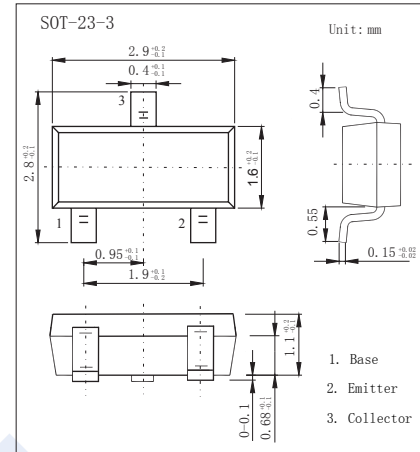


## NPN Transistors

### 2SC2996

#### ■ Features

- Collector Current Capability  $I_c=50\text{mA}$
- Collector Emitter Voltage  $V_{CE0}=30\text{V}$



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	40	V
Collector - Emitter Voltage	$V_{CE0}$	30	
Emitter - Base Voltage	$V_{EB0}$	4	
Collector Current - Continuous	$I_c$	50	mA
Emitter Current	$I_E$	-50	
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	$V_{CB0}$	$I_c = 100 \mu\text{A}, I_E = 0$	40			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_c = 1\text{mA}, I_B = 0$	30			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}, I_c = 0$	4			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 40\text{V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 4\text{V}, I_c = 0$			0.5	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 50\text{mA}, I_B = 5\text{mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 50\text{mA}, I_B = 5\text{mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 6\text{V}, I_c = 1\text{mA}$	40		240	
Collector-base time constant	$C_{c\text{ rbb'}}$	$V_{CE} = 6\text{V}, I_E = -1\text{mA}, f = 30\text{MHz}$			30	ps
Noise figure	NF	$V_{CE} = 6\text{V}, I_E = -1\text{mA}, f = 100\text{MHz}$		4		dB
Power gain	PG			15		
Oscillation output voltage	$V_{OSC}$	$V_{CE} = 6\text{V}, f = 100\text{MHz}$		150		mV
Common emitter reverse transfer capacitance	$C_{re}$	$V_{CE} = 6\text{V}, f = 1\text{MHz}$			1.3	pF
Transition frequency	$f_T$	$V_{CE} = 6\text{V}, I_E = -1\text{mA}$	150			MHz

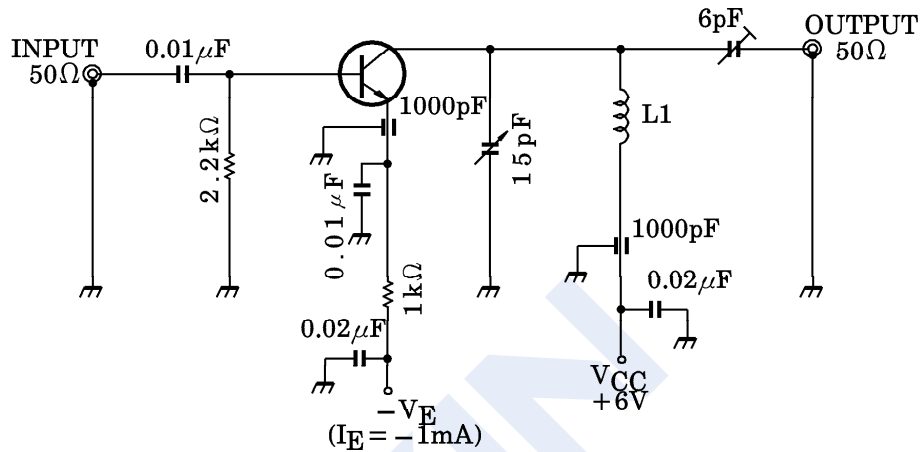
#### ■ Classification of $h_{FE}$

Type	2SC2996-R	2SC2996-O	2SC2996-Y
Range	40-80	70-140	120-240
Marking	GR	GO	GY

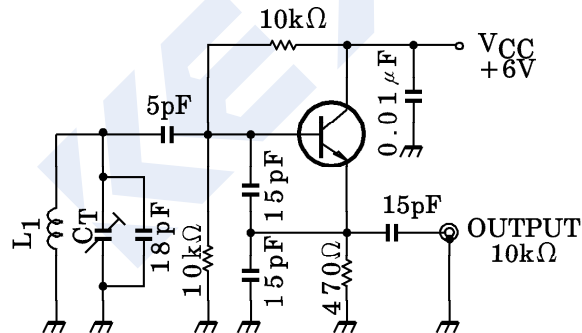
## NPN Transistors

## 2SC2996

## ■ Typical Characteristics

Fig.1 NF,  $G_{pe}$  TEST CIRCUIT

L<sub>1</sub> : 0.8mmφ SILVER PLATED COPPER WIRE, 4T, 10ID, 8 LENGTH

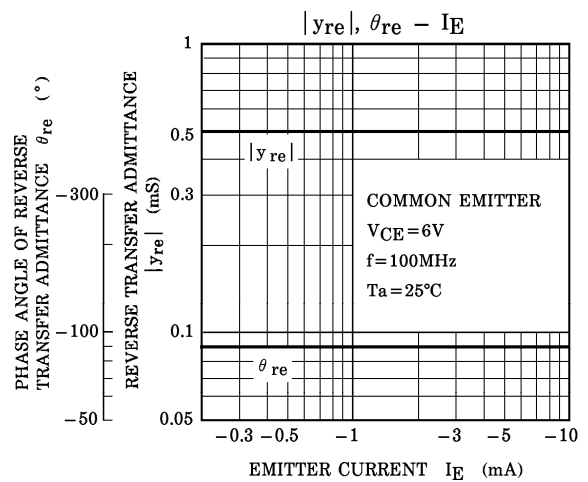
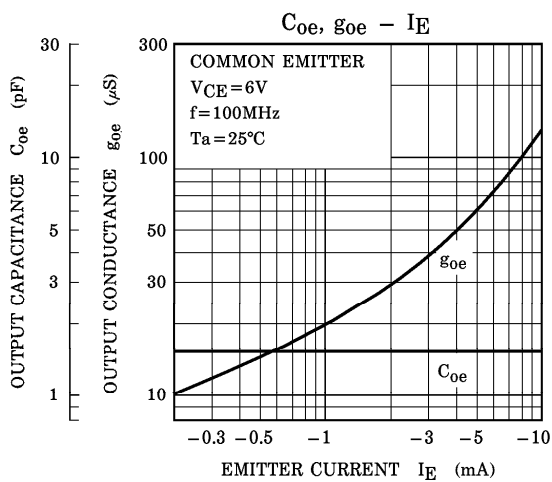
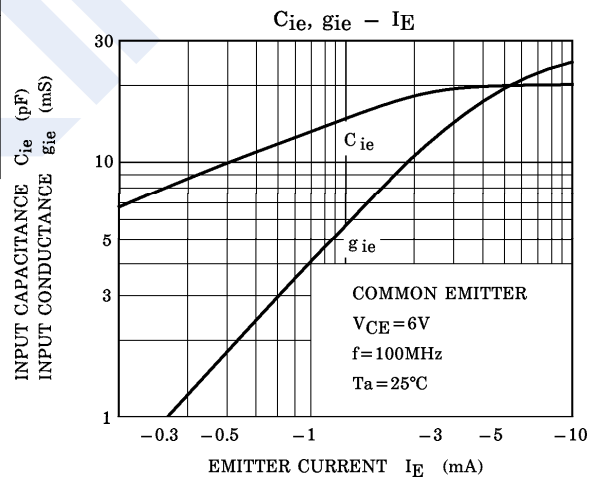
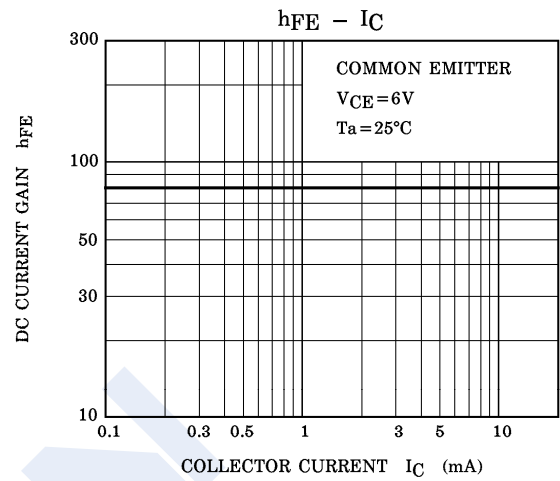
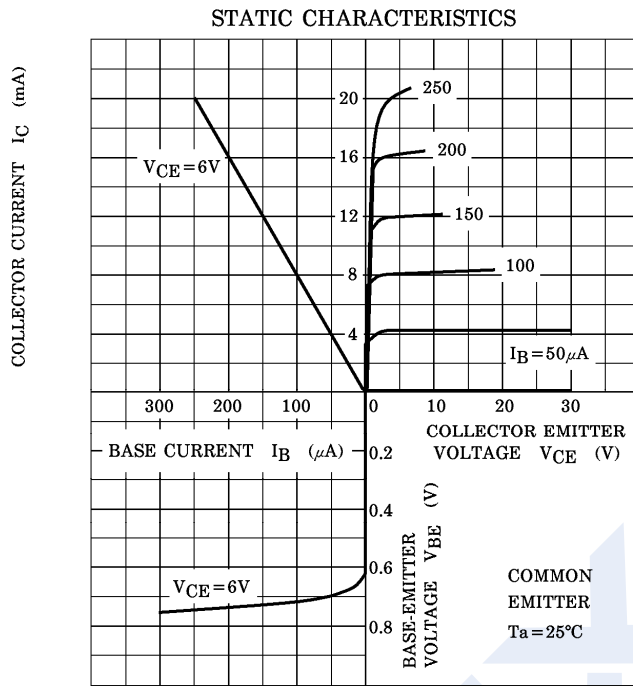
Fig.2 V<sub>OSC</sub> TEST CIRCUIT

L<sub>1</sub> : 0.8mmφ SILVER PLATED COPPER WIRE, 4T, 10ID, 8 LENGTH

# NPN Transistors

## 2SC2996

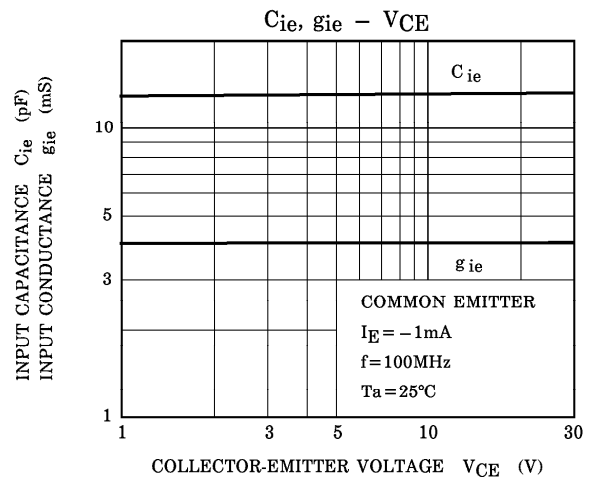
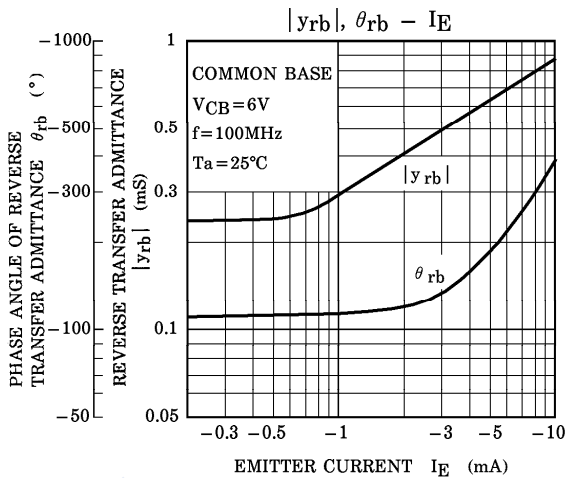
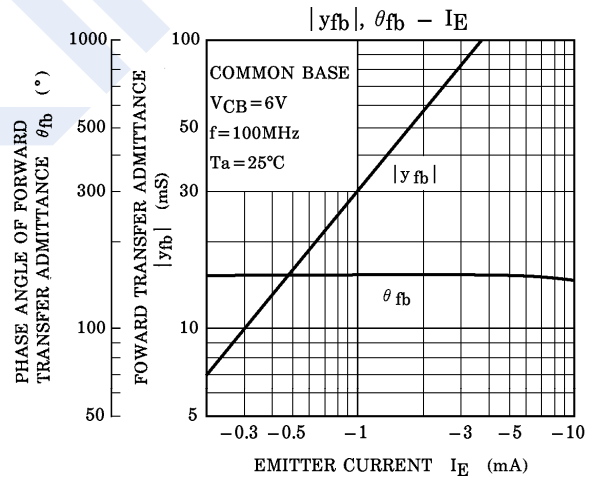
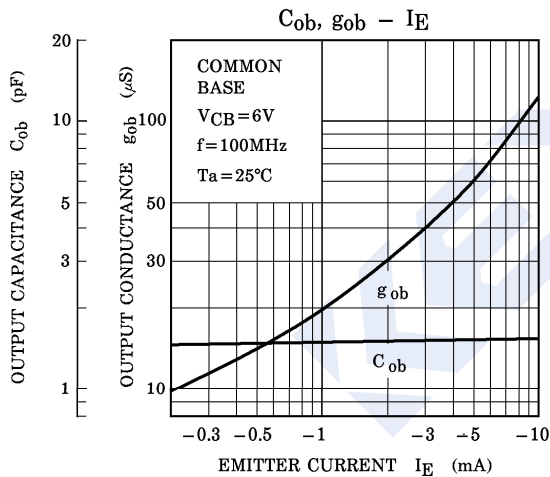
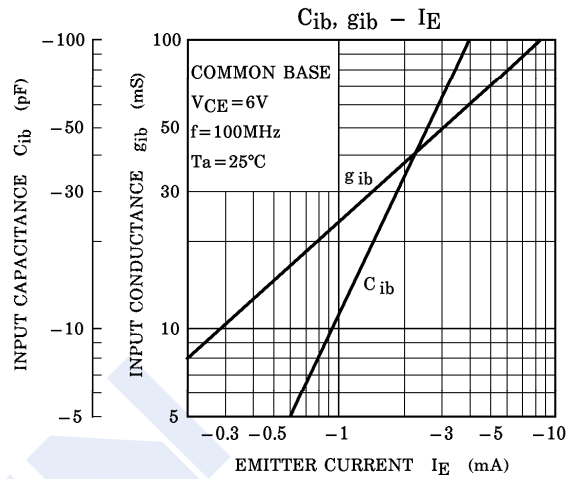
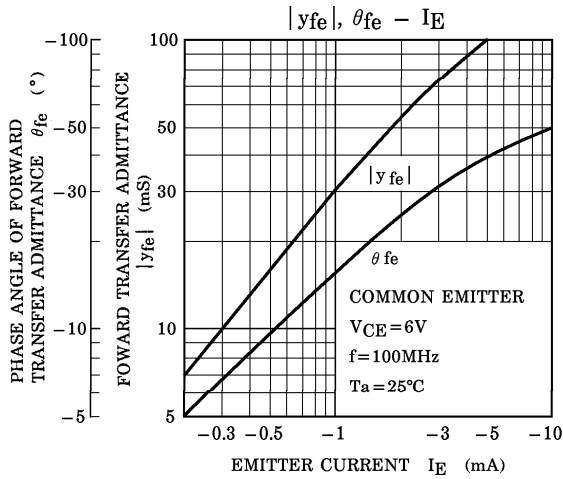
■ Typical Characteristics



# NPN Transistors

## 2SC2996

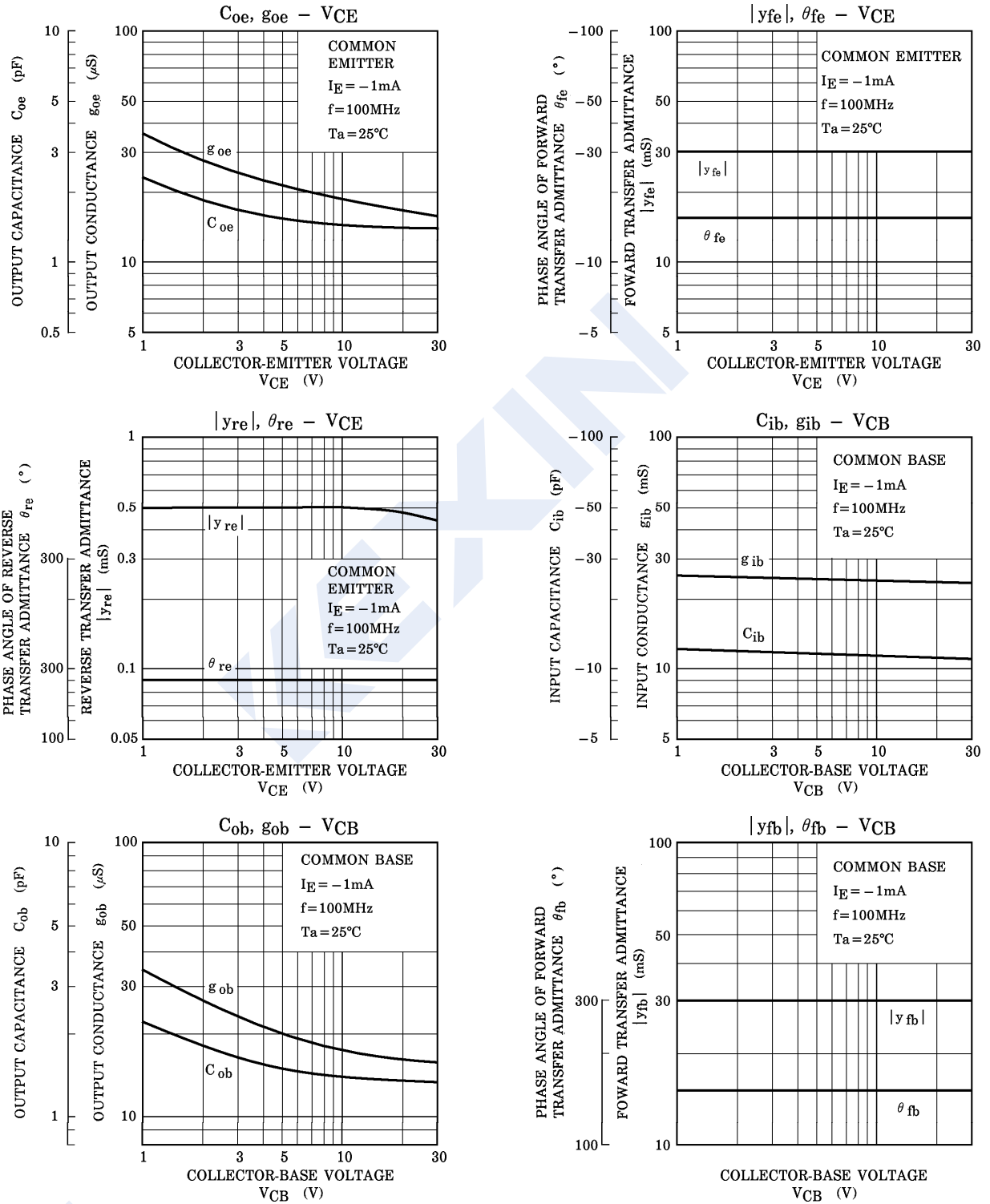
■ Typical Characteristics



## NPN Transistors

## 2SC2996

## ■ Typical Characteristics



# NPN Transistors

## 2SC2996

■ Typical Characteristics

