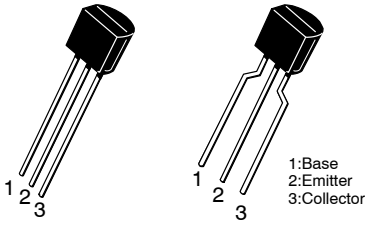
NPN Epitaxial Silicon Transistor

KSP10



TO−92−3
CASE 135AN

TO−92 LF
CASE 135AR

Features

- VHF/UHF Transistor
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

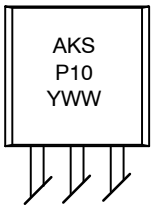
ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector−Base Voltage	30	V
V_{CEO}	Collector−Emitter Voltage	25	V
V_{EBO}	Emitter−Base Voltage	3.0	V
PC	Collector Power Dissipation (T_A = 25°C)	350	mW
	Derate above 25°C	2.8	mW/°C
PC	Collector Power Dissipation (T_C = 25°C)	1.0	W
	Derate above 25°C	8.0	W/°C
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	−55 to 150	°C
Rth(j−c)	Thermal Resistance, Junction to Case	125	°C/W
Rth(j−a)	Thermal Resistance, Junction to Ambient	357	°C/W

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.

MARKING DIAGRAM



A = Assembly Code
KSP10 = Device Code
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
KSP10BU	TO−92 3 (Pb−Free)	10000 / Bulk Bag
KSP10TA	TO−92 3 LF (Pb−Free)	2000 / Fan−Fold

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

Symbol	Parameter	Conditions	Min	Max	Unit
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 100 μA, I_E = 0	30	–	V
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 1 mA, I_B = 0	25	–	V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 10 μA, I_C = 0	3.0	–	V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 25 V, I_E = 0	–	100	nA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 2 V, I_C = 0	–	100	nA
h_{FE}	DC Current Gain	V_{CE} = 10 V, I_C = 4 mA	60	–	–
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 4 mA, I_B = 0.4 mA	–	0.5	V
$V_{BE(on)}$	Base−Emitter On Voltage	V_{CE} = 10 V, I_C = 4 mA	–	0.95	V
f_T	Current Gain Bandwidth Product	V_{CE} = 10 V, I_C = 4 mA, f = 100 MHz	650	–	MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz	–	0.7	pF
Crb	Collector Base Feedback Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz	0.35	0.65	pF
$C_{c\cdot rbb'}$	Collector Base Time Constant	V_{CB} = 10 V, I_C = 4 mA, f = 31.8 MHz	–	9.0	ps

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.

1. Pulse Test: PW ≤ 300 μs, Duty Cycle ≤ 2%.

TYPICAL CHARACTERISTICS

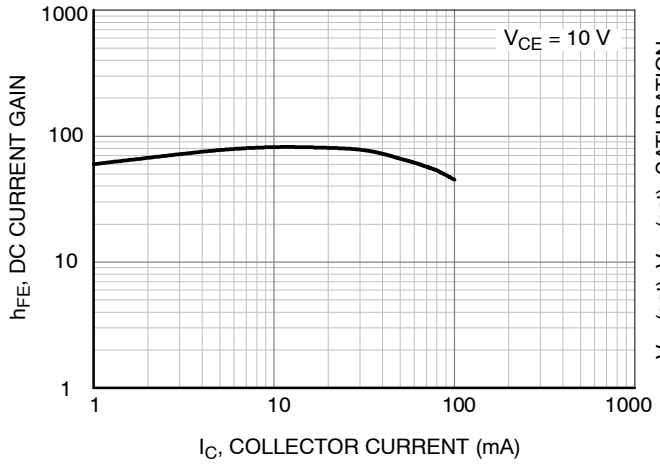


Figure 1. DC Current Gain

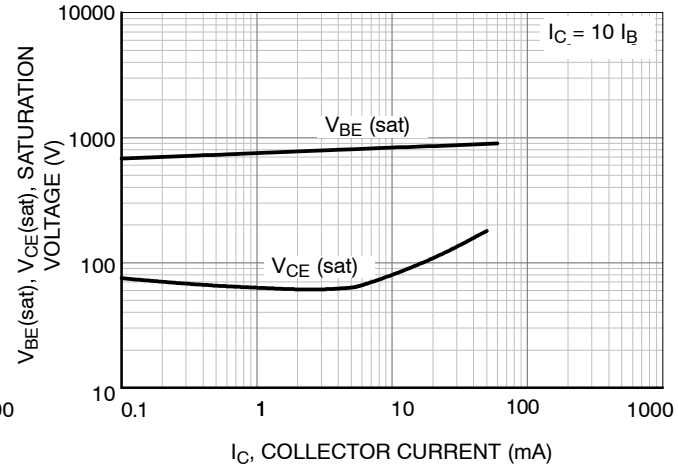


Figure 2. Base−Emitter Saturation Voltage and Collector−Emitter Saturation Voltage

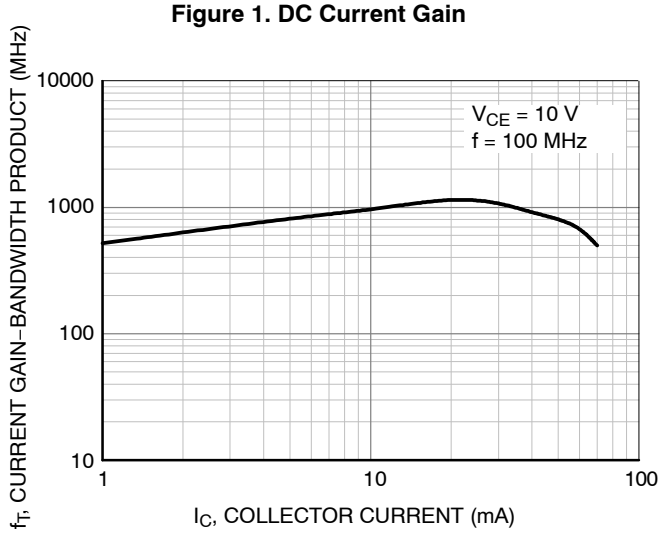


Figure 3. Current Gain Bandwidth Product

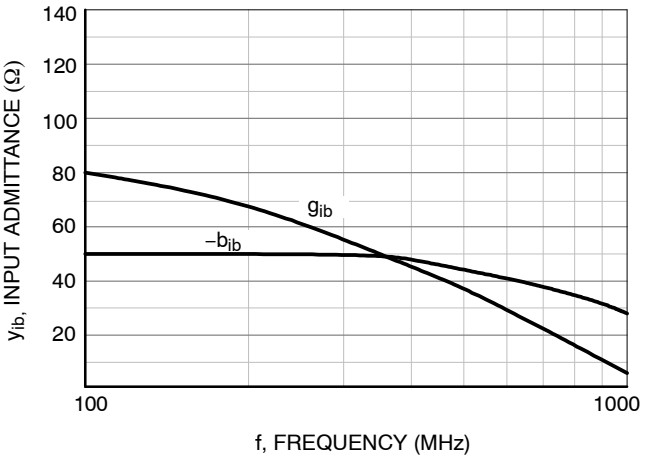


Figure 4. Rectangular Form

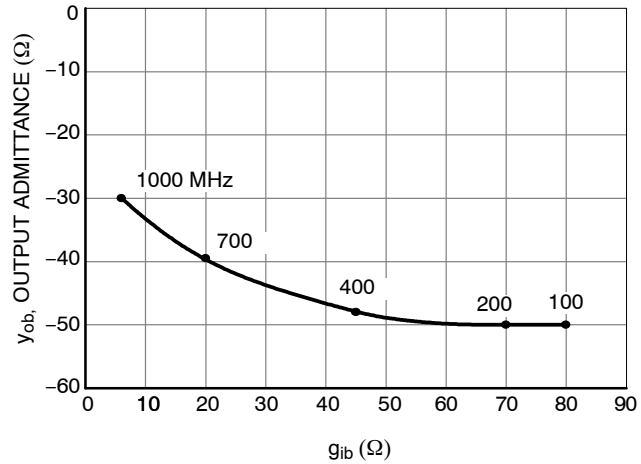


Figure 5. Polar Form

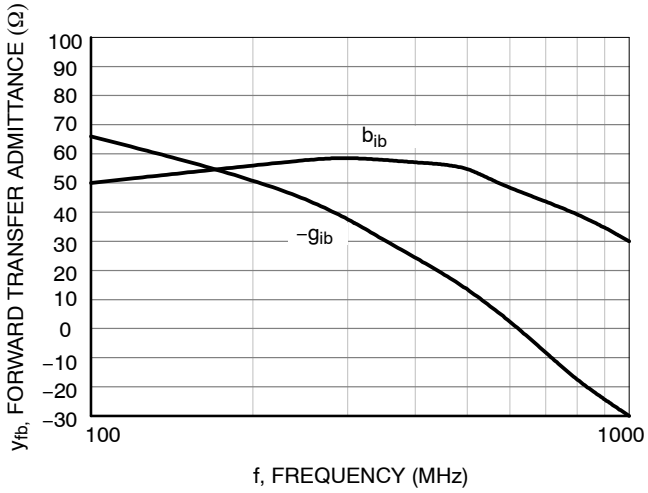


Figure 6. Rectangular Form

TYPICAL CHARACTERISTICS (CONTINUED)

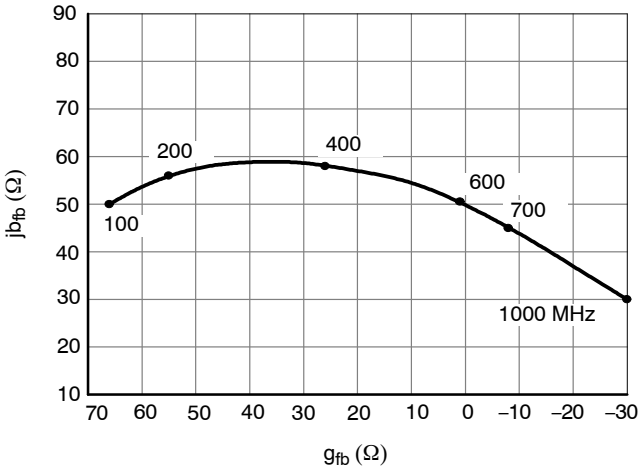


Figure 7. Polar Form

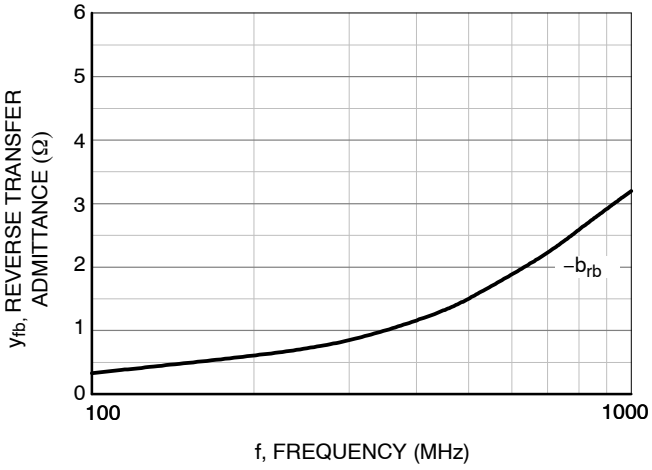


Figure 8. Rectangular Form

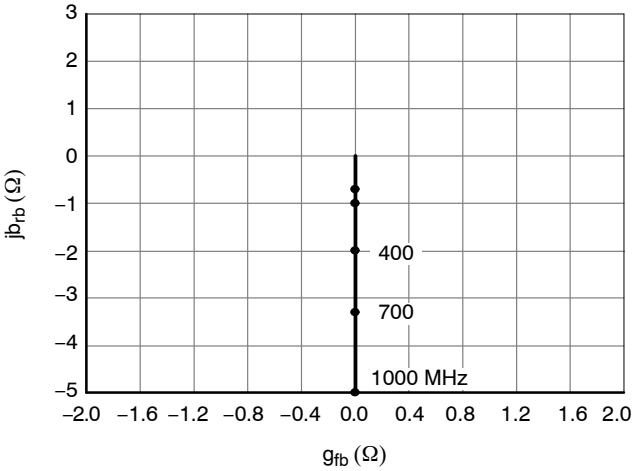


Figure 9. Polar Form

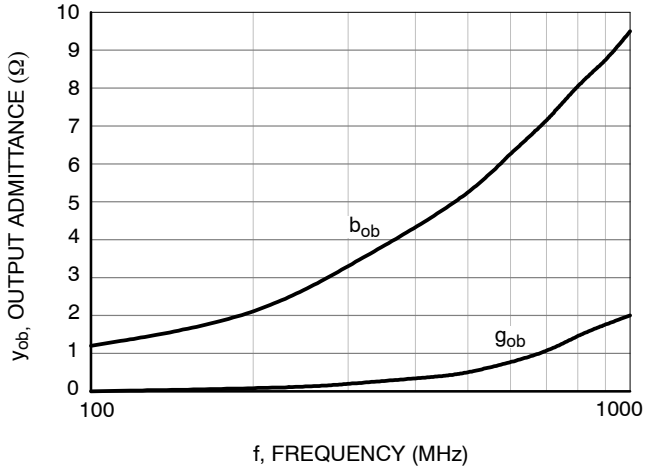


Figure 10. Rectangular Form

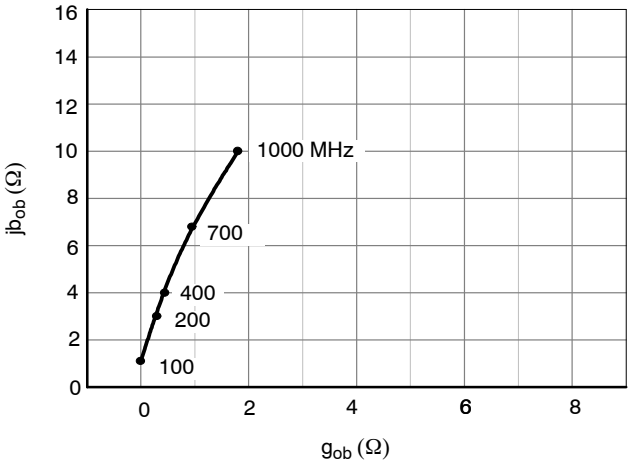


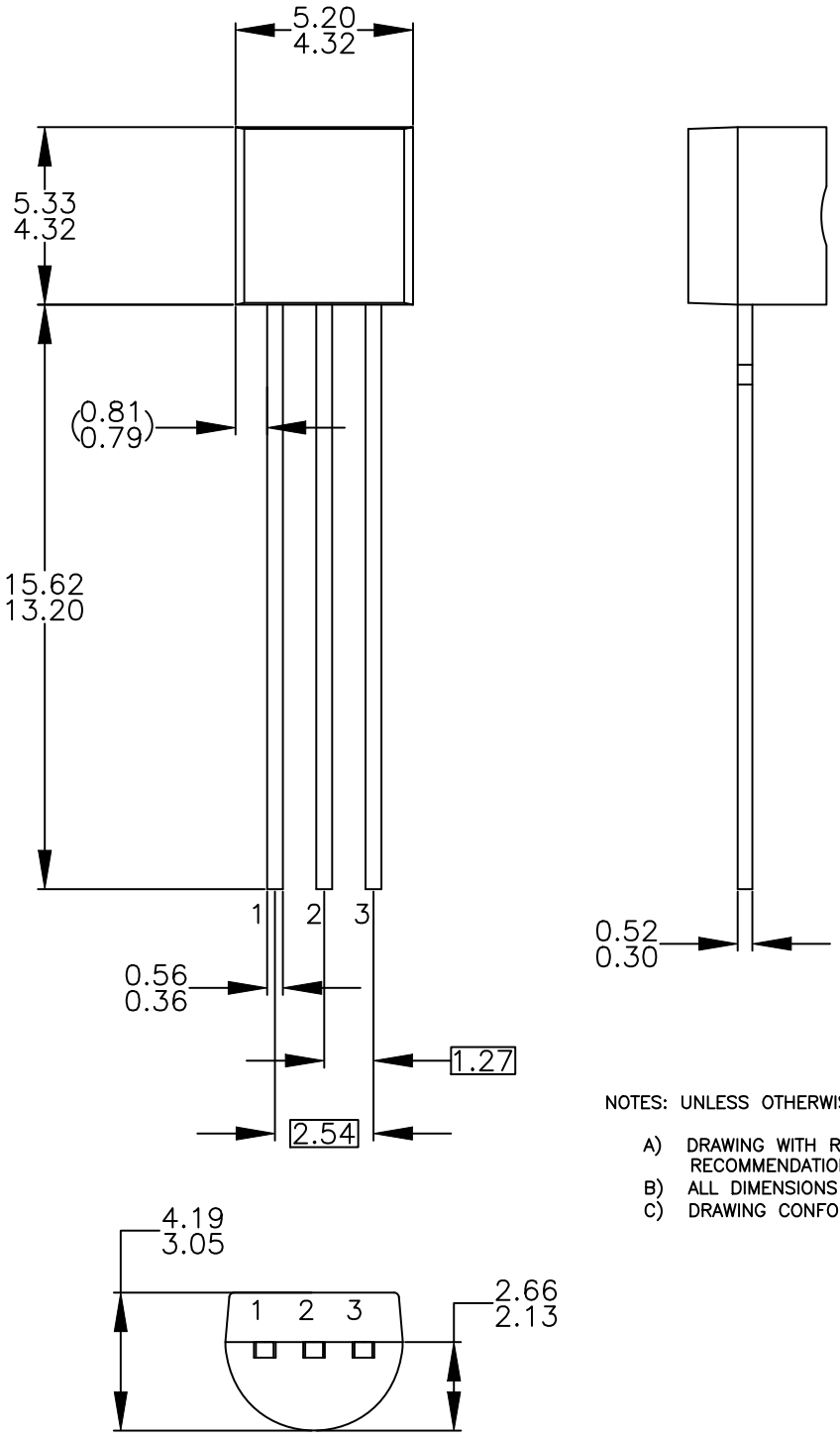
Figure 11. Polar Form

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

TO−92 3 4.825x4.76
CASE 135AN
ISSUE O

DATE 31 JUL 2016



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MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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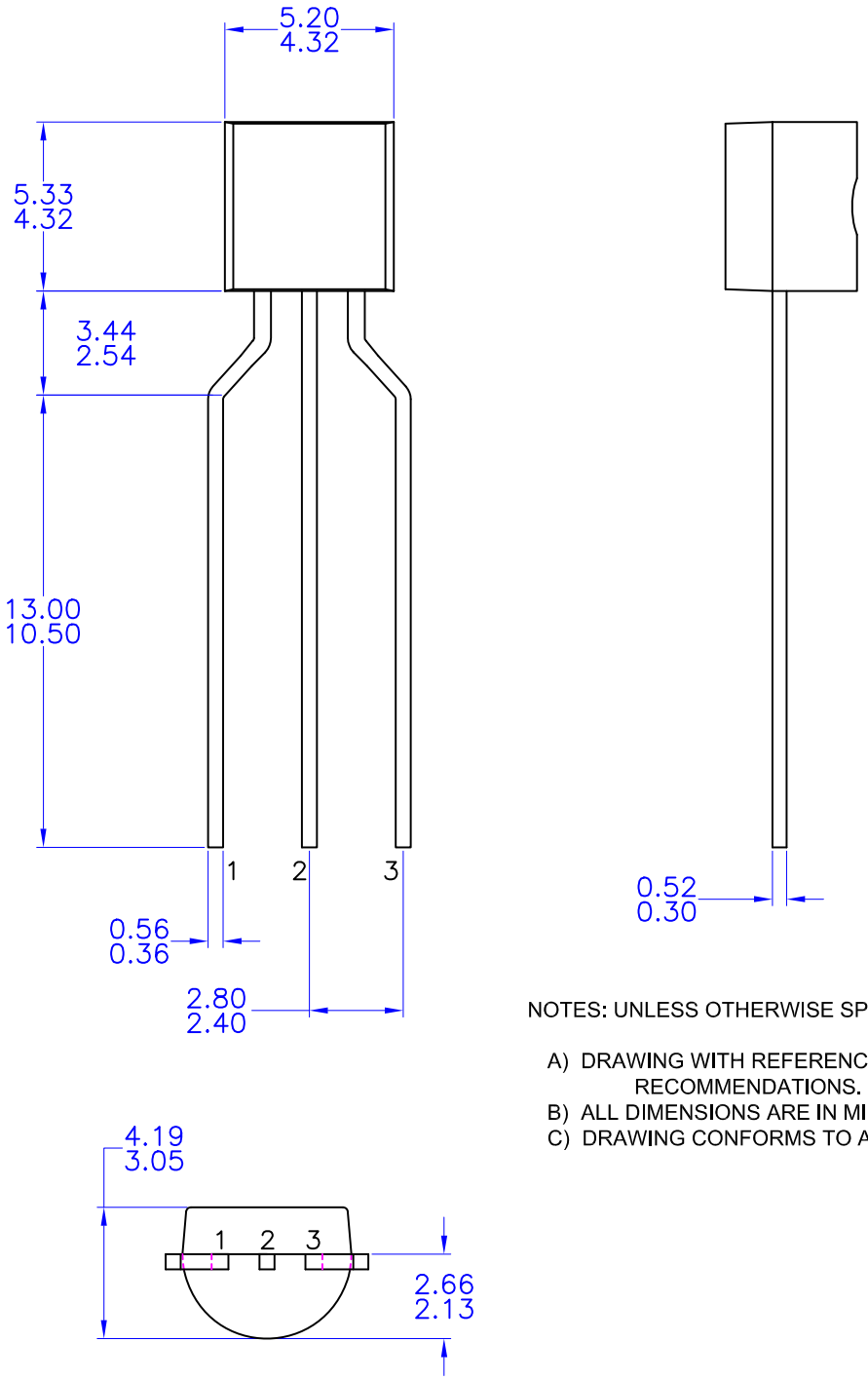
TO−92 3 4.83x4.76 LEADFORMED
CASE 135AR
ISSUE O

DATE 30 SEP 2016



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