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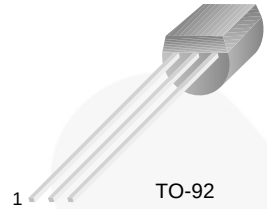
May 2016

KSC1815
NPN Epitaxial Silicon Transistor

Features

- Audio Frequency Amplifier and High-Frequency OSC
- Complement to KSA1015
- Collector-Base Voltage: V_{CBO} = 50 V



TO-92

1. Emitter 2. Collector 3. Base

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC1815YTA	YC&3	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°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	150	mA
I_B	Base Current	50	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

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Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	400	mW
	Derate Above 25°C	3.2	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	312	°C/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°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Voltage	I_C = 1 mA, I_E = 0	60			V
BV_{CEO}	Collector-Emitter Voltage	I_C = 10 mA, I_B = 0	50			V
BV_{EBO}	Emitter-Base Voltage	I_E = 10 μA, I_C = 0	5			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 60 V, I_E = 0			0.1	μA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5 V, I_C = 0			0.1	μA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA		0.10	0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA			1.0	V
h_{FE1}	DC Current Gain	V_{CE} = 6 V, I_C = 2 mA	70		700	
h_{FE2}	DC Current Gain	V_{CE} = 6 V, I_C = 150 mA	25			
f_T	Current Gain Bandwidth Product	V_{CE} = 10 V, I_C = 1 mA	80			MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz		2.0	3.0	pF
N_F	Noise Figure	V_{CE} = 6 V, I_C = 0.1 mA, R_S = 10 kΩ, f = 1 Hz		1.0	10.0	dB

h_{FE} Classification

Classification	O	Y	GR	L
h_{FE1}	70 ~ 140	120 ~ 240	200 ~ 400	350 ~ 700

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Typical Performance Characteristics

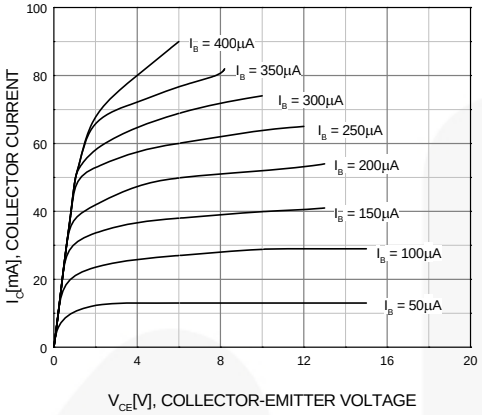

Figure 1. Static Characteristic

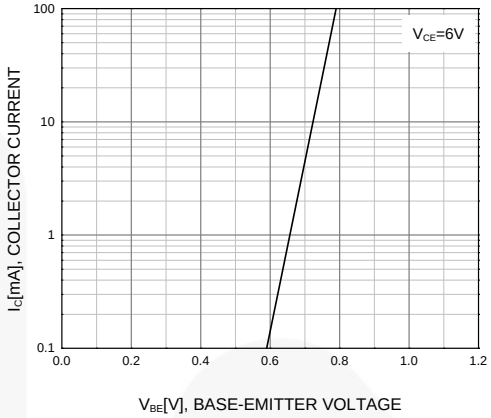

Figure 2. Transfer Characteristic

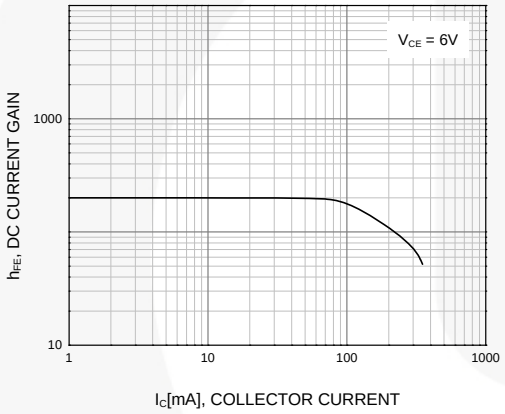

Figure 3. DC Current Gain

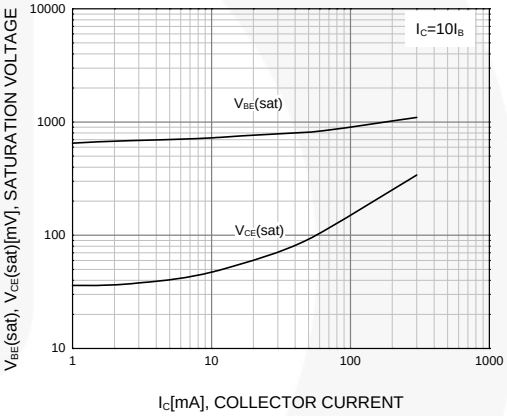

Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

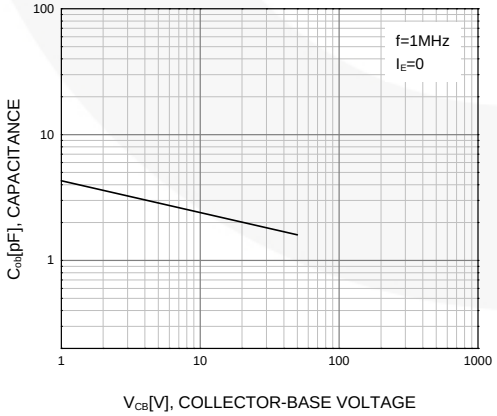

Figure 5. Output Capacitance

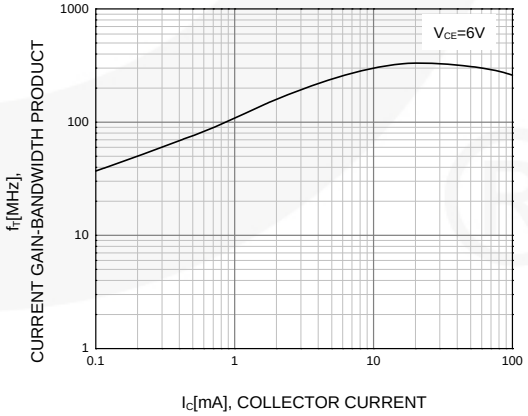

Figure 6. Current Gain Bandwidth Product

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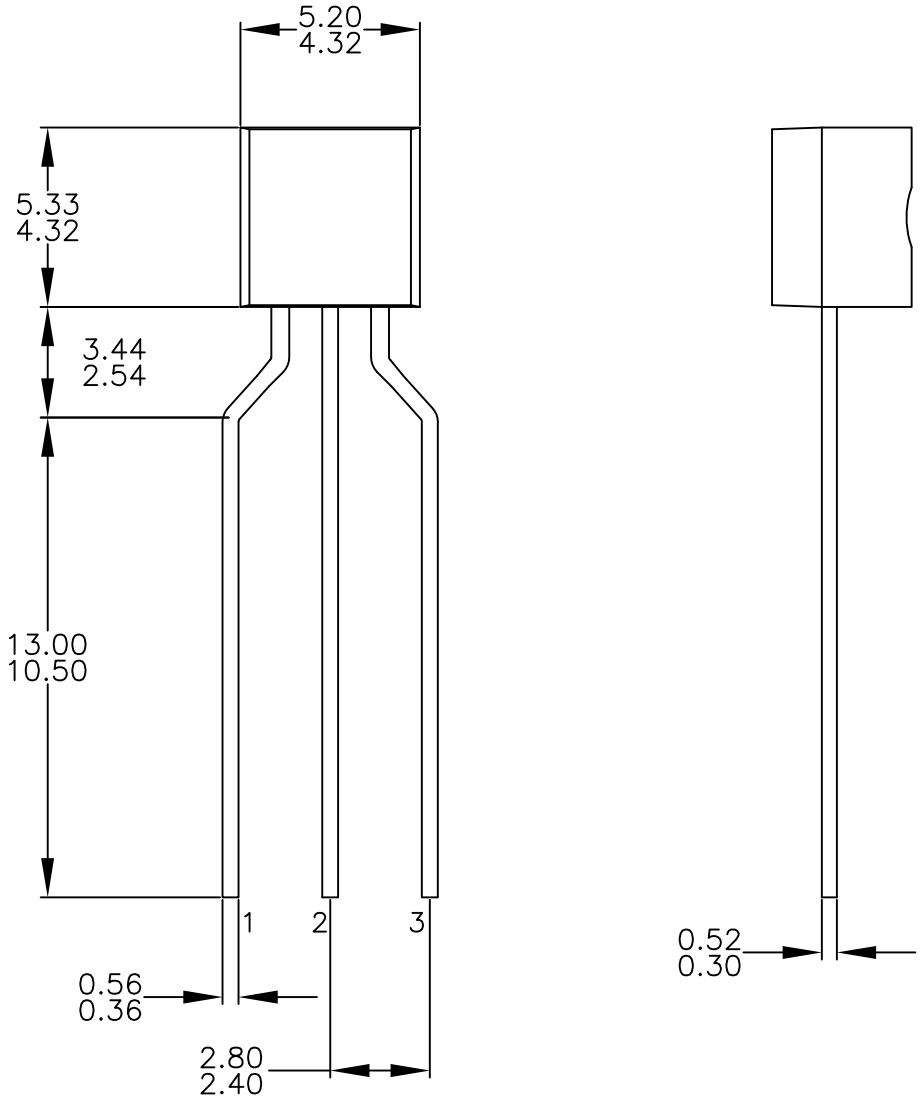

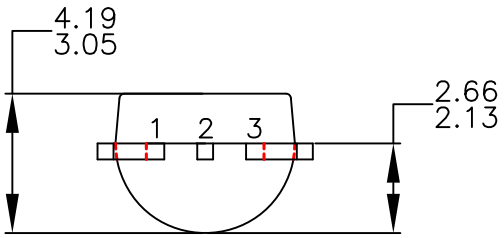

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B. ALL DIMENSIONS ARE IN MILLIMETERS.
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