}	Power Gain	Test Circuit-Figure 1 Pout = 0.5 W, VCE =12.5Vdc f = 870 MHz	8.0	9.5	-	dB
		f = 512 MHz	-	13	-	
η	Collector Efficiency	Test Circuit-Figure 1 Pout = 0.5 W, VCE =12.5Vdc f = 870 MHz	50	65	-	%
		f = 512 MHz	-	60	-	

Typical Performance @ VCC = 7.5V

G_{PE}	Power Gain	Test Circuit-Figure 1 Pout = 0.5 W, VCE =7.5Vdc f = 870 MHz f = 512 MHz	- -	6.5 10	- -	dB
η	Collector Efficiency	Test Circuit-Figure 1 Pout = 0.5 W, VCE =7.5Vdc f = 870 MHz f = 512 MHz	- -	70 65	- -	%


Figure 2. 870 MHz Test Fixture

C1, C2, C4, C5 — 1.0–10 pF Johanson
 C7 — 1.0 μ F Tantalum
 L2, L3 — Ferrite Bead
 Z2 — 30 Ω 2.5 cm
 Z4 — 50 Ω 1.2 cm
 Microstrip Elements — $\epsilon_r = 2.55$

C3, C6 — 0.001 μ F Chip Capacitor
 L1, L4 — 4 Turns #26 AWG, 0.3 cm ID, 0.4 cm Long
 Z1 — 50 Ω 1.5 cm
 Z3 — 50 Ω 2.0 cm
 Z5, Z6 — 50 Ω 1.25 cm

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RF Low Power PA, LNA, and General Purpose Discrete Selector Guide

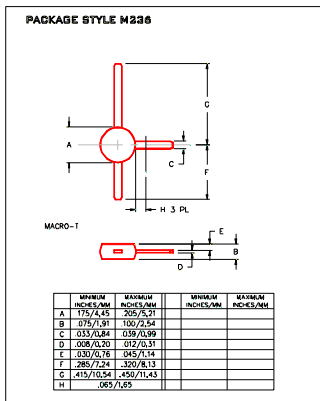
Package	Device	Type	GPE Freq (MHz)	Pout	GPE (dB)	Efficiency (%)	GPE VCC	BVCEO	IC max
SO-8	MRF4427, R2	NPN	175	0.15	18	60	12	20	400
TO-39	2N4427	NPN	175	1	10	50	12	20	400
POWER MACRO	MRF553	NPN	175	1.5	11.5	60	12.5	16	500
POWER MACRO	MRF553T	NPN	175	1.5	11.5	50	12.5	16	500
TO-39	MRF607	NPN	175	1.75	11.5	50	12.5	16	330
TO-39	2N6255	NPN	175	3	7.8	50	12.5	18	1000
TO-72	2N5179	NPN	200		20		6	12	50
MACRO X	MRF559	NPN	512	0.5	10	65	7.5	16	150
MACRO X	MRF559	NPN	512	0.5	13	60	12.5	16	150
TO-39	2N3866A	NPN	400	1	10	45	28	30	400
SO-8	MRF3866, R1, R2	NPN	400	1	10	45	28	30	400
POWER MACRO	MRF555	NPN	470	1.5	11	50	12.5	16	400
POWER MACRO	MRF555T	NPN	470	1.5	11	50	12.5	16	400
MACRO X	MRF559	NPN	870	0.5	6.5	70	7.5	16	150
MACRO X	MRF559	NPN	870	0.5	9.5	65	12.5	16	150
SO-8	MRF8372, R1, R2	NPN	870	0.75	8	55	12.5	16	200
POWER MACRO	MRF557	NPN	870	1.5	8	55	12.5	16	400
POWER MACRO	MRF557T	NPN	870	1.5	8	55	12.5	16	400

Package	Device	Type	Freq (MHz)	NF (dB)	NF IC (mA)	NF VCE	GN (dB)	Gu Max (dB)	Ftau (MHz)	Cob(pF)	BVCE	IC max (mA)
TO-39	2N5109	NPN	200	3	10	15		12	1200	3.5	20	400
TO-39	MRF5943C	NPN	200	3.4	30	15		11.4	1000		30	400
SO-8	MRF5943, R1, R2	NPN	200	3.4	30	15		15	1300		30	400
TO-72	2N5179	NPN	200	4.5	1.5	6		17	900	1	12	50
TO-72	2N2857	NPN	300	5.5	50	6		13	1600	1	15	40
TO-39	MRF517	NPN	300	7.5	50	15		5.5	4600	3	25	150
TO-72	MRF904	NPN	450	1.5	5	6		11	4000	1	15	30
TO-72	2N6304	NPN	450	5	2	5		14	1400	1	15	50
MACRO T	BFR91	NPN	500	1.9	2	5	11	16.5	5000	1	12	35
MACRO T	BFR96	NPN	500	2	10	10		14.5	500	2.6	15	100
SO-8	MRF5812, R1, R2	NPN	500	2	50	10	15.5	17.8	5000		15	200
MACRO X	MRF581A	NPN	500	2	50	10	14	15	5000		15	200
Macro	BFR90	NPN	500	2.4	2	10	15	18	5000	1	15	30
TO-72	BFY90	NPN	500	2.5	2	5		20	1300		15	50
TO-72	MRF914	NPN	500	2.5	5	10		15	4500		12	40
MACRO X	MRF581	NPN	500	2.5	50	10	15	17.8	5000		16	200
TO-39	MRF586	NPN	500	3	90	15	11	14.5	4500	2.2	17	200
MACRO X	MRF951	NPN	1000	1.3	5	6	14	17	8000	0.45	10	100
MACRO X	MRF571	NPN	1000	1.5	10	6	10		8000	1	10	75
MACRO T	BFR91	NPN	1000	2.5	2	5	8	11	5000	1	12	35
MACRO T	BFR90	NPN	1000	3	2	10	10	12.5	5000	1	15	30
TO-39	MRF545	PNP						14	1400	2	70	400
TO-39	MRF544	NPN						13.5	1500		70	400

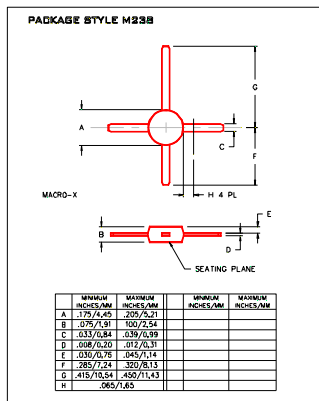
RF (Low Power PA / General Purpose) Selection

RF (LNA / General Purpose) Selection Guide

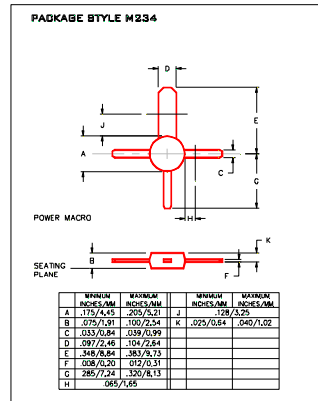
Low Cost RF Plastic Package Options



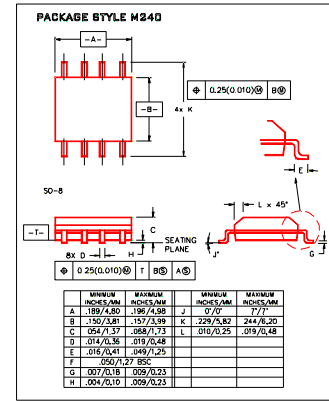
Macro T



Macro X



Power Macro

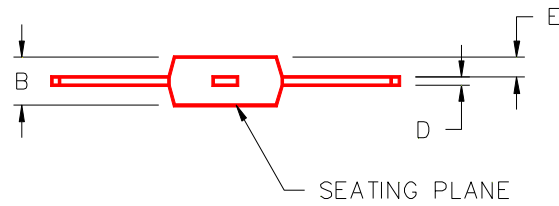
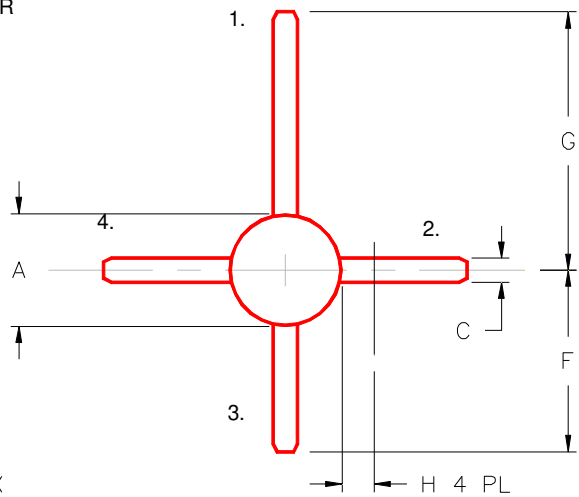


SO-8

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PACKAGE STYLE M238

- PIN 1. COLLECTOR
- 2. EMITTER
- 3. BASE
- 4. EMITTER



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.175/4,45	.205/5,21			
B	.075/1,91	.100/2,54			
C	.033/0,84	.039/0,99			
D	.008/0,20	.012/0,31			
E	.030/0,76	.045/1,14			
F	.285/7,24	.320/8,13			
G	.415/10,54	.450/11,43			
H	.065/1,65				