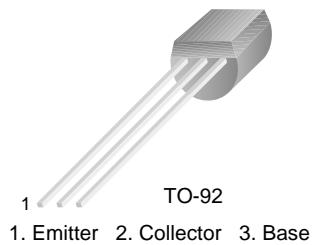


## **KSA1015**

### **PNP Epitaxial Silicon Transistor**

#### **Features**

- Low-Frequency Amplifier
- Collector-Base Voltage:  $V_{CBO} = -50$  V
- Complement to KSC1815



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#### **Ordering Information**

Part Number	Top Mark	Package	Packing Method
KSA1015GRTA	GRC&3	TO-92	AMMO
KSA1015YTA	YC&3	TO-92	AMMO

### 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	Units
$V_{CBO}$	Collector-Base Voltage	-50	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-150	mA
$I_B$	Base Current	-50	mA
$P_C$	Collector Power Dissipation	400	mW
$T_J$	Junction Temperature	125	$^\circ\text{C}$
$T_{ST9}$	Storage Temperature	-65 to 150	$^\circ\text{C}$

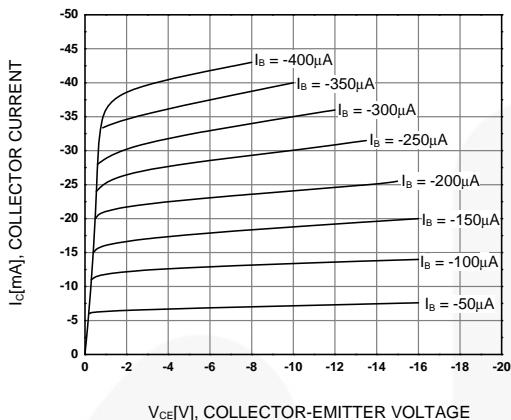
**$h_{FE}$  Classification**

Classification	O	Y	GR
$h_{FE1}$	70 ~ 140	120 ~ 240	200 ~ 400

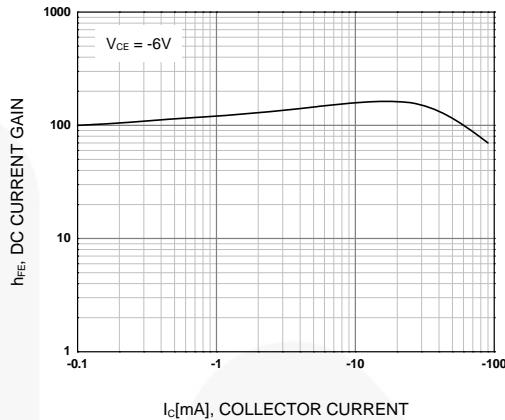
**Electrical Characteristics**Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = -100 \mu\text{A}, I_E = 0$	-50			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -10 \text{ mA}, I_B = 0$	-50			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -50 \text{ V}, I_E = 0$			-0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5 \text{ V}, I_C = 0$			-0.1	$\mu\text{A}$
$h_{FE1}$	DC Current Gain	$V_{CE} = -6 \text{ V}, I_C = -2 \text{ mA}$	70		400	
$h_{FE2}$		$V_{CE} = -6 \text{ V}, I_C = -150 \text{ mA}$	25			
$V_{CE} \text{ (sat)}$	Collector-Emitter Saturation Voltage	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$		-0.1	-0.3	V
$V_{BE} \text{ (sat)}$	Base-Emitter Saturation Voltage	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$			-1.1	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -10 \text{ V}, I_C = -1 \text{ mA}$	80			MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		4	7	pF
NF	Noise Figure	$V_{CE} = -6 \text{ V}, I_C = -0.1 \text{ mA}, f = 100 \text{ Hz}, R_G = 10 \text{ k}\Omega$		0.5	6	dB

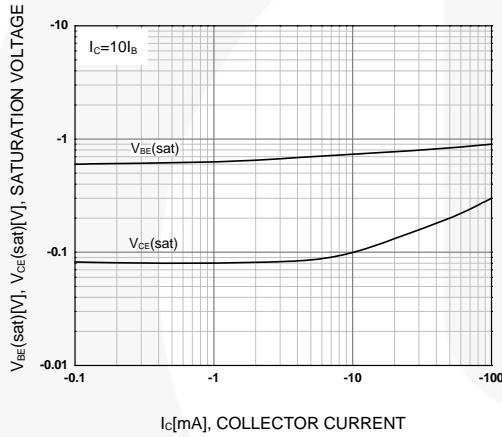
## Typical Performance Characteristics



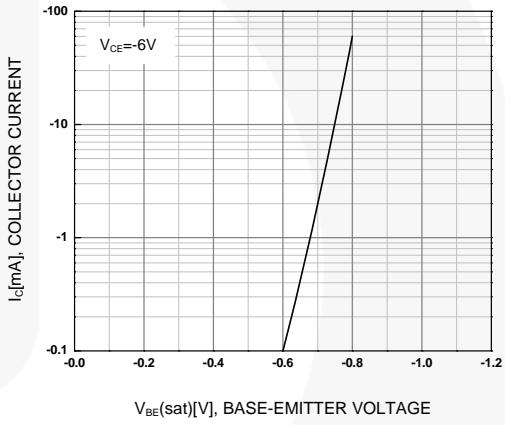
**Figure 1. Static Characteristic**



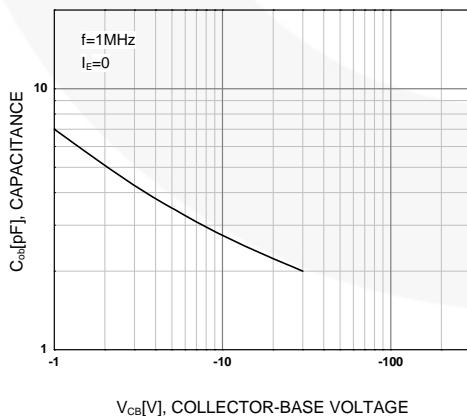
**Figure 2. DC Current Gain**



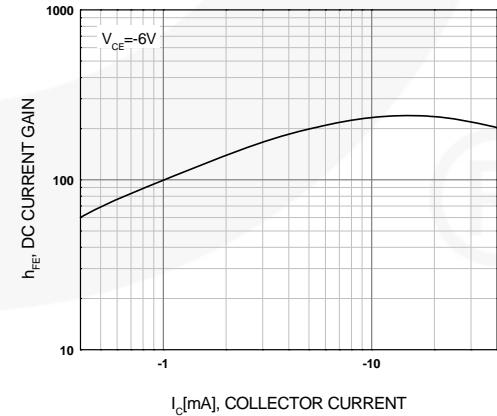
**Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Figure 4. Base-Emitter On Voltage**



**Figure 5. Collector Output Capacitance**



**Figure 6. Current Gain Bandwidth Product**

## Physical Dimensions

### TO-92 (AMMO Type)

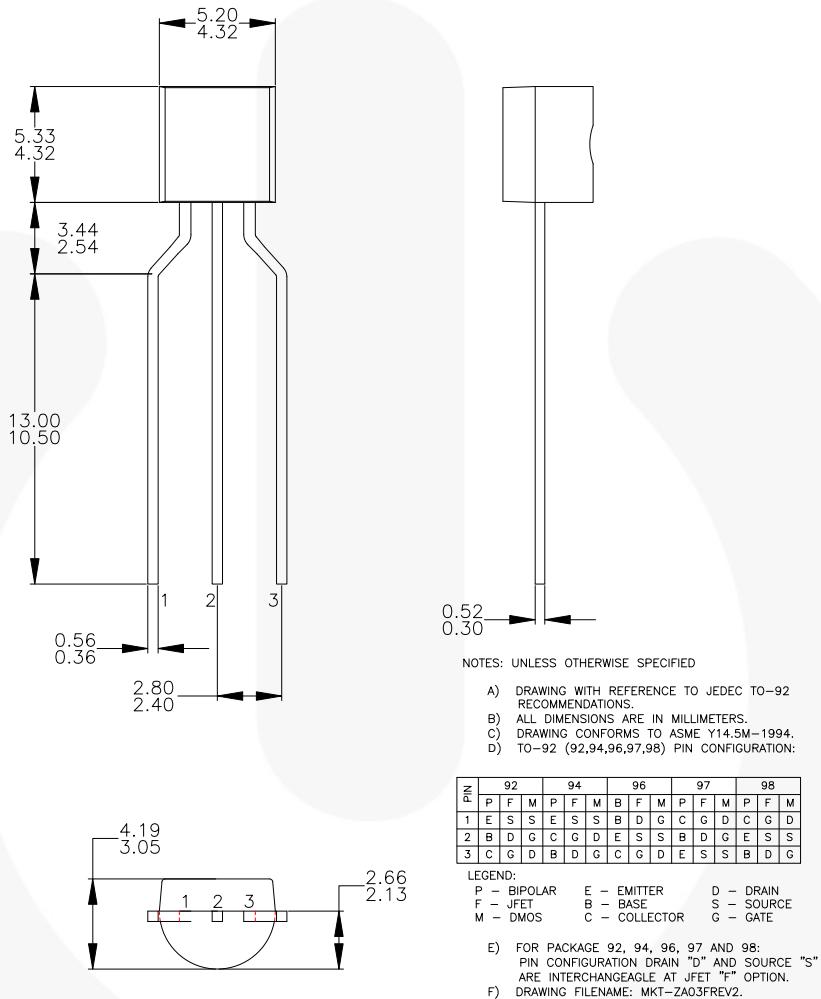


Figure 7. 3-LEAD, TO-92, MOLDED 0.200 IN LINE SPACING LD FORM (J61Z OPTION)

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