NPN Epitaxial Silicon Transistor

KSC1815

1. Emitter
2. Collector
3. Base

TO-92 3 4.83x4.76
LEADFORMED
CASE 135AR

Features

- Audio Frequency Amplifier and High-Frequency OSC
- Complement to KSA1015
- Collector-Base Voltage: V_{CBO} = 60 V
- This is a Pb-Free Device

MAXIMUM RATINGS (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

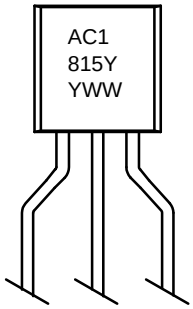
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Values are at T_A = 25 °C unless otherwise noted.) (Note 1)

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

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.

MARKING DIAGRAM



A = Assembly Code
C1815Y = Device Code
YWW = Date Code

ORDERING INFORMATION

Device	Package	Shipping
KSC1815YTA	TO-92 3L (Pb-Free)	2000 / Fan-Fold

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	120	–	240	
h_{FE2}		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
NF	Noise Figure	V_{CE} = 6 V, I_C = 0.1 mA, R_S = 10 kΩ, f = 1 kHz	–	1.0	10.0	dB

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL PERFORMANCE CHARACTERISTICS

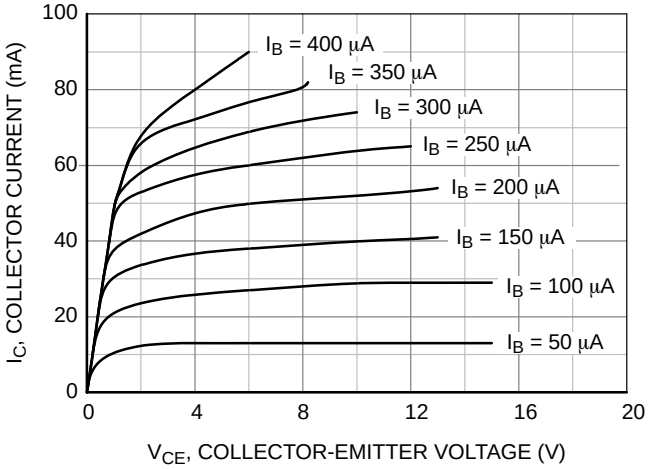


Figure 1. Static Characteristic

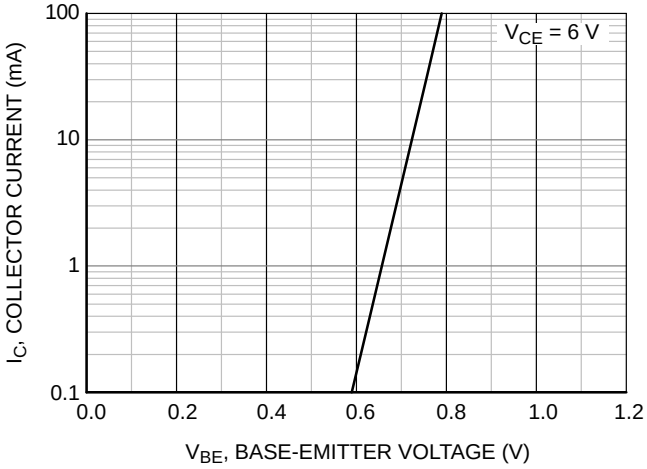


Figure 2. Static Characteristic

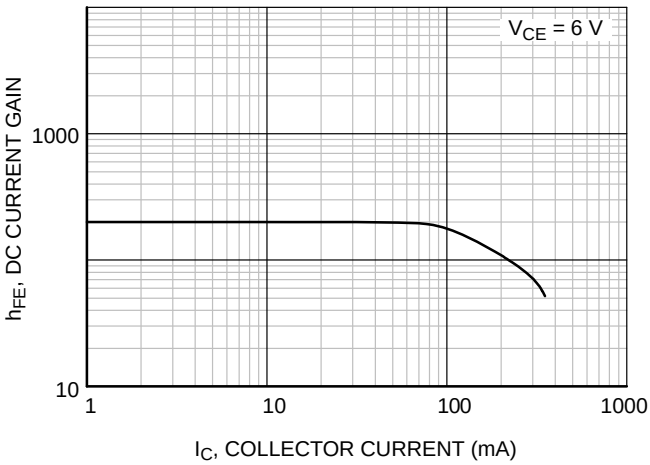


Figure 3. DC Current Gain

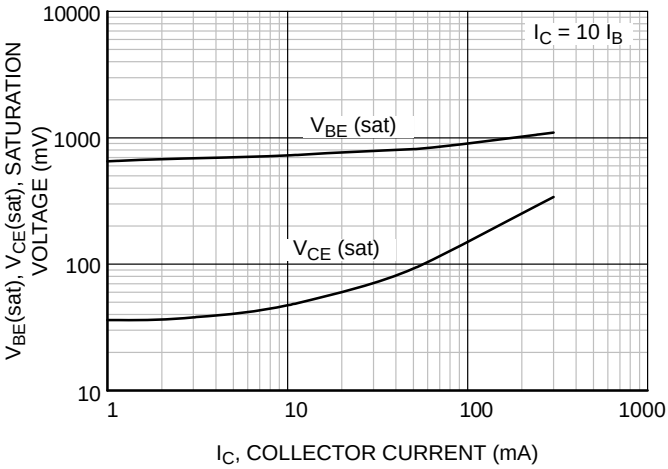


Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

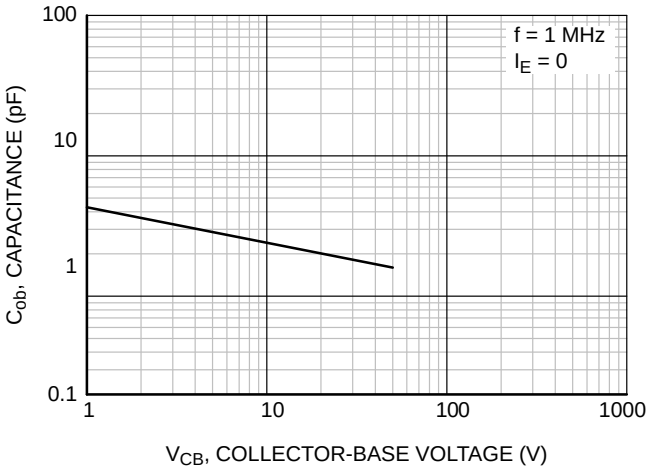


Figure 5. Output Capacitance

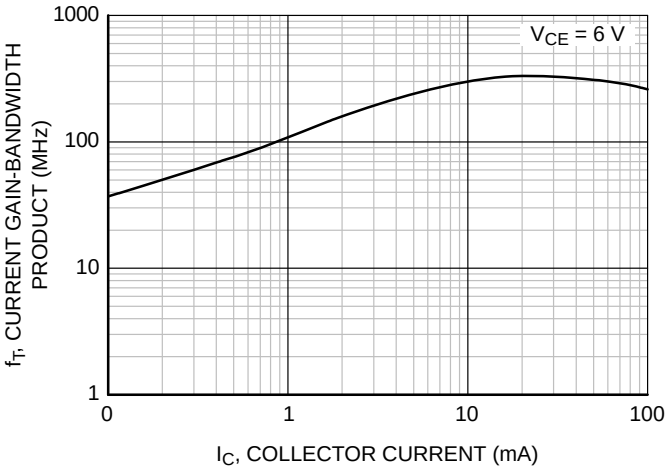


Figure 6. Current Gain Bandwidth Product

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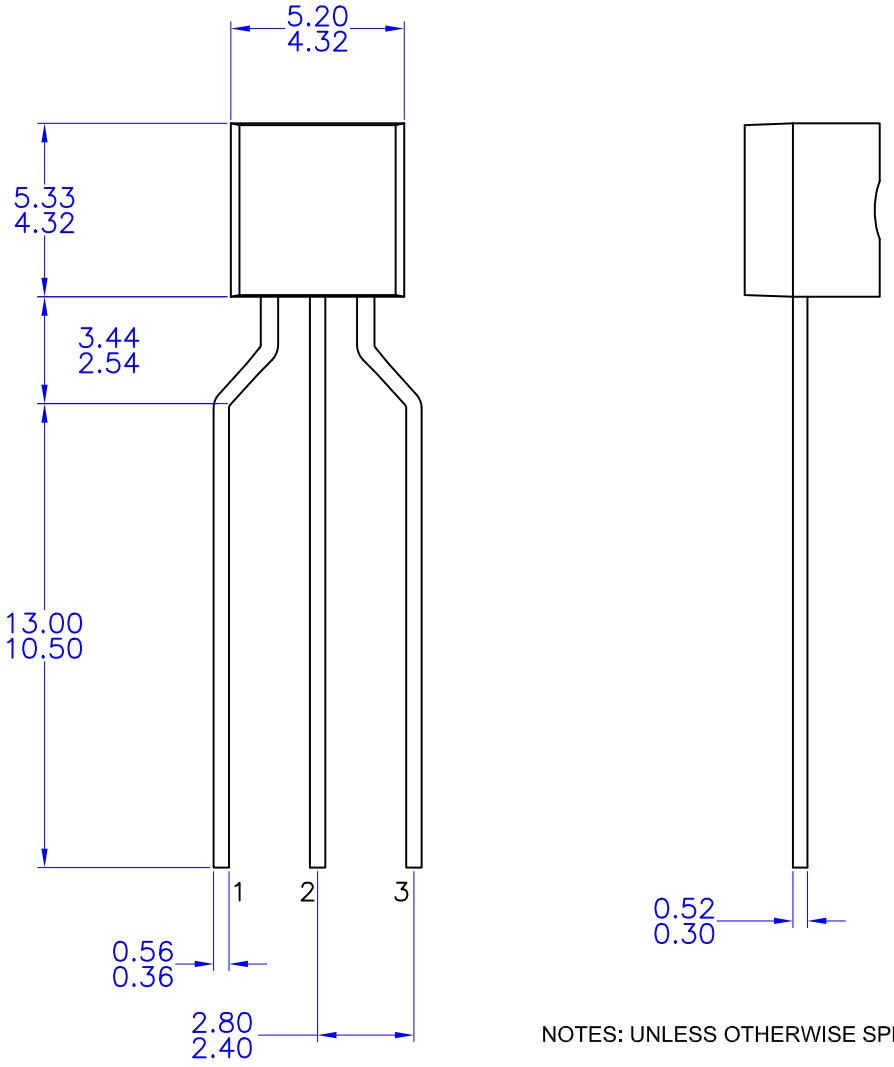

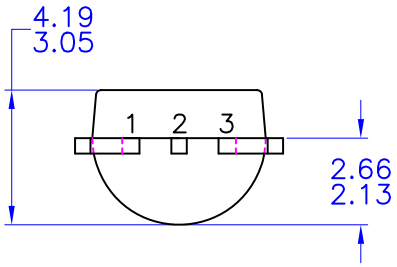

NOTES: UNLESS OTHERWISE SPECIFIED

A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DRAWING CONFORMS TO ASME Y14.5M-1994

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