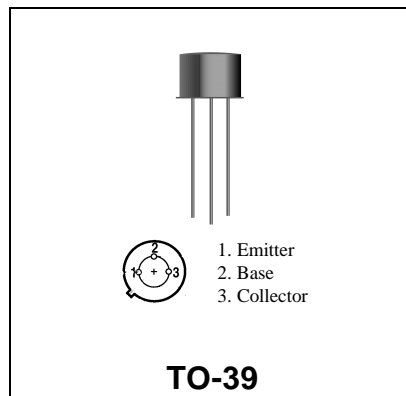


**RF & MICROWAVE DISCRETE
 LOW POWER TRANSISTORS**

Features

- Silicon NPN, To-39 packaged VHF/UHF Transistor
- Specified 400 MHz, 28Vdc Characteristics
 - Output Power = 1.0 Watt
 - Minimum Gain = 10 dB
 - Efficiency = 45%
- 800 MHz Current-Gain Bandwidth Product



DESCRIPTION:

Silicon NPN transistor, designed for VHF and UHF equipment. Applications include amplifier; pre-driver, driver, and output stages. Also suitable for oscillator and frequency-multiplier functions.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V _{CEO}	Collector-Emitter	30	Vdc
V _{CBO}	Collector-Base Voltage	55	Vdc
V _{EBO}	Emitter-Base Voltage	3.5	Vdc
I _c	Collector Current	400	mA

Thermal Data

P _D	Total Device Dissipation	5.0	Watts
	Derate above 25°C	28.6	mW/ °C

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

(off)

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BVCER	Collector-Emitter Breakdown Voltage (IC = 5.0 mA _{dc} , RBE = 10 ohms)	55	-	-	V _{dc}
BVCEO	Collector-Emitter Sustaining Voltage (IC=5.0 mA _{dc} , IB=0)	30	-	-	V _{dc}
BVCBO	Collector-Base Breakdown Voltage (IE = 0, IC = 0.1 mA _{dc})	55	-	-	V _{dc}
BVEBO	Emitter-Base Breakdown Voltage (IE = 0.1 mA _{dc} , IC = 0)	3.5	-	-	V _{dc}
ICEO	Collector Cutoff Current (VCE = 28 V _{dc} , IB = 0)	-	-	20	μA
ICEX	Collector Cutoff Current (VCE = 55 V _{dc} , VBE = 1.5 V _{dc})	-	-	100	μA

(on)

HFE	DC Current Gain (IC = 360 mA _{dc} , VCE = 5.0 V _{dc}) Both (IC = 50 mA _{dc} , VCE = 5.0 V _{dc}) 2N3866 (IC = 50 mA _{dc} , VCE = 5.0 V _{dc}) 2N3866A	5.0	-	-	-
		10	-	200	-
		25	-	200	-
VCE(sat)	Collector-Emitter Saturation Voltage (IC = 100 mA _{dc} , IB = 20 mA _{dc})	-	-	1.0	V _{dc}

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
f _T	Current-Gain - Bandwidth Product (IC = 50 mA _{dc} , VCE = 15 V _{dc} , f = 200 MHz)	2N3866 500	800	-	MHz
		2N3866A 800	-	-	
COB	Output Capacitance (VCB = 30 V _{dc} , IE = 0, f = 1.0 MHz)	-	2.8	3.5	pF

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 (mA)
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	GNF (dB)	Gu Max (dB)	F1au (MHz)	Ccb (pF)	BVCEO	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	BFR90	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	70
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

PACKAGE STYLE M236

	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL
A	176/4.45	206/5.21		
B	057/1.91	107/2.74		
C	033/0.84	039/0.99		
D	008/0.20	012/0.31		
E	035/0.76	046/1.14		
F	285/7.24	320/8.13		
G	415/10.54	450/11.43		
H	365/9.25			

PACKAGE STYLE M238

	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL
A	176/4.45	206/5.21		
B	076/1.91	107/2.74		
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	365/9.25			

PACKAGE STYLE M234

	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	
A	175/4.45	205/5.21	J	129/3.25	
B	075/1.91	107/2.74	K	025/0.64	040/1.02
C	033/0.84	039/0.99			
D	007/2.46	004/2.64			
E	248/6.84	303/7.53			
F	008/0.20	012/0.31			
G	285/7.24	320/8.13			
H	365/9.25				

PACKAGE STYLE M240

	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	MINIMUM HEIGHT/ANL	MAXIMUM HEIGHT/ANL	
A	186/4.80	186/4.80	J	070/1.77	
B	150/3.81	157/3.98	K	026/0.62	044/6.23
C	064/1.57	068/7.73	L	050/0.26	019/0.48
D	014/0.36	019/0.48			
E	016/0.41	049/1.25			
F	050/7.27	BSC			
G	007/0.18	009/0.23			
H	004/0.10	009/0.23			

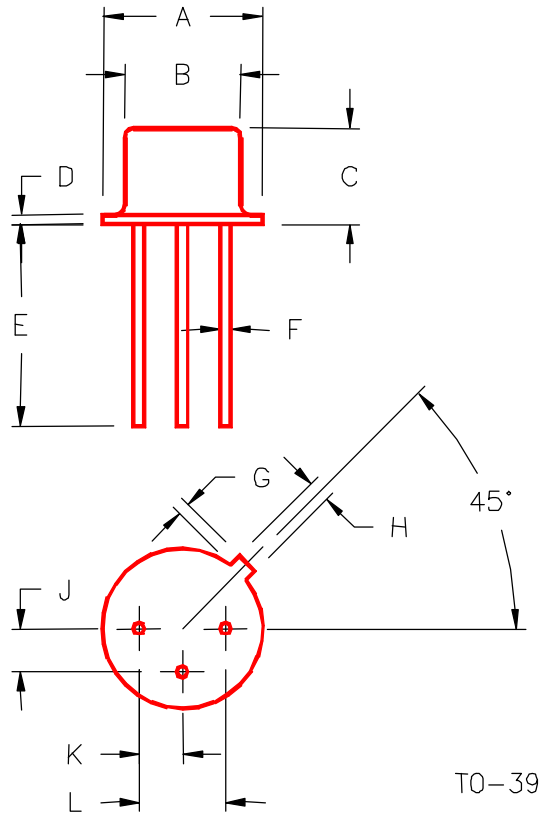
Macro T

Macro X

Power

SO-8

PACKAGE STYLE M246



TO-39

	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.350/8,89	.370/9,40	J	.095/2,41	.105/2,67
B	.315/8,00	.335/8,51	K	.095/2,41	.105/2,67
C	.240/6,10	.260/6,60	L	.190/4,83	.210/5,33
D	.015/0,38	.045/1,14			
E	.500/12,70				
F	.016/0,41	.019/0,48			
G	.029/0,74	.040/1,02			
H	.028/0,71	.034/0,86			