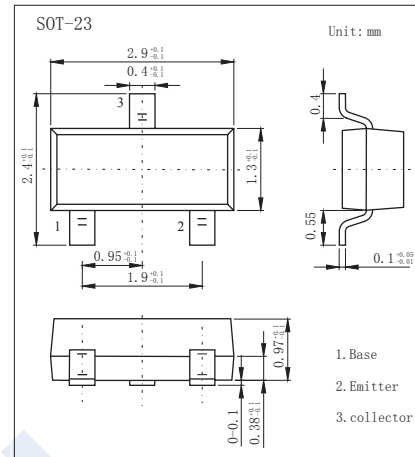


## NPN Transistors

### 2SC3585

#### ■ Features

- Collector Current Capability  $I_C=35\text{mA}$
- Collector Emitter Voltage  $V_{CE0}=10\text{V}$



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	20	V
Collector - Emitter Voltage	$V_{CEO}$	10	
Emitter - Base Voltage	$V_{EBO}$	1.5	
Collector Current - Continuous	$I_C$	35	mA
Collector Power Dissipation	$P_C$	200	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to 150	

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = 100\ \mu\text{A}$ , $I_E = 0$	20			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 1\ \text{mA}$ , $I_B = 0$	10			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100\ \mu\text{A}$ , $I_C = 0$	1.5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 10\text{V}$ , $I_E = 0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 1\text{V}$ , $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 35\ \text{mA}$ , $I_B = 3.5\ \text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 35\ \text{mA}$ , $I_B = 3.5\ \text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 6\text{V}$ , $I_C = 10\ \text{mA}$	50		250	
Insertion Power Gain	$ S_{21e} ^2$	$V_{CE} = 6\text{V}$ , $I_C = 20\ \text{mA}$ , $f = 2\text{GHz}$	6			dB
Maximum Available Gain	MAG	$V_{CE} = 6\text{V}$ , $I_C = 20\ \text{mA}$ , $f = 2\text{GHz}$		10		
Noise Figure	NF	$V_{CE} = 6\text{V}$ , $I_C = 5\ \text{mA}$ , $f = 2\text{GHz}$			3	
Reverse transfer capacitance	$C_{re}$	$V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$			0.9	pF
Transition frequency	$f_T$	$V_{CE} = 6\text{V}$ , $I_C = 10\ \text{mA}$		10		GHz

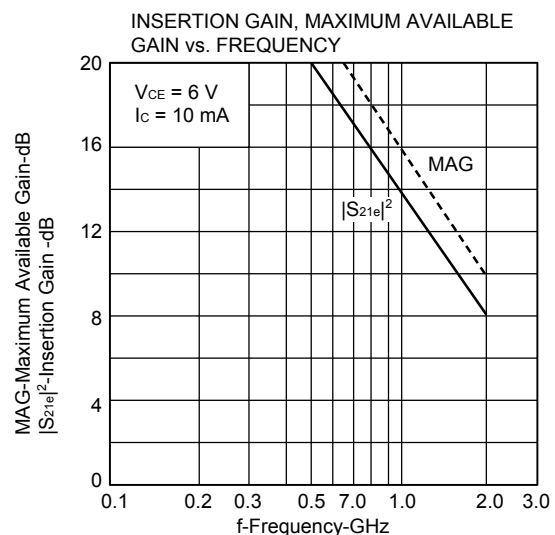
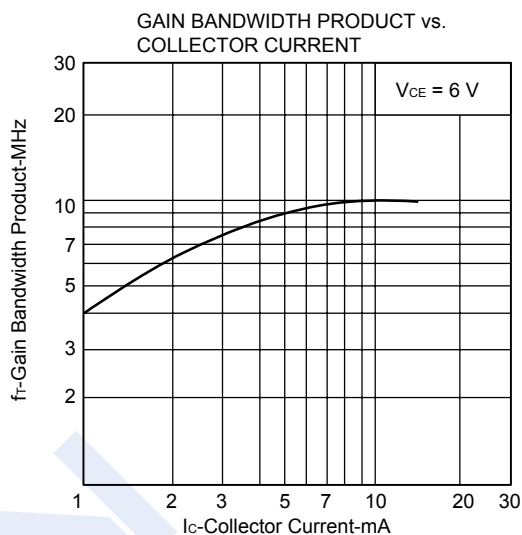
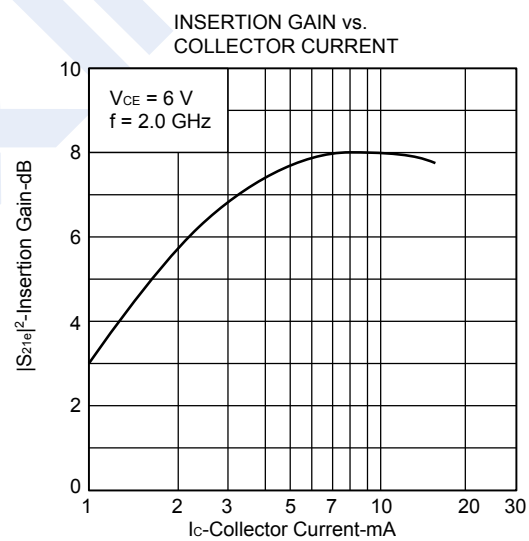
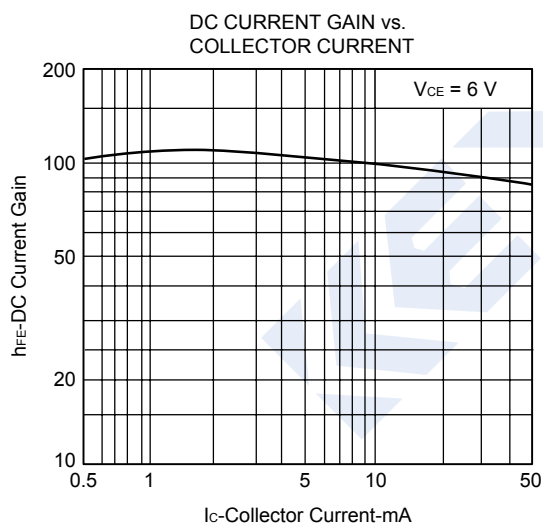
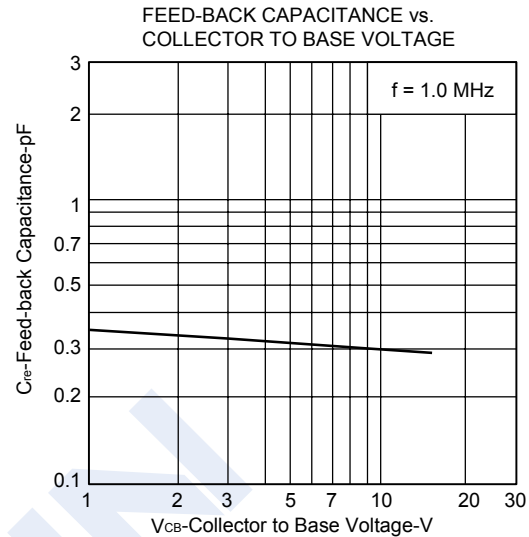
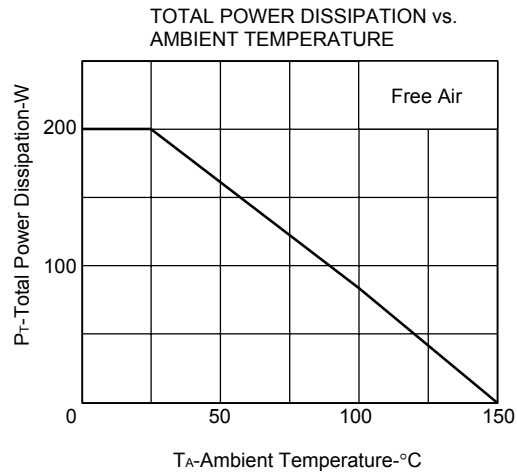
#### ■ Classification of $h_{FE}$

Type	2SC3585-R43	2SC3585-R44	2SC3585-R45
Range	50-100	80-160	125-250
Marking	R43	R44	R45

## NPN Transistors

## 2SC3585

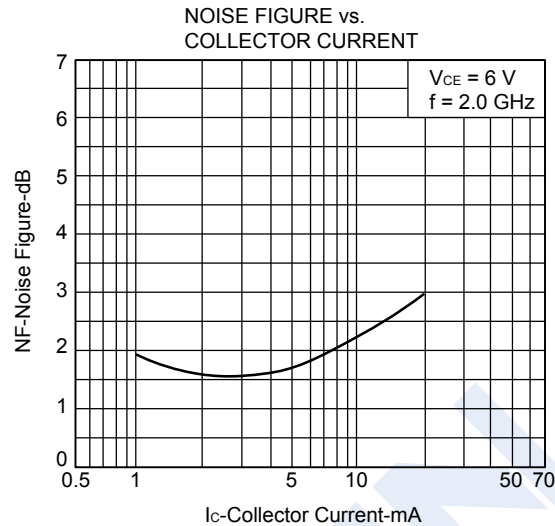
## ■ Typical Characteristics



## NPN Transistors

## 2SC3585

## ■ Typical Characteristics



## S-PARAMETER

$V_{CE} = 6.0\text{ V}$ ,  $I_c = 3.0\text{ mA}$ ,  $Z_0 = 50\ \Omega$

f (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.858	-23.1	8.499	153.3	0.030	46.5	0.905	-13.5
400	0.724	-40.6	6.923	131.6	0.060	58.7	0.826	-21.2
600	0.580	-51.1	5.951	118.4	0.080	60.3	0.749	-27.0
800	0.457	-58.9	4.615	104.9	0.099	60.2	0.666	-28.6
1000	0.362	-65.6	4.134	98.0	0.106	61.2	0.614	-30.1
1200	0.304	-73.1	3.412	88.9	0.129	61.1	0.574	-30.0
1400	0.232	-82.2	3.180	82.0	0.148	60.1	0.542	-31.7
1600	0.179	-84.9	2.763	75.7	0.154	59.5	0.514	-35.2
1800	0.147	-88.2	2.726	70.5	0.188	58.7	0.483	-40.1
2000	0.108	-104.1	2.378	64.9	0.197	56.8	0.455	-42.6

$V_{CE} = 6.0\text{ V}$ ,  $I_c = 10.0\text{ mA}$ ,  $Z_0 = 50\ \Omega$

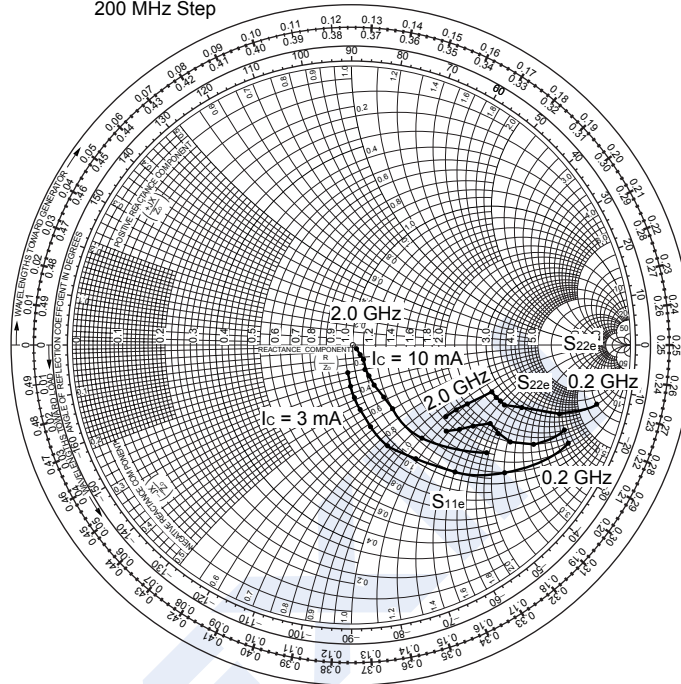
f (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.613	-37.0	16.141	133.9	0.021	52.5	0.781	-19.4
400	0.406	-53.6	10.096	111.5	0.053	70.6	0.651	-22.4
600	0.285	-56.0	7.640	101.4	0.064	73.0	0.590	-24.0
800	0.214	-57.6	5.564	90.7	0.089	71.7	0.548	-22.8
1000	0.156	-58.1	4.787	86.0	0.095	70.6	0.526	-23.3
1200	0.130	-54.2	3.876	79.3	0.119	70.3	0.506	-22.1
1400	0.105	-56.5	3.573	74.0	0.141	68.3	0.489	-24.8
1600	0.065	-55.0	3.058	69.4	0.158	68.9	0.470	-27.9
1800	0.042	-48.9	2.997	65.3	0.178	66.5	0.439	-31.4
2000	0.018	-65.6	2.590	60.7	0.202	66.2	0.426	-36.5

# NPN Transistors

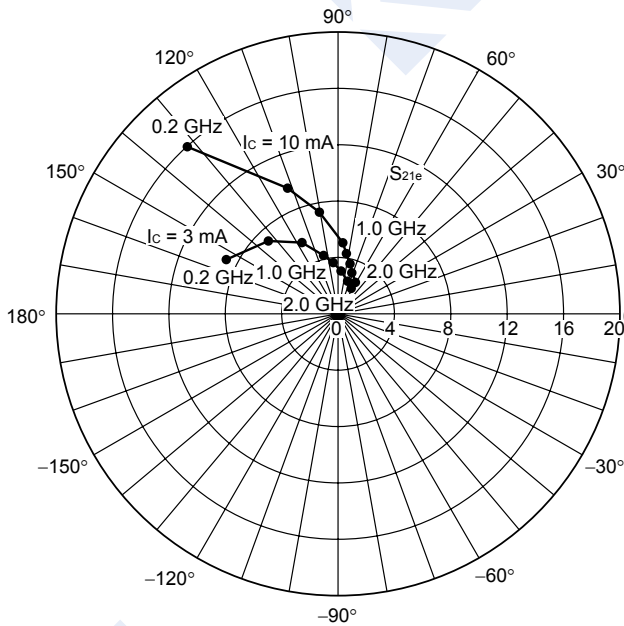
## 2SC3585

### Typical Characteristics

$S_{11e}, S_{22e}$ -FREQUENCY CONDITION  $V_{CE} = 6\text{ V}$   
200 MHz Step



$S_{21e}$ -FREQUENCY CONDITION  $V_{CE} = 6\text{ V}$



$S_{12e}$ -FREQUENCY CONDITION  $V_{CE} = 6\text{ V}$

