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September 2015



KSA539 — PNP Epitaxial Silicon Transistor

# KSA539 PNP Epitaxial Silicon Transistor

## Features

- Low Frequency Amplifier
- Complement to KSC815
- Collector-Base Voltage:  $V_{CBO} = -60\text{ V}$
- Collector Power Dissipation :  $P_C = 400\text{ mW}$
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)
- Non Suffix “-C” means Side Collector (1. Emitter 2. Base 3. Collector)



## Ordering Information

Part Number	Top Mark	Package	Packing Method
KSA539CYTA	A539	TO-92 3L	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	Unit
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{CEO}$	Collector-Emitter Voltage	-45	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-200	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
$P_C$	Collector Power Dissipation	400	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	310	$^\circ\text{C}/\text{W}$

**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**

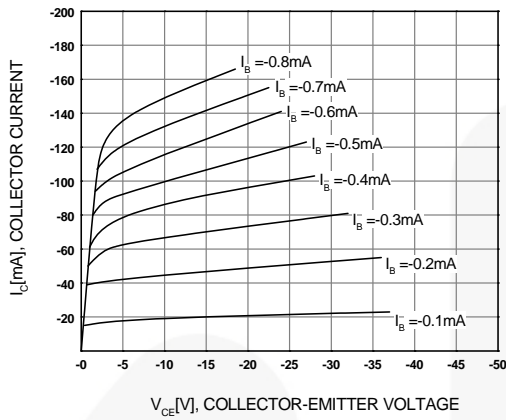
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = -100 \mu\text{A}, I_E = 0$	-65			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -10 \text{ mA}, I_B = 0$	-45			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = -45 \text{ V}, I_E = 0$			-100	nA
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = -3 \text{ V}, I_C = 0$			-100	nA
$h_{FE}$	DC Current Gain	$V_{CE} = -1 \text{ V}, I_C = -50 \text{ mA}$	40		240	
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -1 \text{ V}, I_C = -10 \text{ mA}$	-0.60	-0.65	-0.90	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -150 \text{ mA}, I_B = -15 \text{ mA}$		-0.25	-0.50	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -150 \text{ mA}, I_B = -15 \text{ mA}$		-0.9	-1.2	V

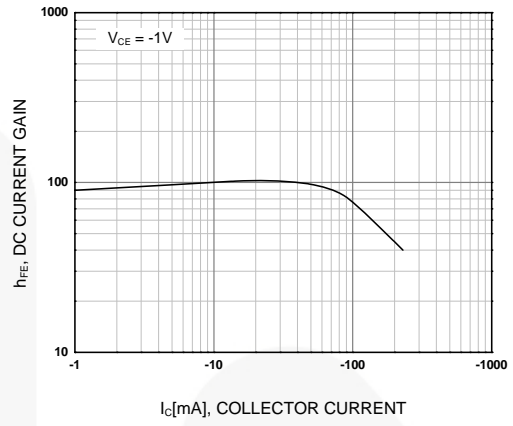
 **$h_{FE}$  Classification**

Classification	R	O	Y
$h_{FE}$	40 ~ 80	70 ~ 140	120 ~ 240

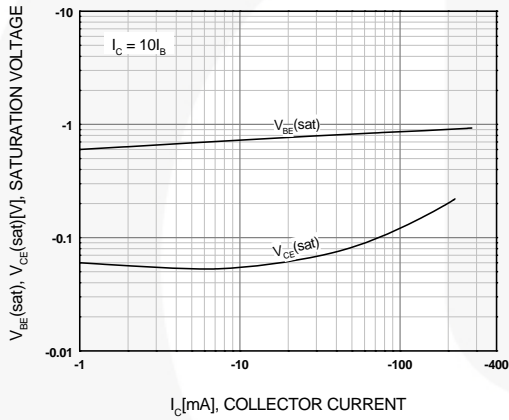
## Typical Performance Characteristics



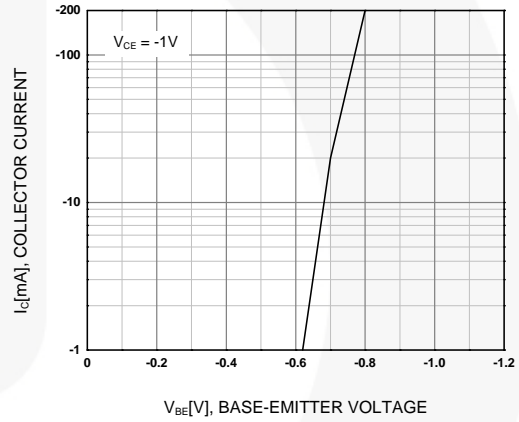
**Figure 1. Static Characteristic**



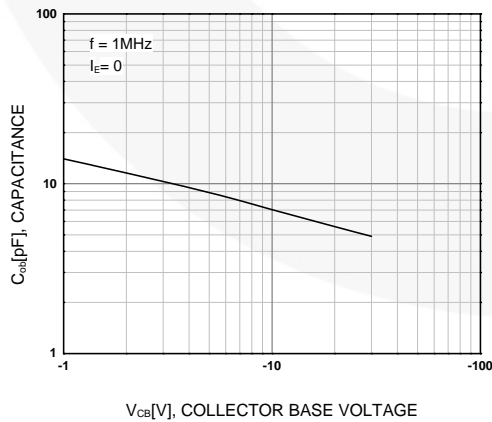
**Figure 2. DC Current Gain**



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



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



**Figure 5. Collector Output Capacitance**

Physical Dimensions

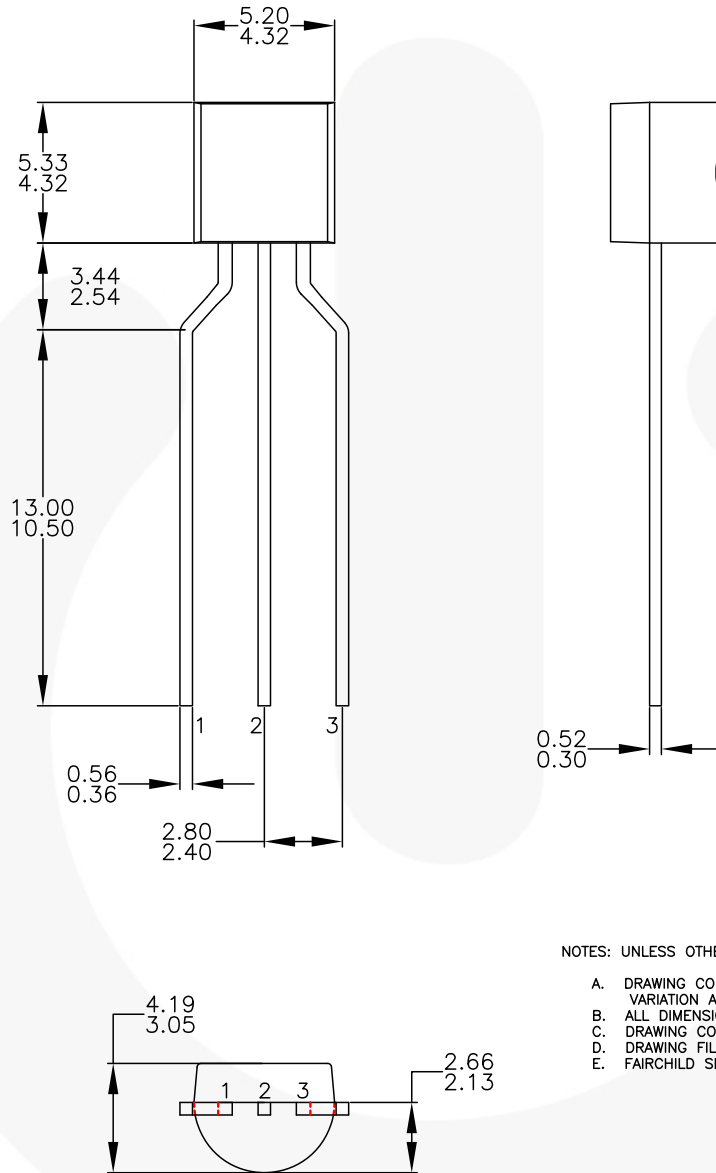


Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type





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