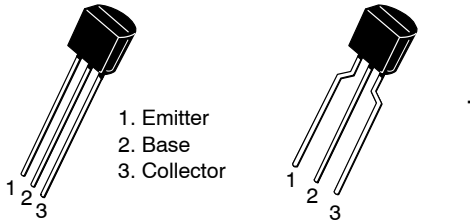
NPN Epitaxial Silicon Transistor

KSC945



TO−92 3
CASE 135AN

TO−92 3 LF
CASE 135AR

Features

- Audio Frequency Amplifier and High−Frequency OSC
- Complimentary to KSA733
- Collector−Base Voltage: V_{CBO} = 60 V
- High Current Gain Bandwidth Product: f_T = 300 MHz (Typical)
- Suffix "−C" Means Center Collector
  (1. Emitter 2. Collector 3. Base)

MARKING DIAGRAM

A = Assembly Site
C945Y = Specific Device Code
Y = Year of Production
WW = Work Week

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Ratings	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
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	−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

(T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	250	mW
	Derate Above 25°C	2.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	500	°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.

ORDERING INFORMATION

Device	Package	Shipping
KSC945YBU	TO−92 3 (Pb−Free)	10,000 Units / Bulk
KSC945CYTA	TO−92 3 LF (Pb−Free)	2,000 Units / FNFLD
KSC945YTA	TO−92 3 LF (Pb−Free)	2,000 Units / FNFLD

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 100 μA, I_E = 0	60	–	–	V
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	50	–	–	V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5	–	–	V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 40 V, I_E = 0	–	–	0.1	μA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 3 V, I_C = 0	–	–	0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 6 V, I_C = 1.0 mA	120	–	240	
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA	–	0.15	0.30	V
f_T	Current Gain Bandwidth Product	V_{CE} = 6 V, I_C = 10 mA	–	300	–	MHz
C_{ob}	Output Capacitance	V_{CB} = 6 V, I_E = 0, f = 1 MHz	–	2.5	–	pF
NF	Noise Figure	V_{CE} = 6 V, I_C = 0.5 mA, f = 1 kHz, R_S = 500 Ω	–	4.0	–	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.

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TYPICAL CHARACTERISTICS

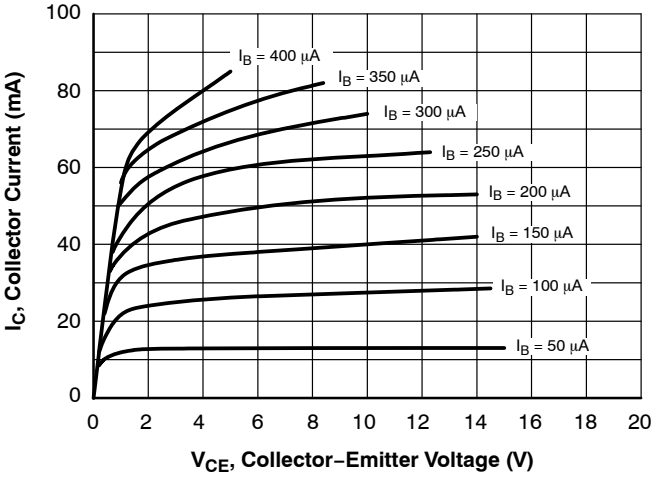

Figure 1. Static Characteristic

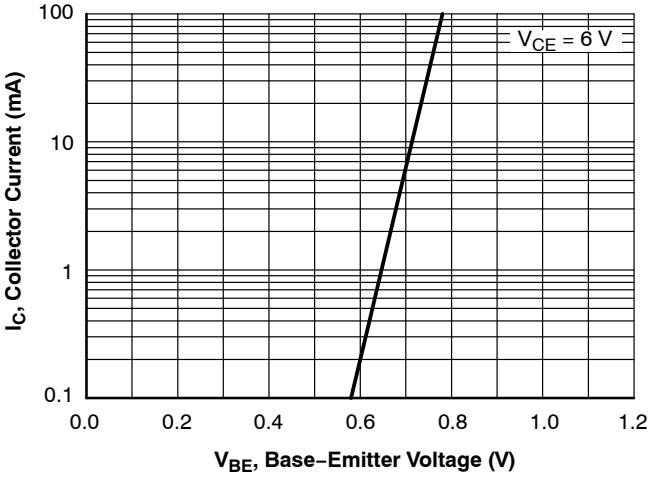

Figure 2. Transfer Characteristic

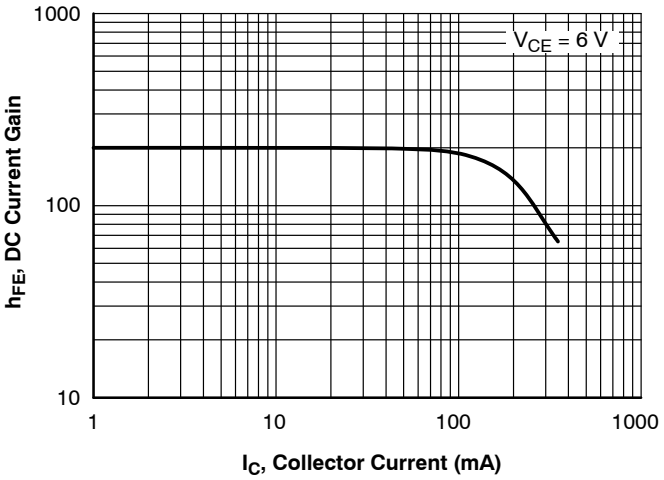

Figure 3. DC Current Gain

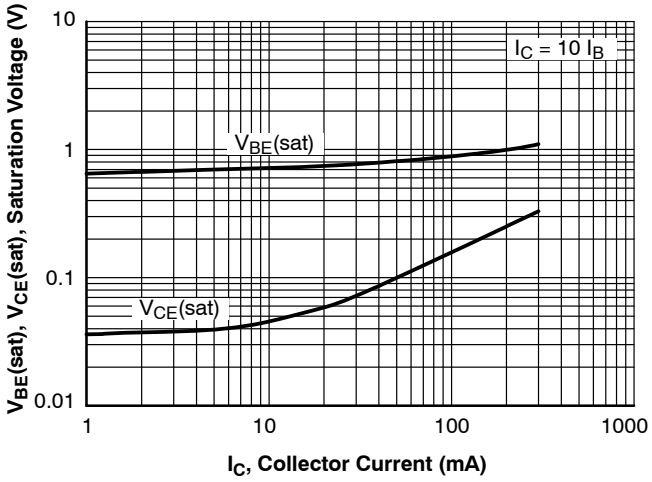

Figure 4. Base−Emitter Saturation Voltage and Collector−Emitter Saturation Voltage

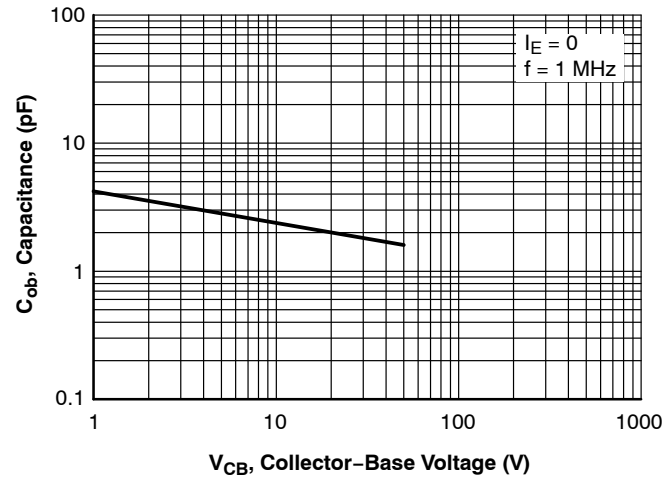

Figure 5. Output Capacitance

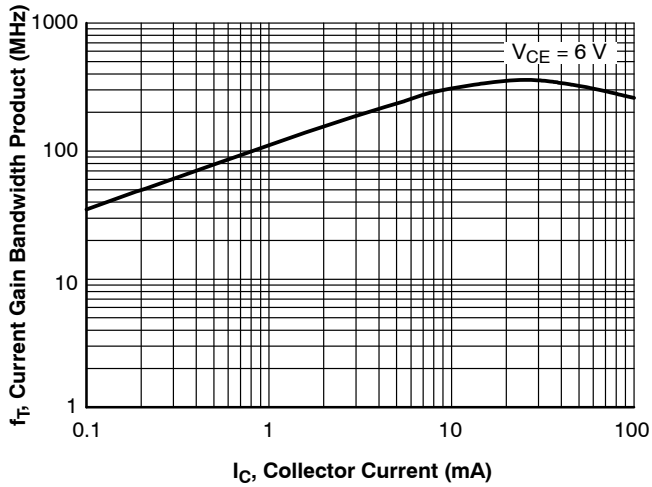

Figure 6. Current Gain Bandwidth Product

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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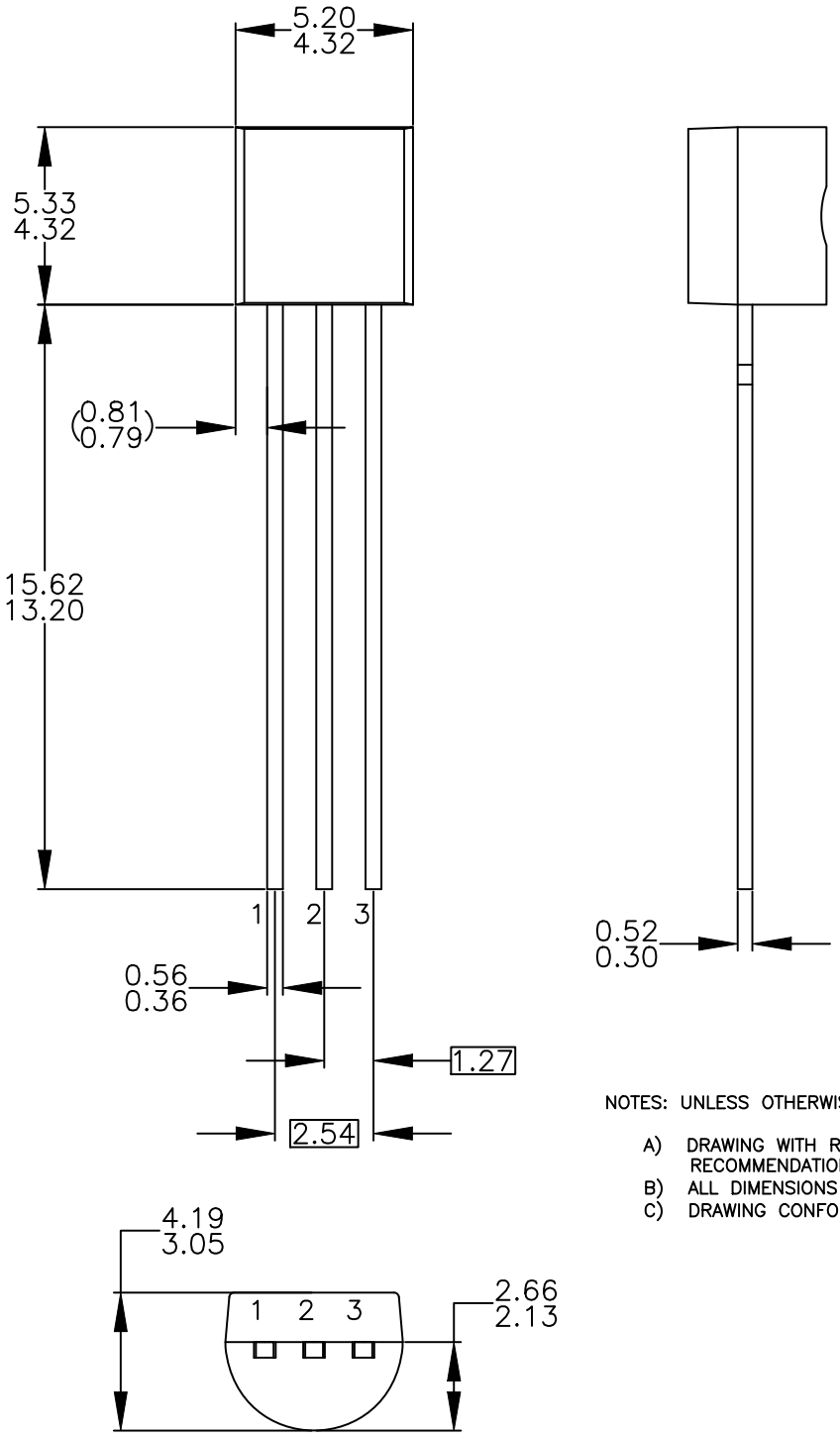
TO−92 3 4.825x4.76
CASE 135AN
ISSUE O

DATE 31 JUL 2016



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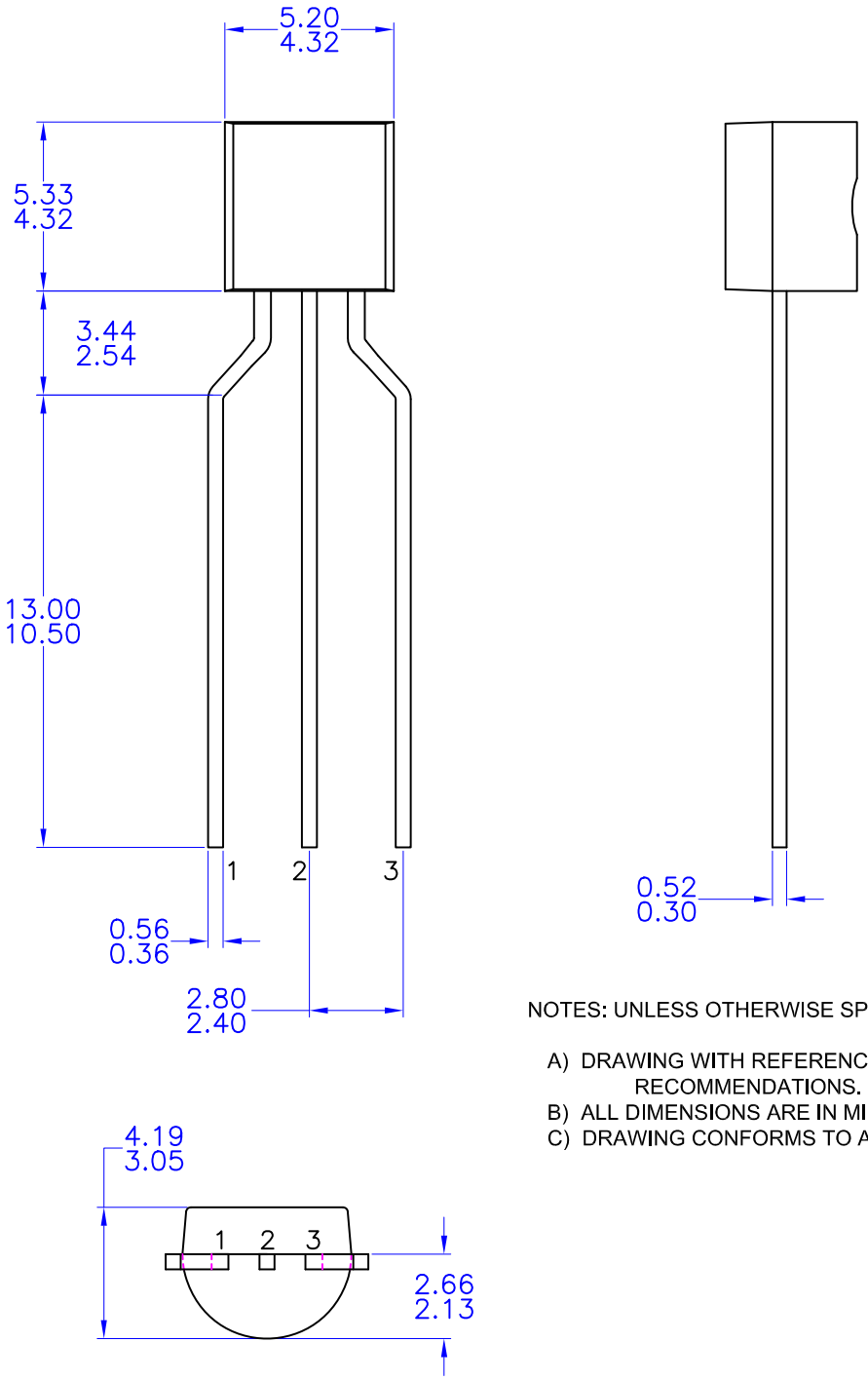

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