

**2SC4403****VHF/UHF Local Oscillator Applications****Applications**

- VHF/UHF oscillators.

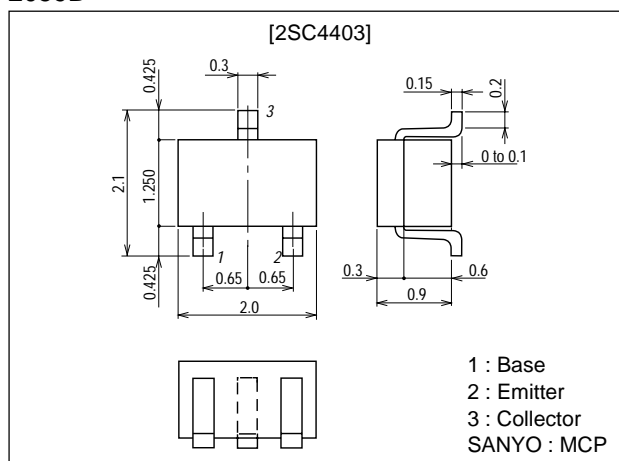
Features

- High cutoff frequency : $f_T=3.0\text{GHz}$ typ
- High power gain : $\text{MAG}=12\text{dB}$ typ ($f=0.9\text{GHz}$)
- Small noise figure : $\text{NF}=2.5\text{dB}$ typ ($f=0.9\text{GHz}$)
- Ultrasmall-sized package permitting 2SC4403-applied sets to be made smaller and slimmer.

Package Dimensions

unit:mm

2059B

**Specifications****Absolute Maximum Ratings** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		25	V
Collector-to-Emitter Voltage	V_{CEO}		16	V
Emitter-to-Base Voltage	V_{EBO}		3	V
Collector Current	I_{C}		70	mA
Collector Dissipation	P_{C}		150	mW
Junction Temperature	T_{J}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{\text{CB}}=16\text{V}, I_{\text{E}}=0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{\text{EB}}=2\text{V}, I_{\text{C}}=0$			10	μA
DC Current Gain	h_{FE}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=10\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_{T}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=10\text{mA}$	1.5	3.0		GHz
Output Capacitance	C_{ob}	$V_{\text{CB}}=10\text{V}, f=1\text{MHz}$		0.65	1.0	pF
Reverse Transfer Capacitance	C_{re}	$V_{\text{CB}}=10\text{V}, f=1\text{MHz}$		0.45		pF

* : The 2SC4403 is classified by 10mA h_{FE} as follows :

(Note) Marking : LY

 h_{FE} rank : 2, 3, 4

• For CP package version, use the 2SC3772.

Rank	2	3	4
h_{FE}	40 to 80	60 to 120	100 to 200

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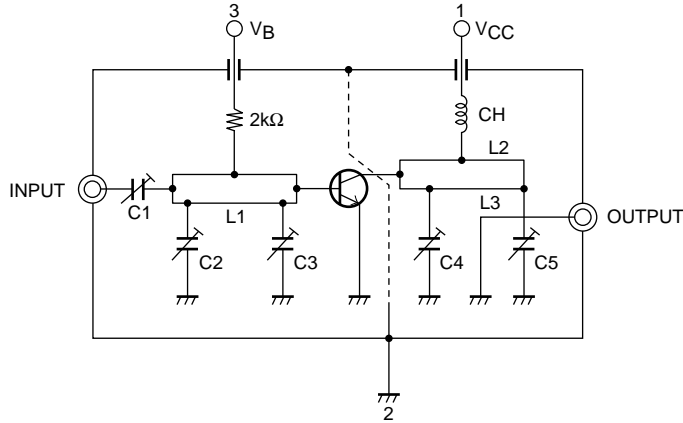
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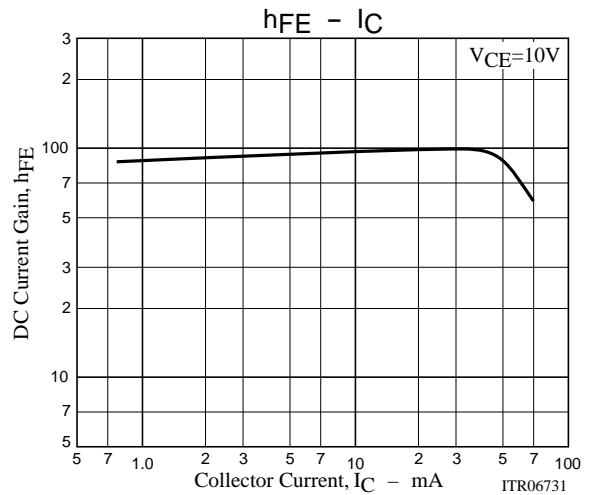
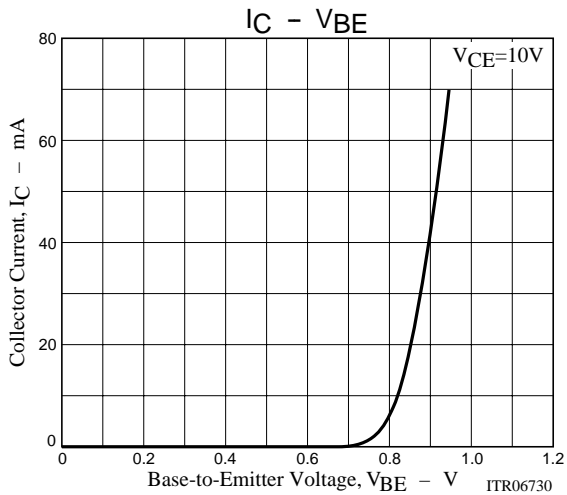
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=10V, I_C=10mA, f=0.9GHz$	7	9		dB
Maximum Available Power Gain	MAG	$V_{CE}=10V, I_C=10mA, f=0.9GHz$		12		dB
Noise Figure	NF	$V_{CE}=10V, I_C=3mA, f=0.9GHz$ See specified Test Circuit.		2.5		dB

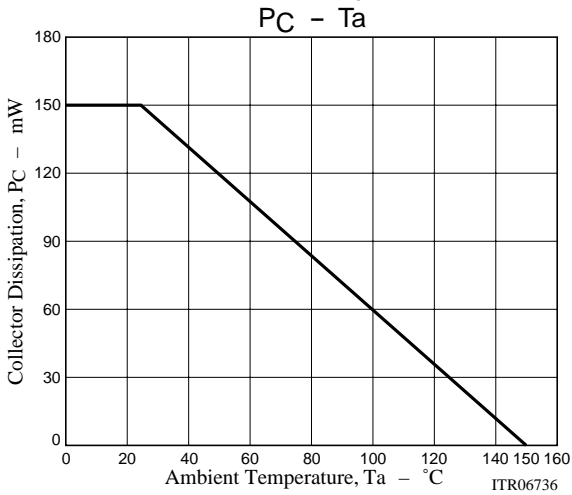
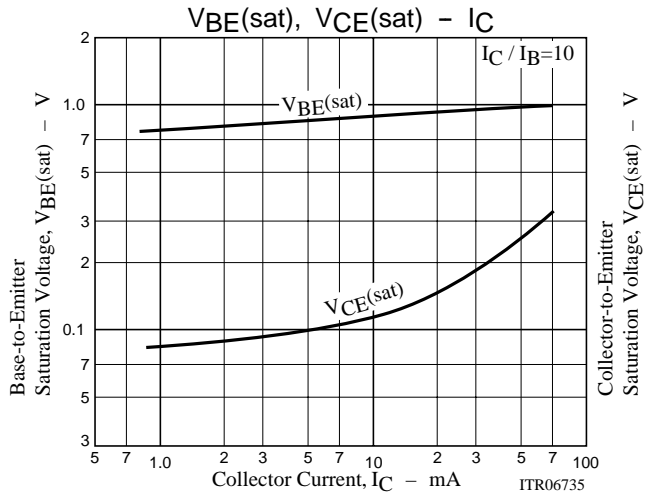
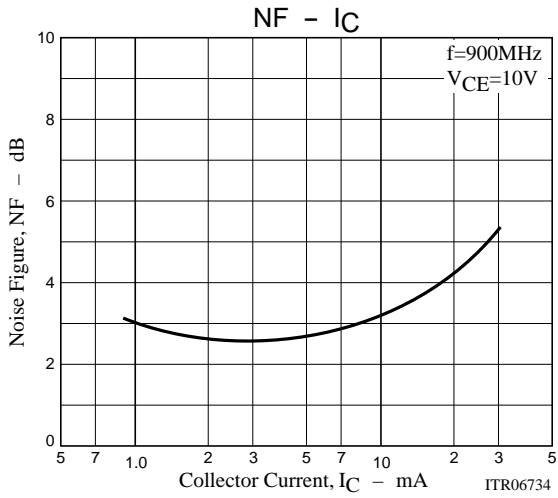
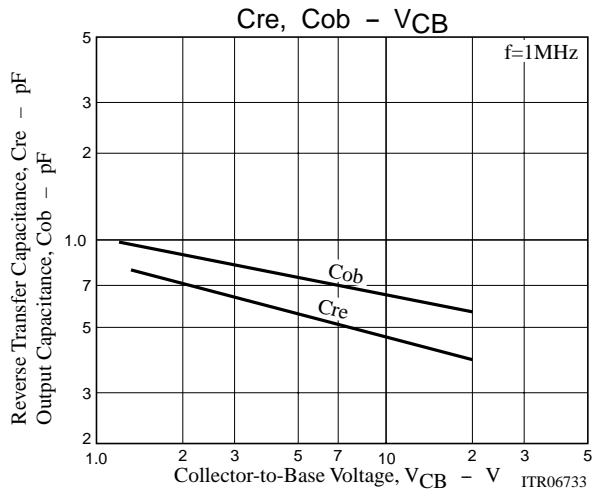
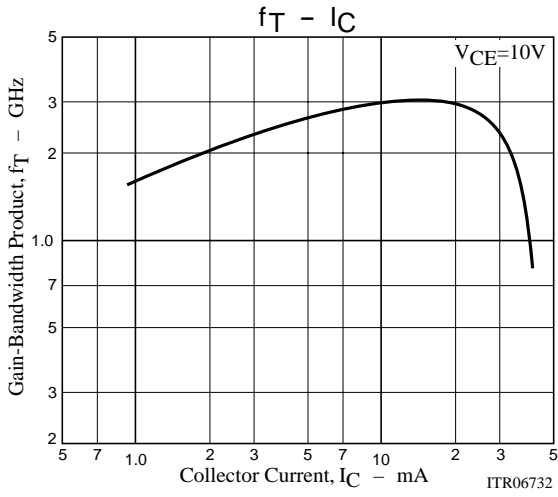
NF Test Circuit



900MHz	
C1	to 5pF
C2	to 10pF
C3	to 10pF
C4	to 10pF
C5	to 10pF
L1	W = 1.5mm, l = 25mm Strip line
L2	W = 4mm, l = 25mm Strip line
L3	0.5φ, l = 40mm
CH	2t+bead core



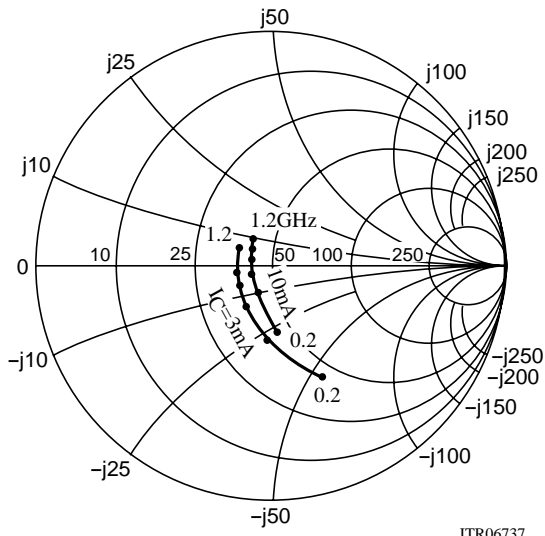
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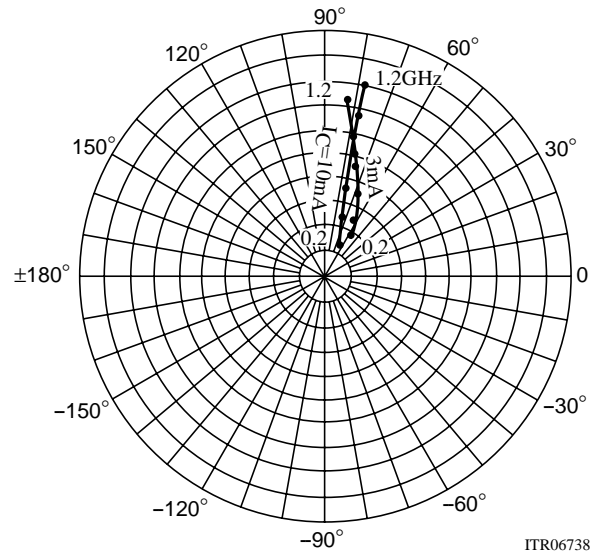
S parameter

S11e : $V_{CE}=10V$
f=200MHz step



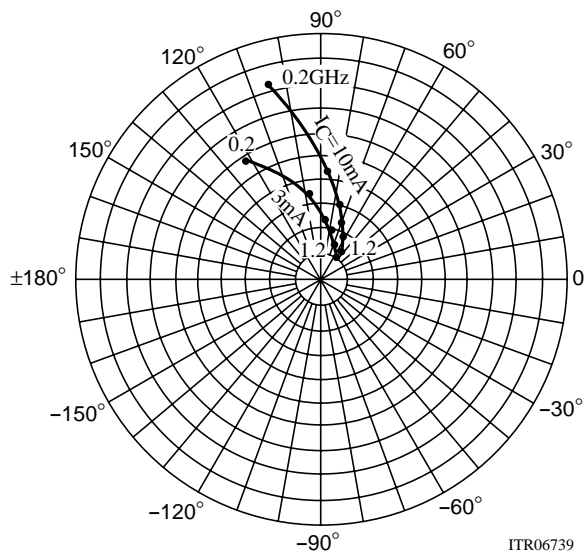
ITR06737

S12e : $V_{CE}=10V$
f=200MHz step



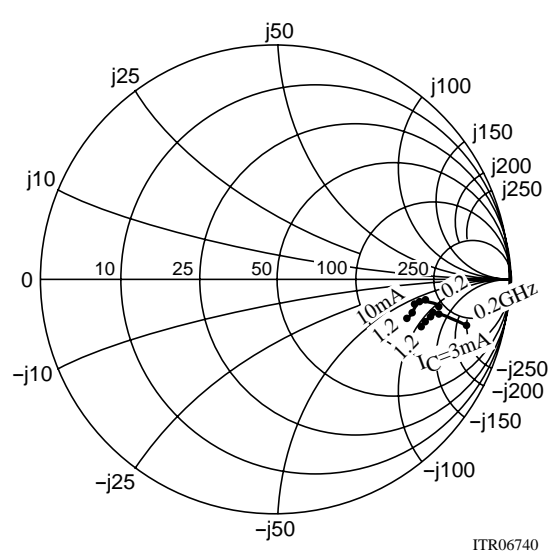
ITR06738

S21e : $V_{CE}=10V$
f=200MHz step



ITR06739

S22e : $V_{CE}=10V$
f=200MHz step



ITR06740

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