

## 2SC380 NPN Silicon Epitaxial Planar Transistor

High frequency amplifier application  
for FM IF, OSC stage and AM CONV. IF stage

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



1. Emitter 2. Collector 3. Base  
TO-92 Plastic Package  
Weight approx. 0.19g

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	35	V
Collector Emitter Voltage	$V_{CEO}$	30	V
Emitter Base Voltage	$V_{EBO}$	4	V
Collector Current	$I_C$	50	mA
Emitter Current	$-I_E$	50	mA
Power Dissipation	$P_{tot}$	300	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 12\text{ V}$ , $I_C = 2\text{ mA}$ Current Gain Group	R	$h_{FE}$	40	-	80	-
	O	$h_{FE}$	70	-	140	-
	Y	$h_{FE}$	120	-	240	-
Collector Cutoff Current at $V_{CB} = 35\text{ V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	
Emitter Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$	$V_{CE(sat)}$	-	-	0.4	V	
Base Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$	$V_{BE(sat)}$	-	-	1	V	
Transition Frequency at $V_{CE} = 10\text{ V}$ , $I_C = 1\text{ mA}$	$f_T$	100	-	400	MHz	
Collector Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	1.4	2	3.2	pF	
Collector Base Time Constant at $V_{CE} = 10\text{ V}$ , $-I_E = 1\text{ mA}$ , $f = 30\text{ MHz}$	$C_c, \tau_{bb'}$	10	-	50	ps	
Power Gain at $V_{CC} = 6\text{ V}$ , $f = 10.7\text{ MHz}$ , $-I_E = 1\text{ mA}$	$G_{pe}$	27	29	33	dB	

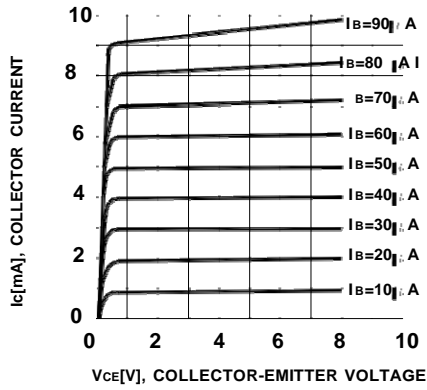


Figure 1. Static Characteristic

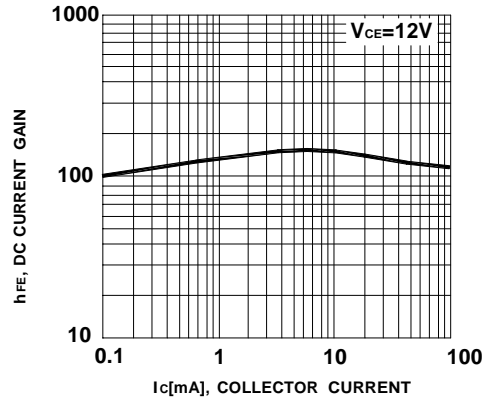


Figure 2. DC Current Gain

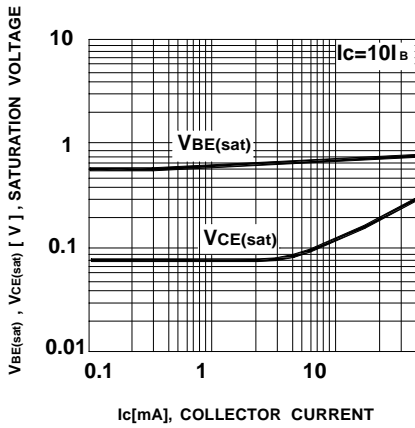


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

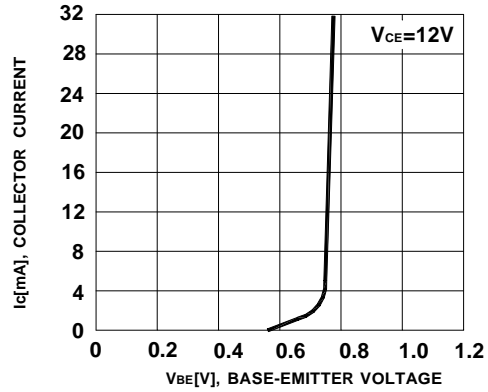


Figure 4. Base-Emitter On Voltage

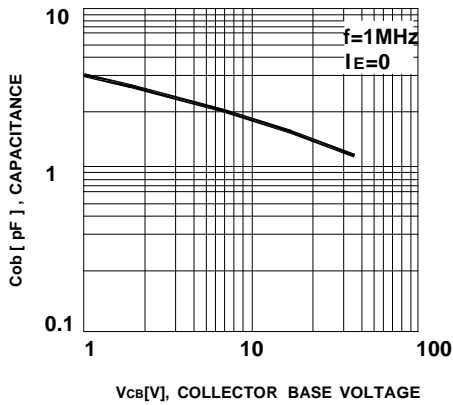


Figure 5. Collector Output Capacitance

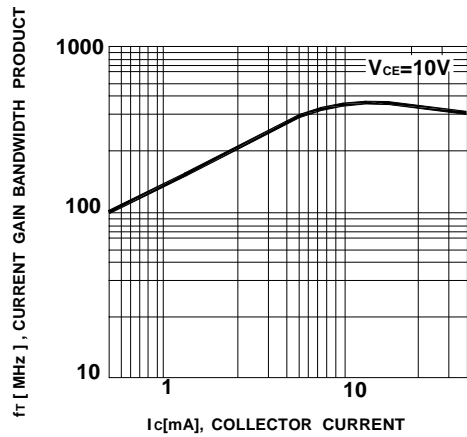


Figure 6. Current Gain Bandwidth Product