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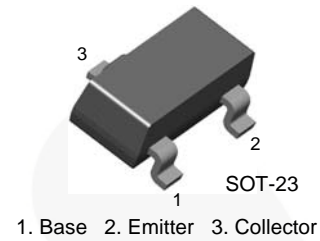


November 2014

# KSC1623 NPN Epitaxial Silicon Transistor

## Features

- Low Frequency Amplifier and High Frequency OSC.
- Complement to KSA812



## Ordering Information

Part Number	Marking	Package	Packing Method
KSC1623YMTF	C1Y	SOT-23 3L	Tape and Reel
KSC1623GMTF	C1G	SOT-23 3L	Tape and Reel
KSC1623LMTF	C1L	SOT-23 3L	Tape and Reel

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	100	mA
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ\text{C}$

**Thermal Characteristics<sup>(1)</sup>**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	200	mW
	Derate Above $25^\circ\text{C}$	1.6	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	625	$^\circ\text{C}/\text{W}$

**Note:**

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

**Electrical Characteristics**

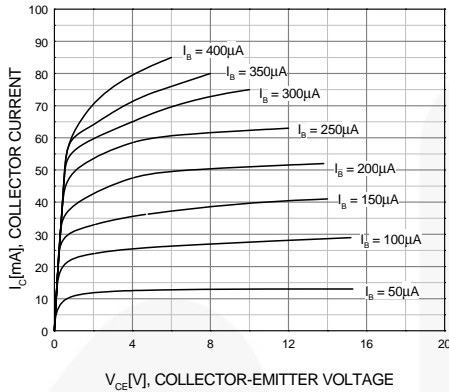
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 60\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5\text{ V}, I_C = 0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$	90	200	600	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$		0.15	0.30	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$		0.86	1.00	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$	0.55	0.62	0.65	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 6\text{ V}, I_C = 10\text{ mA}$		250		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 6\text{ V}, I_E = 0, f = 1\text{ MHz}$		3		pF

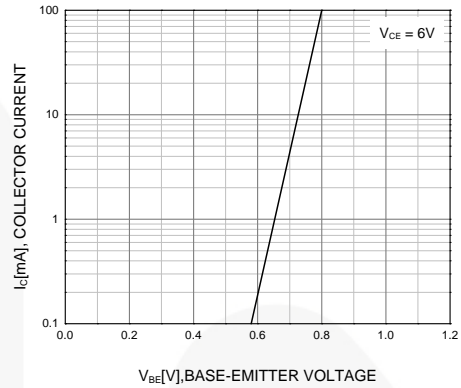
 **$h_{FE}$  Classification**

Classification	O	Y	G	L
$h_{FE}$	90 ~ 180	135 ~ 270	200 ~ 400	300 ~ 600

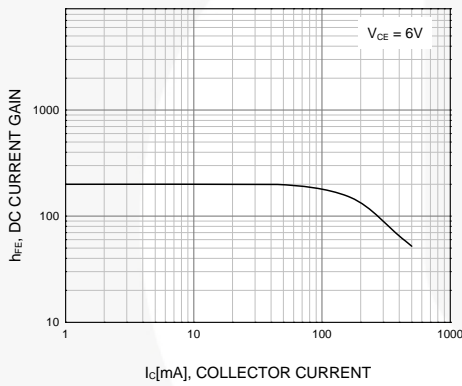
## Typical Performance Characteristics



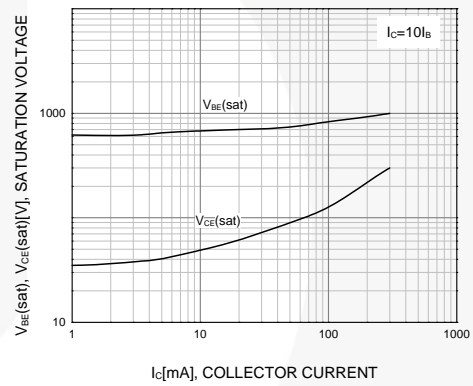
**Figure 1. Static Characteristics**



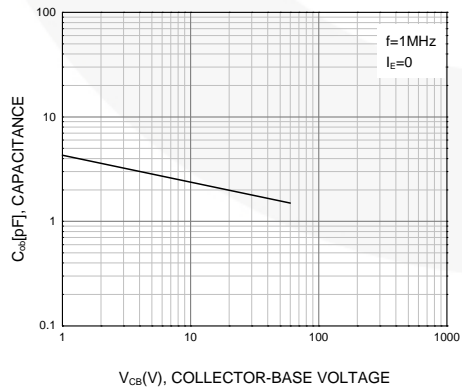
**Figure 2. Transfer Characteristic**



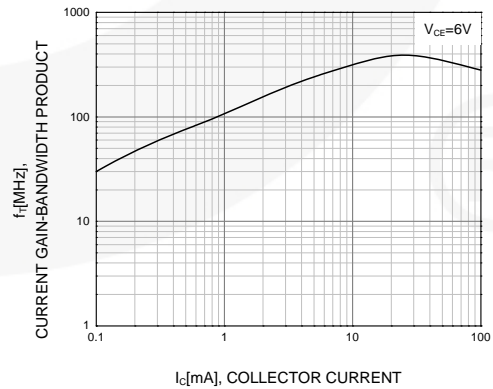
**Figure 3. DC Current Gain**



**Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage**

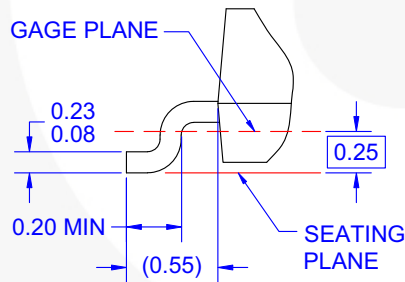
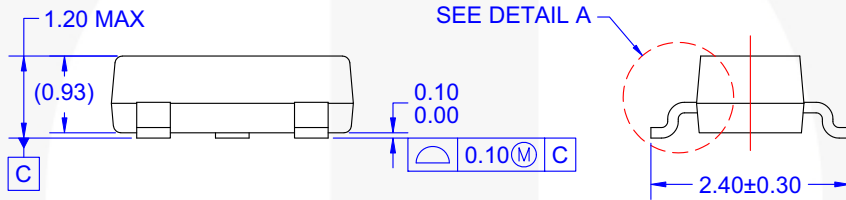
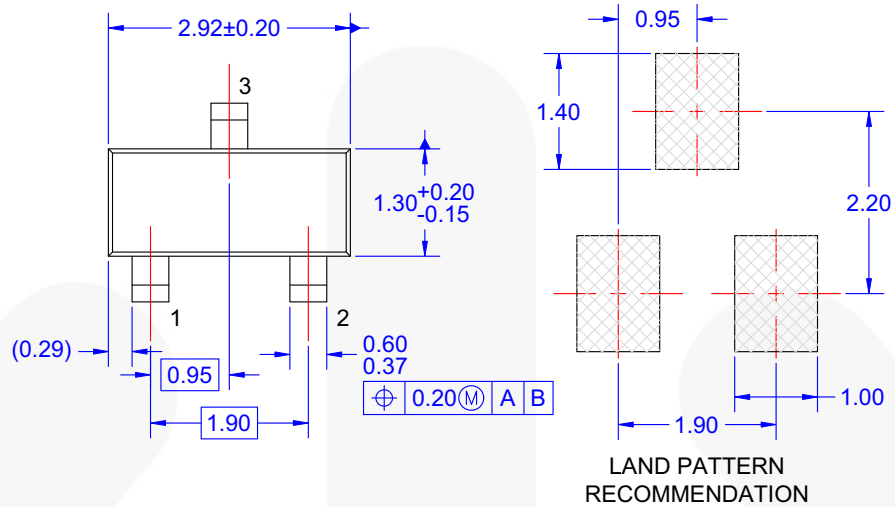


**Figure 5. Output Capacitance**



**Figure 6. Current Gain Bandwidth Product**

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
- D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.
- E) DRAWING FILE NAME: MA03DREV10

**DETAIL A**  
SCALE: 2X

Figure 7. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE



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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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