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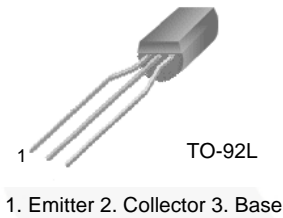


February 2015

# KSC2316 NPN Epitaxial Silicon Transistor

## Features

- Audio Power Amplifier Applications
- Driver Stage Amplifier
- Complement to KSA916



## Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC2316YTA	C2316	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	120	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	800	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	900	mW
	Derate Above $25^\circ\text{C}$	7.2	$\text{mW}/^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	130	$^\circ\text{C}/\text{W}$

### 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	$I_C = 1\text{ mA}, I_E = 0$	120			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}, I_B = 0$	120			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1\text{ mA}, I_C = 0$	5			V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 120\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
$h_{FE1}$	DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$	60			
$h_{FE2}$	DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 100\text{ mA}$	80		240	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$			1	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 5\text{ V}, I_C = 100\text{ mA}$		120		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$			30	pF

## $h_{FE}$ Classification

Classification	O	Y
$h_{FE2}$	80 ~ 160	120 ~ 240

## Typical Performance Characteristics

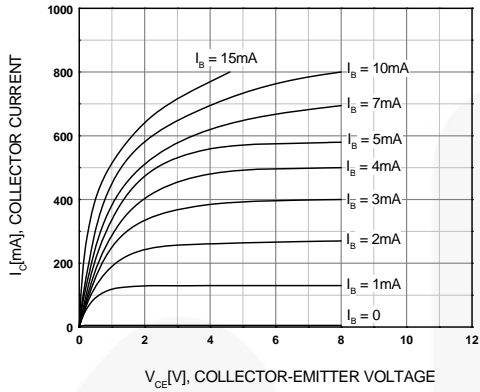


Figure 1. Static Characteristic

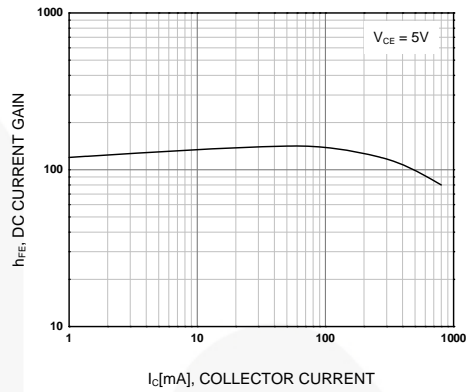


Figure 2. DC Current Gain

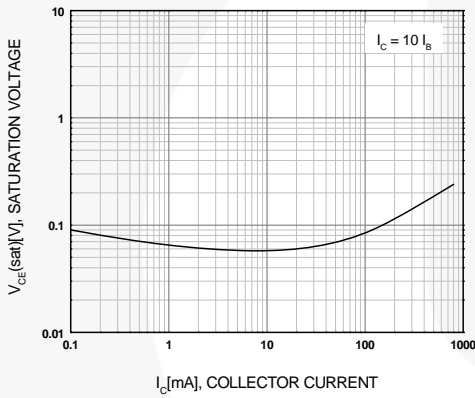


Figure 3. Collector-Emitter Saturation Voltage

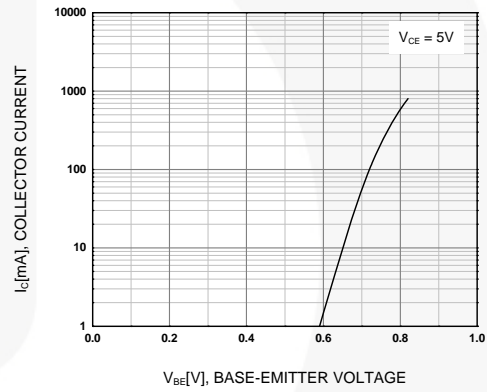


Figure 4. Base-Emitter On Voltage

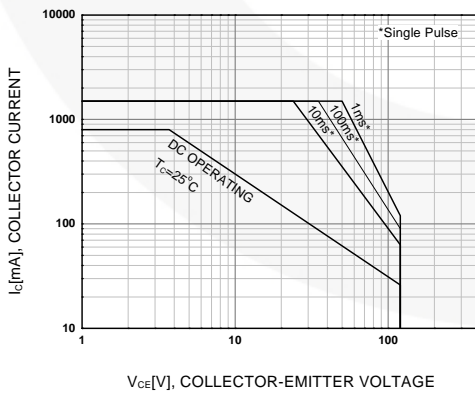







Figure 5. Safe Operating Area





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