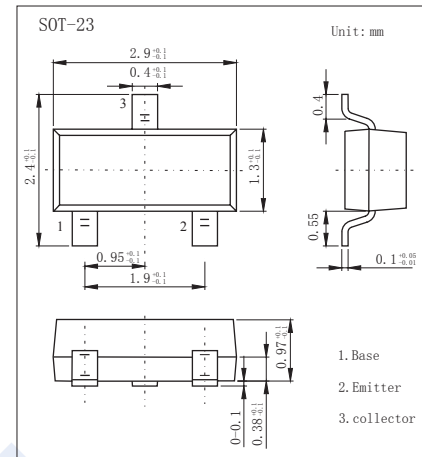


## NPN Transistors

## 2SC3099

## ■ Features

- Collector Current Capability  $I_C=30\text{mA}$
- Collector Emitter Voltage  $V_{CE0}=20\text{V}$

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	20	V
Collector - Emitter Voltage	$V_{CE0}$	20	
Emitter - Base Voltage	$V_{EB0}$	3	
Collector Current - Continuous	$I_C$	30	mA
Base Current	$I_B$	15	
Collector Power Dissipation	$P_C$	150	mW
Junction Temperature	$T_J$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 125	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu\text{A}$ , $I_E = 0$	20			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_C = 1\text{mA}$ , $I_B = 0$	20			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}$ , $I_C = 0$	3			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 20\text{V}$ , $I_E = 0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 2\text{V}$ , $I_C = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 30\text{mA}$ , $I_B = 3\text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 30\text{mA}$ , $I_B = 3\text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 10\text{V}$ , $I_C = 5\text{mA}$	30		250	
Insertion Gain	$ S_{21e} ^2$	$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$ , $f = 500\text{MHz}$		15		dB
		$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$ , $f = 1\text{GHz}$		9.5		
Noise figure	NF	$V_{CE} = 10\text{V}$ , $I_C = 3\text{mA}$ , $f = 500\text{MHz}$		1.7		
		$V_{CE} = 10\text{V}$ , $I_C = 3\text{mA}$ , $f = 1\text{GHz}$		2.5		
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$		0.9		pF
Reverse transfer capacitance	$C_{re}$			0.6		
Transition frequency	$f_T$	$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$		4		GHz

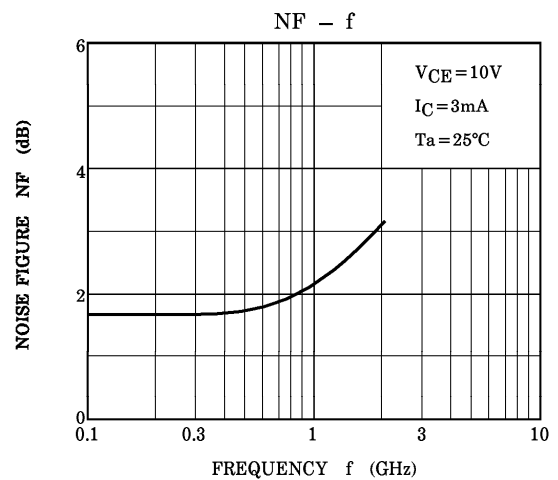
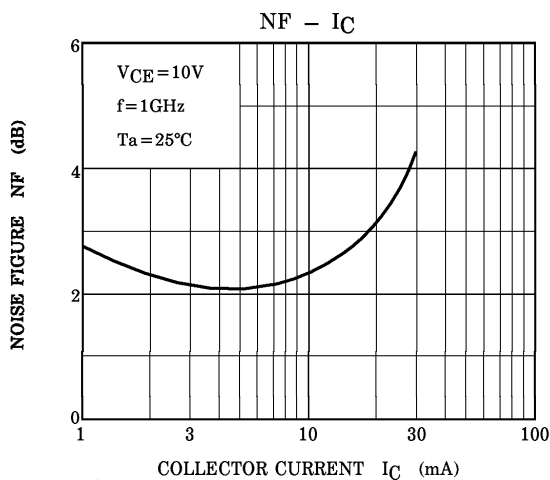
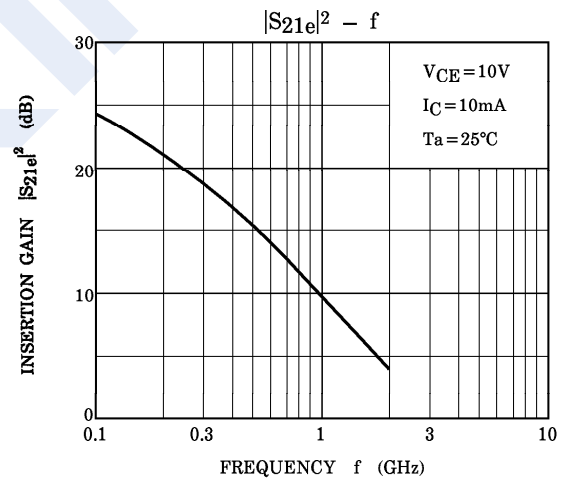
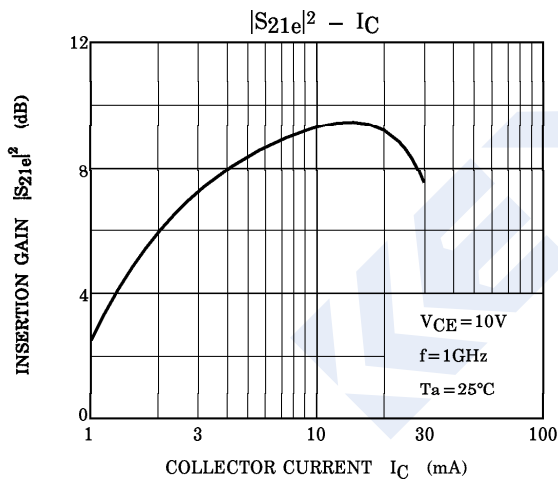
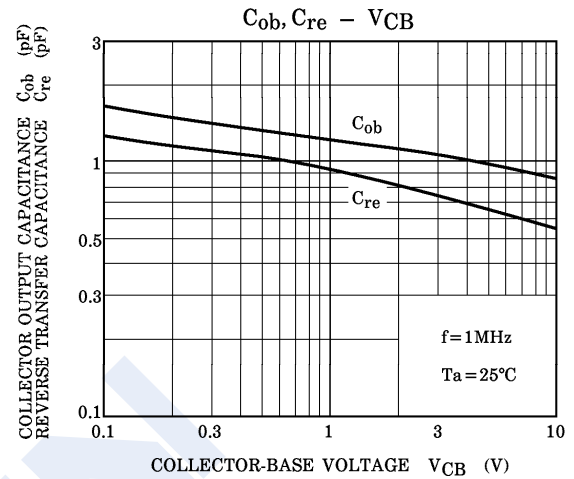
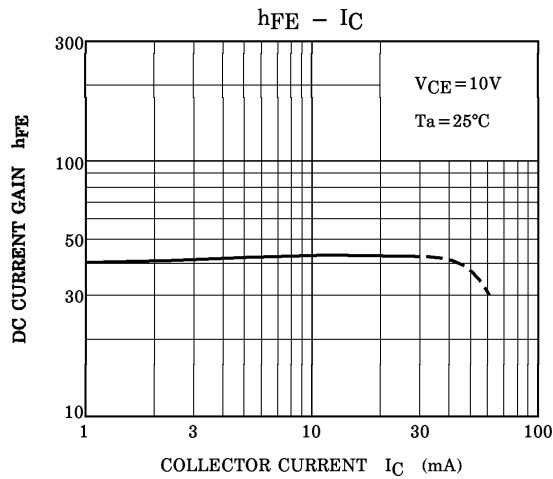
## ■ Marking

Marking	MC
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## NPN Transistors

## 2SC3099

## ■ Typical Characteristics

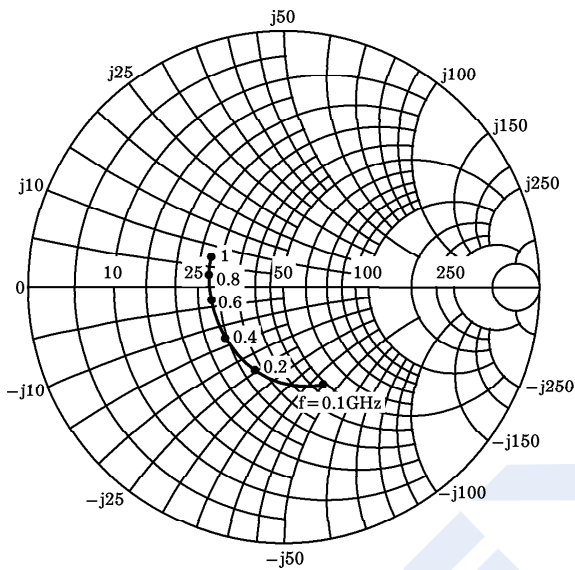


### NPN Transistors

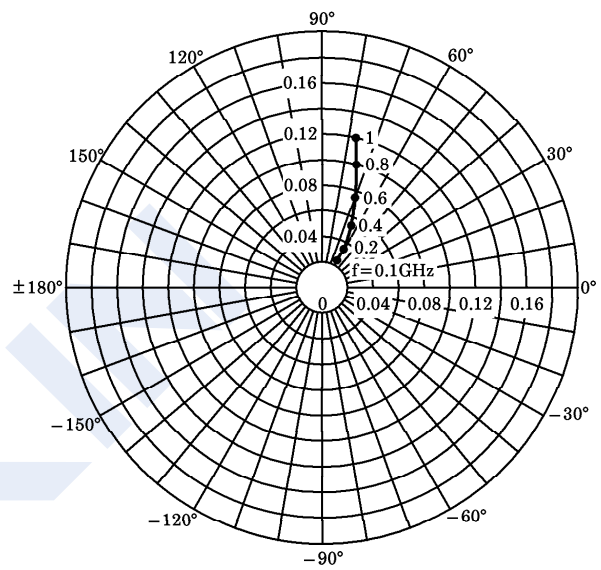
### 2SC3099

■ Typical Characteristics

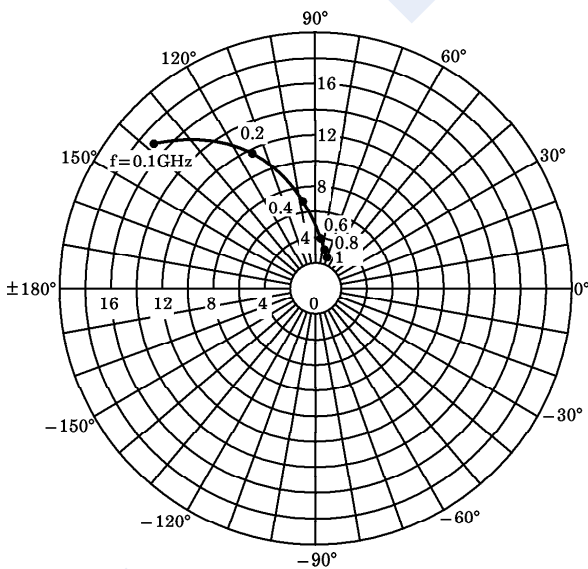
S<sub>11e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 10mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)



S<sub>12e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 10mA  
 T<sub>a</sub> = 25°C



S<sub>21e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 10mA  
 T<sub>a</sub> = 25°C



S<sub>22e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 10mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)

