

**isc Silicon NPN RF Transistor**

**2SC3123**

**DESCRIPTION**

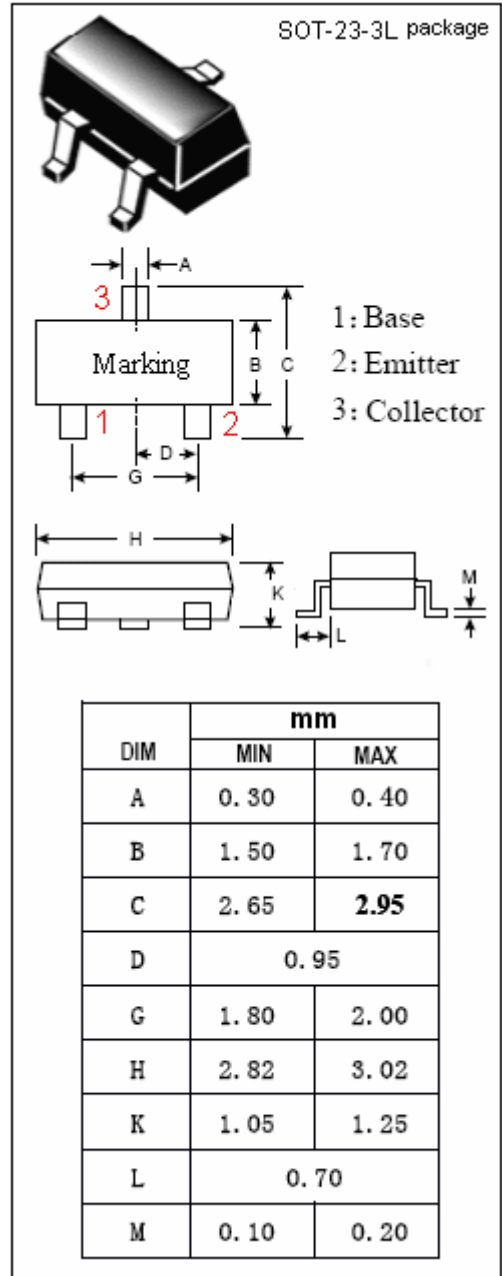
- High Conversion Gain  
 $G_{ce} = 23\text{dB TYP.}$
- Low Reverse Transfer Capacitance  
 $C_{re} = 0.4\text{pF TYP.}$

**APPLICATIONS**

- Designed for TV VHF mixer applications.

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	30	V
$V_{CEO}$	Collector-Emitter Voltage	20	V
$V_{EBO}$	Emitter-Base Voltage	3	V
$I_C$	Collector Current-Continuous	50	mA
$I_B$	Base Current-Continuous	25	mA
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	0.15	W
$T_J$	Junction Temperature	125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~125	$^\circ\text{C}$



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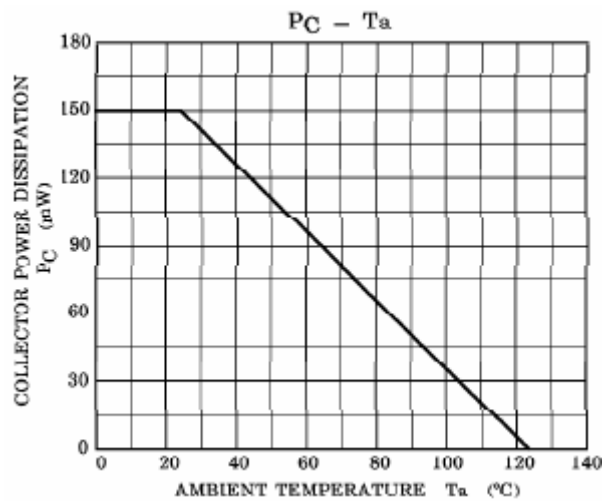
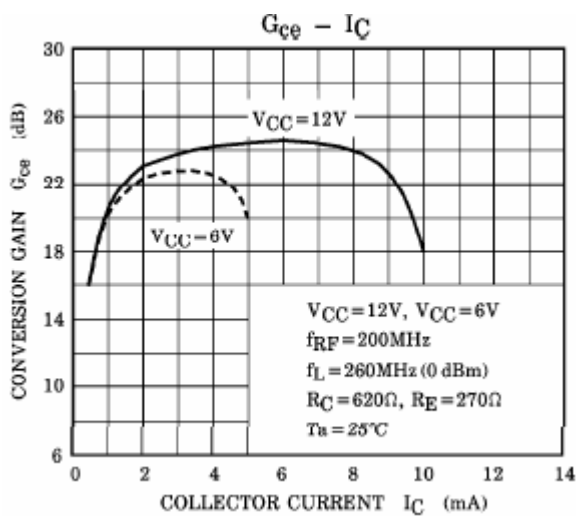
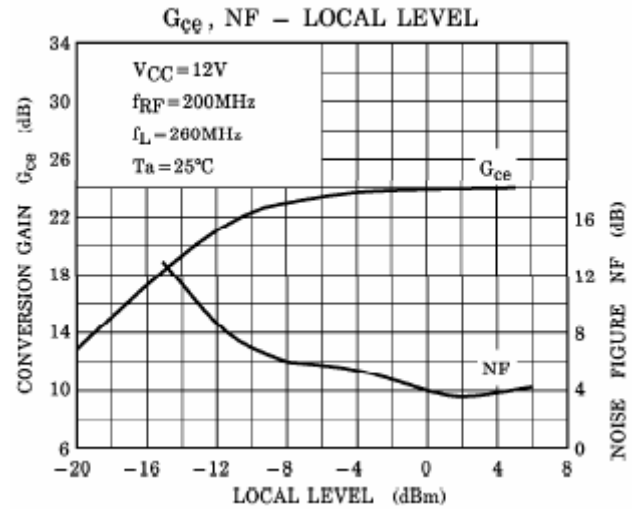
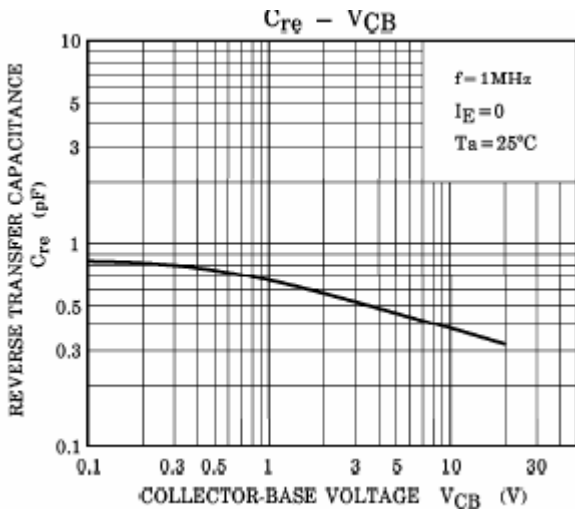
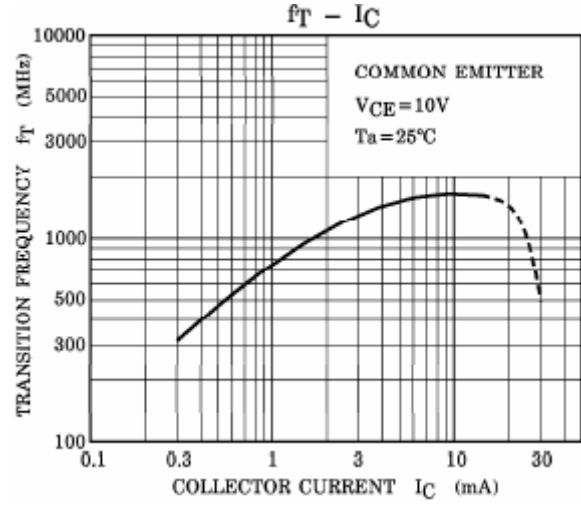
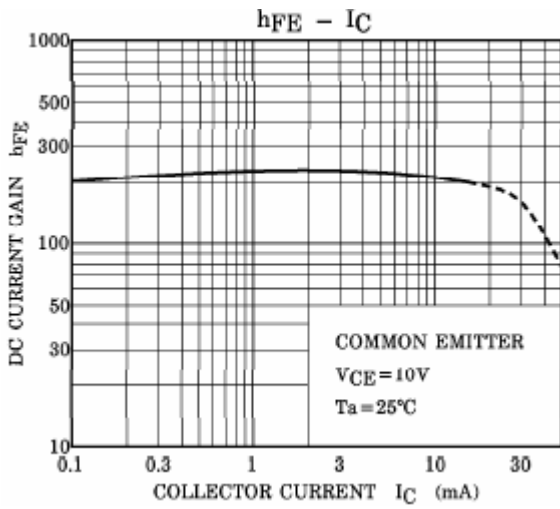
## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}; I_B=0$	20			V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=25\text{V}; I_E=0$			0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=3\text{V}; I_C=0$			1.0	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$I_C=5\text{mA}; V_{CE}=10\text{V}$	40		300	
$C_{re}$	Reverse Transfer Capacitance	$I_E=0; V_{CB}=10\text{V}; f=1.0\text{MHz}$		0.4	0.5	pF
$f_T$	Current-Gain—Bandwidth Product	$I_C=5\text{mA}; V_{CE}=10\text{V}$	900	1400		MHz
$G_{ce}$	Conversion Gain	$V_{CC}=12\text{V}; f=200\text{MHz}; f_L=260\text{MHz}$	20	23		dB
NF	Noise Figure	$V_{CC}=12\text{V}; f=200\text{MHz}; f_L=260\text{MHz}$		3.8	5.5	dB

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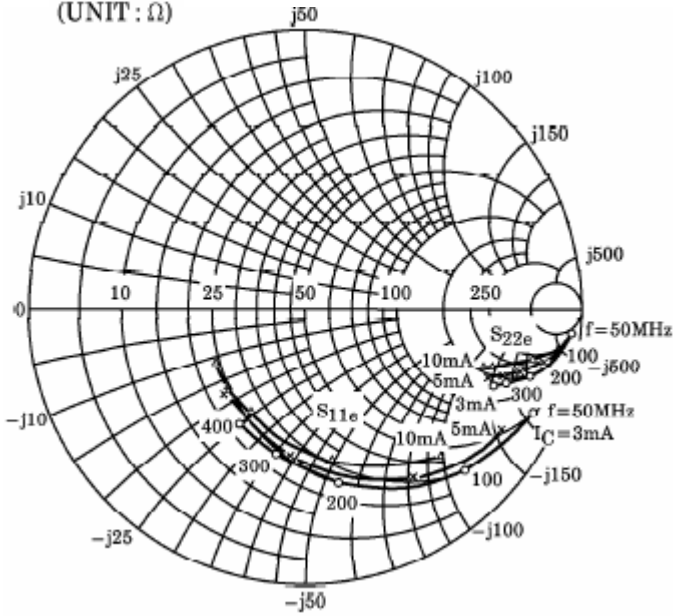
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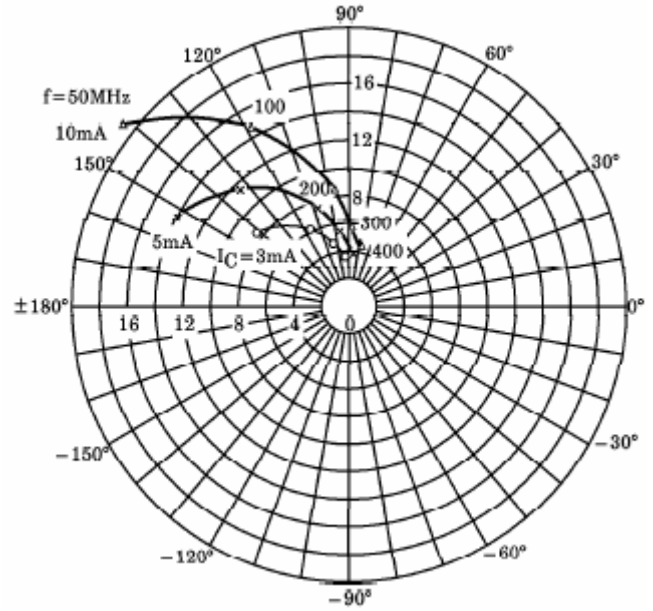
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$S_{11e}, S_{22e}$   
 $V_{CE} = 10V$   
 $T_a = 25^\circ C$   
 (UNIT:  $\Omega$ )



$S_{21e}$   
 $V_{CE} = 10V$   
 $T_a = 25^\circ C$



$S_{12e}$   
 $V_{CE} = 10V$   
 $T_a = 25^\circ C$

