



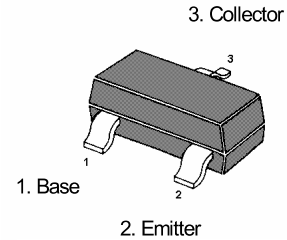
## MMBTSC4226 W NPN Silicon Epitaxial Planar Transistor

High Frequency Low Noise Amplifier.

The transistor is subdivided into three groups, Q, R and S, according to its DC current gain.

### Features:

- NF=1.2dB TYP. @ f=1GHz,  $V_{CE}=3V$ ,  $I_C=7mA$
- High Gain  
 $|S_{21e}|^2=9.0dB$  TYP. @ f=1GHz,  $V_{CE}=3V$ ,  $I_C=7mA$



SOT-323 Plastic Package

### Description:

The MMBTSC4226 is a low supply voltage transistor designed for VHF, UHF low noise amplifier.

### Absolute Maximum Ratings ( $T_a = 25^\circ C$ )

	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	20	V
Collector Emitter Voltage	$V_{CEO}$	12	V
Emitter Base Voltage	$V_{EBO}$	3	V
Collector Current	$I_C$	100	mA
Total Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_s$	-65 to +150	$^\circ C$



### Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE}=3\text{V}$ , $I_C=7\text{mA}$					
Current Gain Group Q	$h_{FE}$	50	-	100	-
R	$h_{FE}$	80	-	160	-
S	$h_{FE}$	125	-	250	-
Collector Cutoff Current at $V_{CB}=10\text{V}$	$I_{CBO}$	-	-	1.0	$\mu\text{A}$
Emitter Cutoff Current at $V_{EB}=1\text{V}$	$I_{EBO}$	-	-	1.0	$\mu\text{A}$
Gain Bandwidth Product at $V_{CE}=3\text{V}$ , $I_C=7\text{mA}$	$f_T$	3.0	4.5	-	GHz
Feed back Capacitance <sup>1)</sup> at $V_{CE}=3\text{V}$ , $f=1\text{MHz}$	$C_{re}$	-	0.7	1.5	pF
Insertion Power Gain at $V_{CE}=3\text{V}$ , $I_C=7\text{mA}$ , $f=1\text{GHz}$	$ S_{21e} ^2$	7	9	-	dB
Noise Figure at $V_{CE}=3\text{V}$ , $I_C=7\text{mA}$ , $f=1\text{GHz}$	NF	-	1.2	2.5	dB

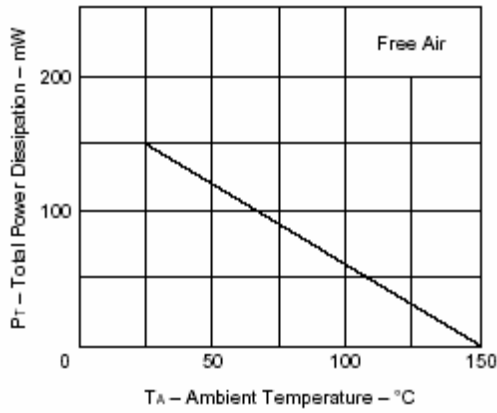
<sup>1)</sup> Measured with 3 terminal bridge, Emitter and case should be grounded.

### Classification of $h_{FE}$

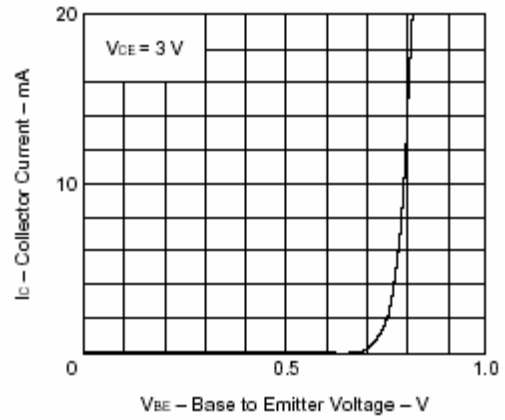
RANK	Q	R	S
MARKING	R23	R24	R25
$h_{FE}$	50 ~100	80 ~160	125 ~250



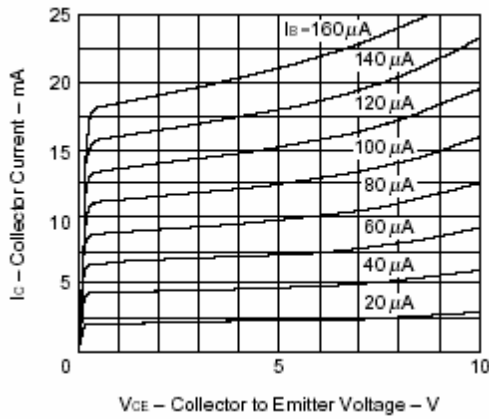
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



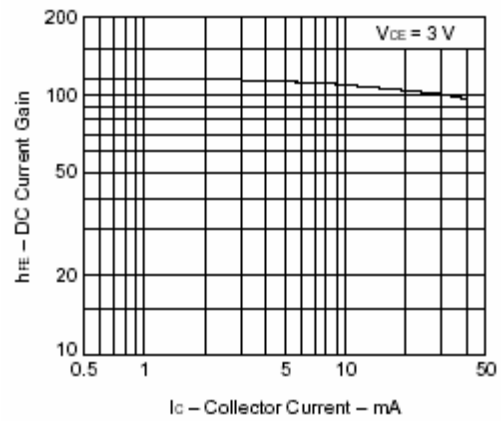
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



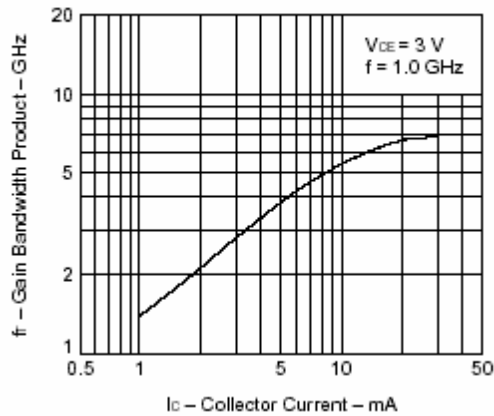
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



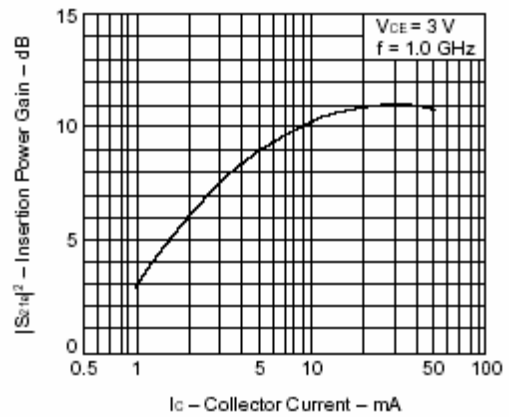
DC CURRENT GAIN vs. COLLECTOR CURRENT

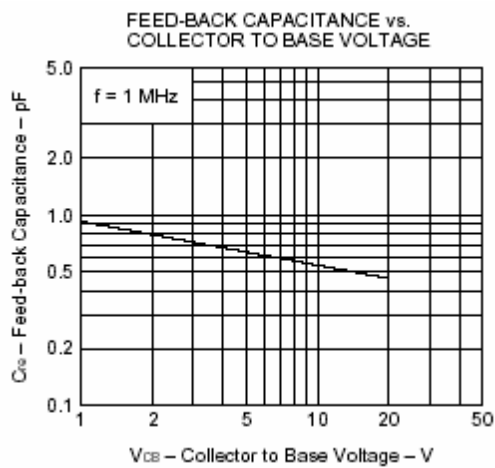
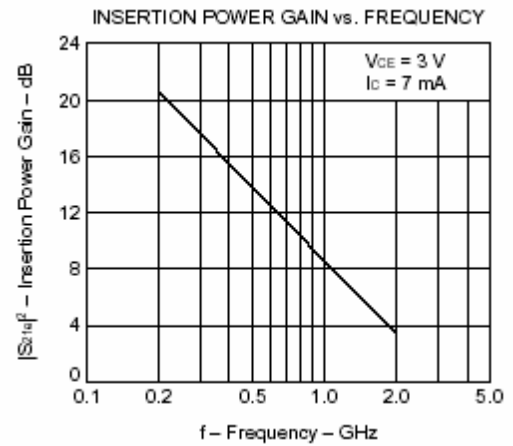
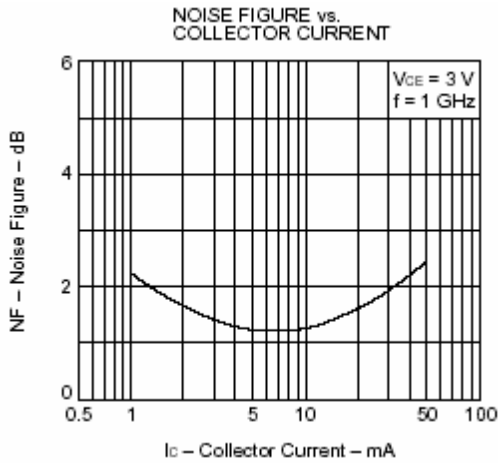


GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



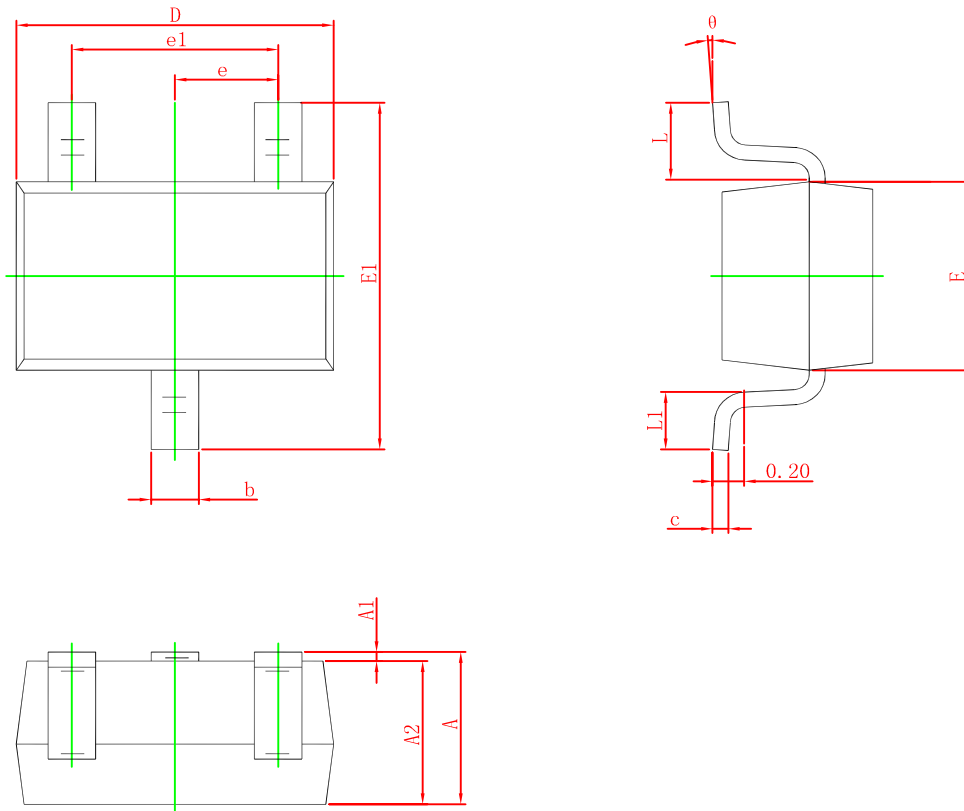
INSERTION POWER GAIN vs. COLLECTOR CURRENT







## SOT-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°