

# NPN Epitaxial Silicon Transistor

## KSP42, KSP43

### Features

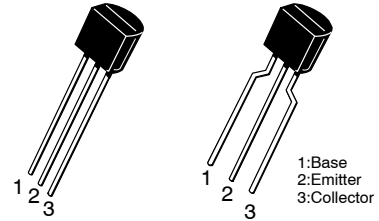
- Collector–Emitter Voltage:
  - ◆ KSP42:  $V_{CEO} = 300\text{ V}$
  - ◆ KSP43:  $V_{CEO} = 200\text{ V}$
- Collector Dissipation:  $P_C (\text{max.}) = 625\text{ mW}$
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

### ABSOLUTE MAXIMUM RATINGS

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter		Value	Unit
$V_{CBO}$	Collector–Base Voltage	KSP42	300	V
		KSP43	200	
$V_{CEO}$	Collector–Emitter Voltage	KSP42	300	V
		KSP43	200	
$V_{EBO}$	Emitter–Base Voltage		6	V
$I_C$	Collector Current		500	mA
$P_C$	Collector Power Dissipation		625	mW
$T_J$	Junction Temperature		150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature		–55 to 150	$^\circ\text{C}$

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.



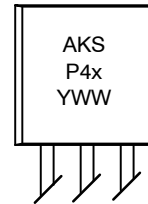
STRAIGHT LEAD  
BULK PACK

TO–92–3  
CASE 135AN

BENT LEAD  
TAPE & REEL  
AMMO PACK

TO–92 LF  
CASE 135AR

### MARKING DIAGRAM



A = Assembly Code  
KSP4x = Device Code (x = 2 or 3)  
Y = Year  
WW = Work Week

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# KSP42, KSP43

## ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping
KSP42BU	KSP42	TO-92-3 (Pb-Free), case 135AN	10,000 units / Bulk Bag
KSP42TA	KSP42	TO-92-3 (Pb-Free), case 135AR	2,000 units / Fan-Fold
KSP43BU	KSP43	TO-92-3 (Pb-Free), case 135AN	10,000 units / Bulk Bag
KSP43TA	KSP43	TO-92-3 (Pb-Free), case 135AR	2,000 units / Fan-Fold

## ELECTRICAL CHARACTERISTICS

(Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Max.	Unit	
$BV_{CBO}$	Collector-Base Breakdown Voltage	KSP42	$I_C = 100 \mu\text{A}, I_E = 0$	300	V	
		KSP43		200		
$BV_{CEO}$	Collector-Emitter Breakdown Voltage (Note 1)	KSP42	$I_C = 1 \text{ mA}, I_B = 0$	300	V	
		KSP43		200		
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	6		V	
$I_{CBO}$	Collector Cut-Off Current	KSP42	$V_{CB} = 200 \text{ V}, I_E = 0$		100	nA
		KSP43	$V_{CB} = 160 \text{ V}, I_E = 0$		100	
$I_{EBO}$	Emitter Cut-Off Current	KSP42	$V_{EB} = 6 \text{ V}, I_C = 0$		100	nA
		KSP43	$V_{EB} = 4 \text{ V}, I_C = 0$		100	
$h_{FE}$	DC Current Gain (Note 1)		$V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$	25		
			$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	40		
			$V_{CE} = 10 \text{ V}, I_C = 30 \text{ mA}$	40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (Note 1)	$I_C = 20 \text{ mA}, I_B = 2 \text{ mA}$		0.5	V	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (Note 1)	$I_C = 20 \text{ mA}, I_B = 2 \text{ mA}$		0.9	V	
$C_{ob}$	Output Capacitance	KSP42	$V_{CB} = 20 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		3	pF
		KSP43			4	
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 20 \text{ V}, I_C = 10 \text{ mA}, f = 100 \text{ MHz}$	50		MHz	

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: pulse width  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .

TYPICAL PERFORMANCE CHARACTERISTICS

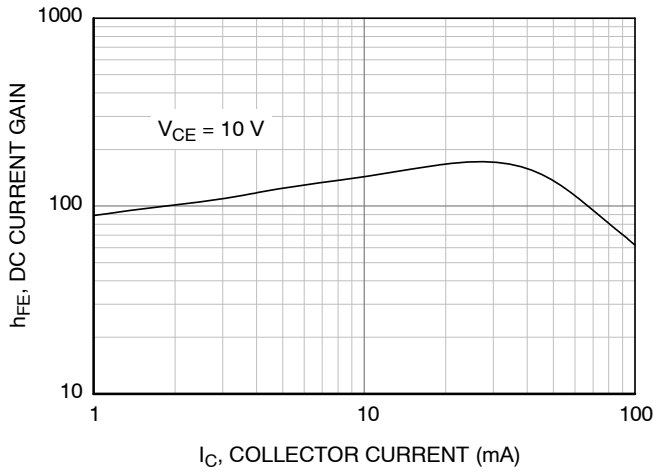


Figure 1. DC Current Gain

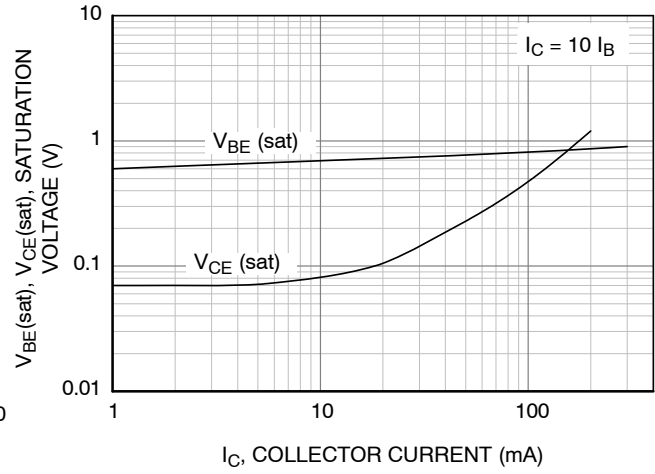


Figure 2. Collector-Emitter Saturation Voltage and Base-Emitter Saturation Voltage

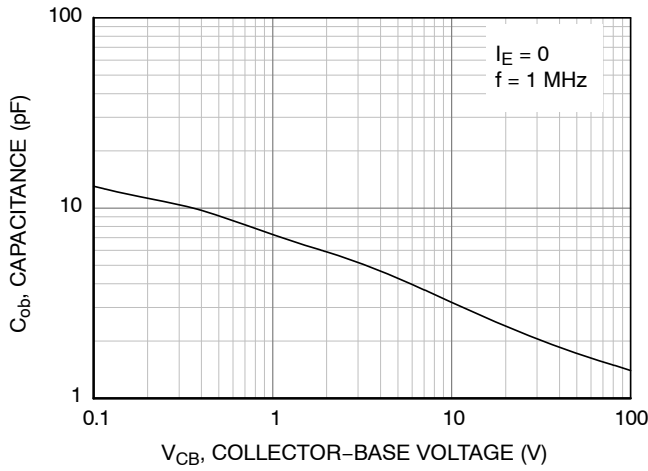


Figure 3. Current Gain Bandwidth Product

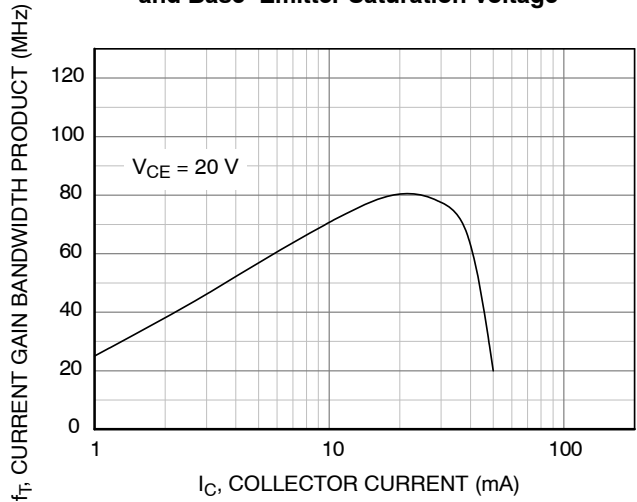
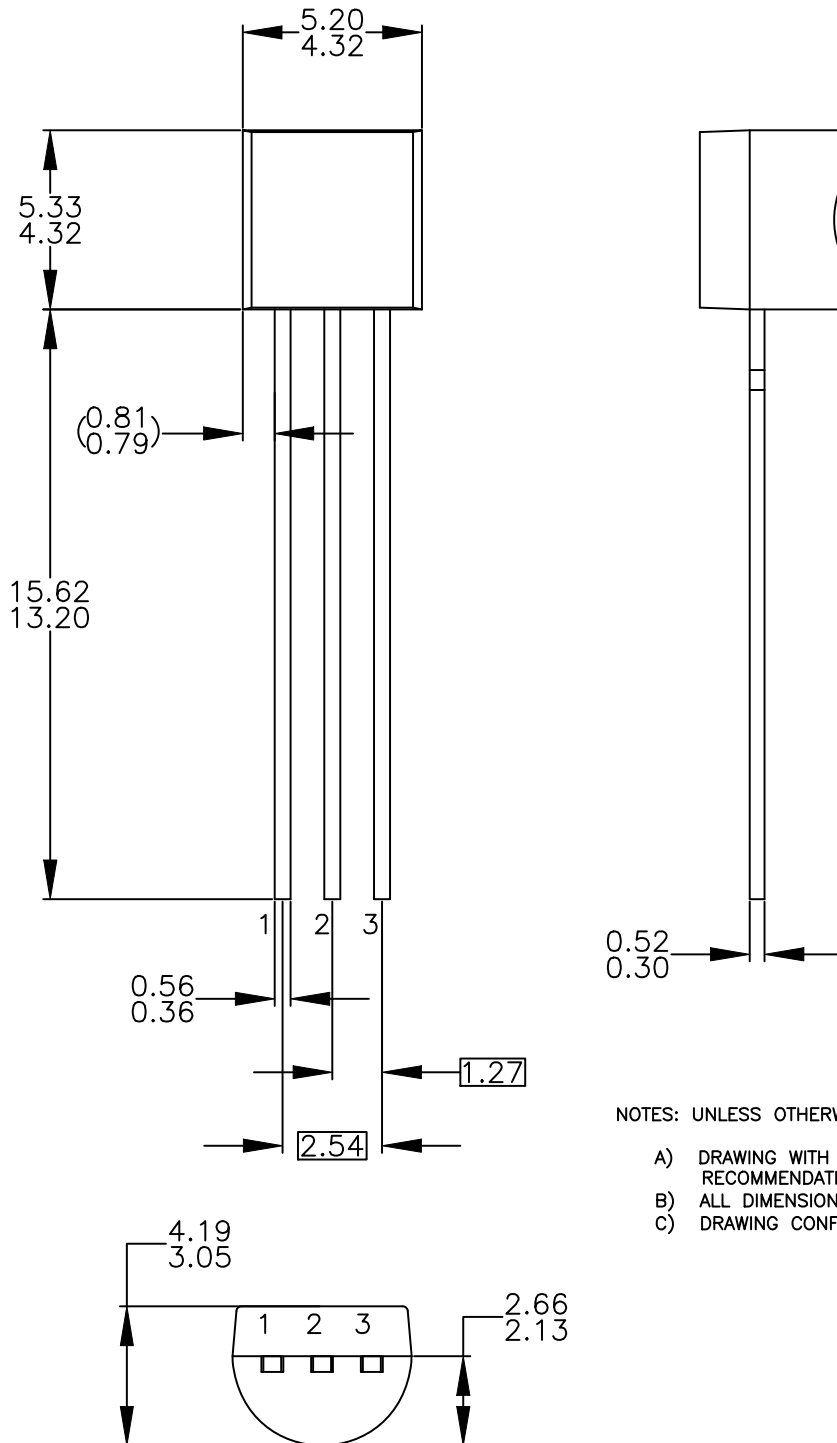


Figure 4. Current Gain Bandwidth Product

**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

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

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

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


DATE 30 SEP 2016



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