

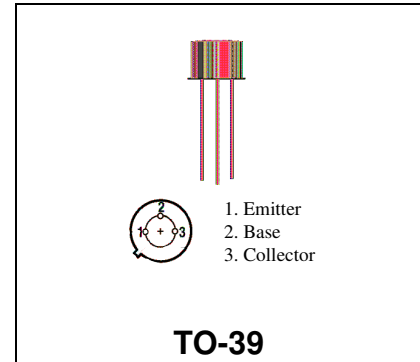


# THE DATASHEET OF MRF586



**RF & MICROWAVE DISCRETE  
LOW POWER TRANSISTORS**
**Features**

- Silicon NPN, TO-39 packaged VHF/UHF Transistor
- $f_t = 3.0 \text{ GHz (typ) @ 300MHz, 14v, 90mA,}$
- $G_{U \text{ max}} = 12.5\text{dB (typ) @ 300 MHz, 15v, 40mA}$
- $|S_{21}|^2 = 12.5\text{dB (typ) @ 300 MHz, 15v, 40mA}$


**DESCRIPTION:**

The MRF586 is a silicon NPN transistor, designed for VHF and UHF equipment. Applications include amplifier, pre-driver, driver, and output stages. It is also suitable for oscillator and frequency-multiplier functions.

**ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)**

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector-Emitter	17	V
$V_{CBO}$	Collector-Base Voltage	35	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$P_D$	Total Device Dissipation	1.0	W
$I_C$	Collector Current	200	mA

**Thermal Data**

$P_D$	Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	1.0 5.71	Watts mW/°C
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**ELECTRICAL SPECIFICATIONS**

**STATIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CEO}$	$I_C = 5.0 \text{ mA}$	17	-	-	V
$BV_{EBO}$	$I_E = 0.1 \text{ mA}$	3.0	-	-	V
$BV_{CBO}$	$I_C = 1.0 \text{ mA}$	30	-	-	V
$I_{CBO}$	$V_{CB} = 10 \text{ V}$	-	50	-	$\mu\text{A}$
HFE	$V_{CE} = 5.0 \text{ V}$ $I_C = 50 \text{ mA}$	40	-	200	-

**DYNAMIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$f_T$	$f = 300 \text{ MHz}$ $I_C = 90 \text{ mA}$ $V_{CE} = 14 \text{ V}$	-	3.0	-	GHz
$C_{OB}$	$f = 1.0 \text{ MHz}$ $V_{CB} = 10 \text{ V}$		3.0		pf

**FUNCTIONAL**

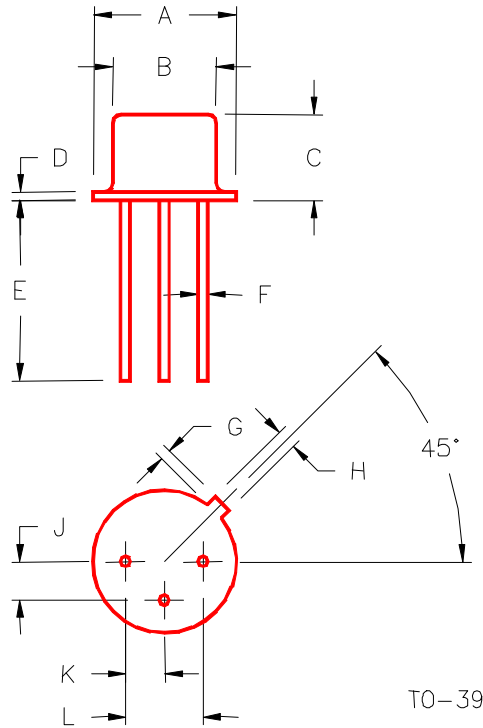
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$G_{U \text{ max}}$	Maximum Unilateral Gain (1)	$I_C = 40 \text{ mA}, V_{CE} = 15 \text{ V}, f = 300 \text{ MHz}$	-	12.5	-	dB
MAG	Maximum Available Gain	$I_C = 40 \text{ mA}, V_{CE} = 15 \text{ V}, f = 300 \text{ MHz}$	-	13.5	-	dB
$ S_{21} ^2$	Insertion Gain	$I_C = 40 \text{ mA}, V_{CE} = 15 \text{ V}, f = 300 \text{ MHz}$	10	11.5	-	dB

**Table 1. Common Emitter S-Parameters, @ VCE = 15 V, IC = 40 mA**

f (MHz)	S11		S21		S12		S22	
	S11	$\angle \phi$	S21	$\angle \phi$	S12	$\angle \phi$	S22	$\angle \phi$
100	.096	107	10.28	103	.053	84	.479	-40
200	.129	114	5.58	89	.104	83	.361	-49
300	.165	108	3.94	79	.160	76	.356	-56
400	.185	115	3.04	71	.192	74	.388	-71
500	.237	115	2.64	67	.246	75	.384	-79
600	.247	112	2.42	60	.288	71	.408	-82
700	.247	113	2.26	54	.326	69	.417	-84
800	.238	118	2.06	48	.334	67	.432	-87
900	.260	119	1.97	47	.369	71	.420	-91
1000	.246	116	2.06	43	.405	67	.444	-92

**MRF586**

PACKAGE STYLE M246



	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			

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