

# KSP10

## VHF/UHF transistor



## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	30	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$P_C$	Collector Power Dissipation ( $T_a=25^\circ\text{C}$ )	350	mW
	Derate above $25^\circ\text{C}$	2.8	mW/ $^\circ\text{C}$
$P_C$	Collector Power Dissipation ( $T_C=25^\circ\text{C}$ )	1.0	W
	Derate above $25^\circ\text{C}$	8.0	W/ $^\circ\text{C}$
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55~150	$^\circ\text{C}$
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	125	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C}/\text{W}$

### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

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

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

# Typical Characteristics

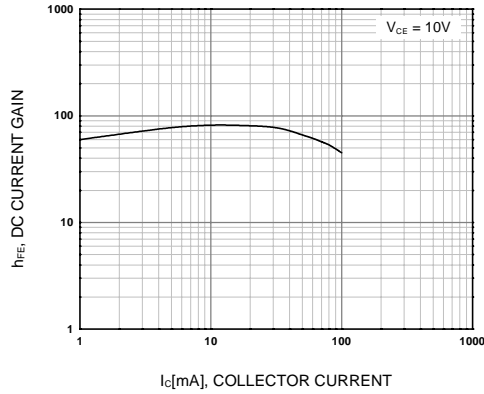


Figure 1. DC current Gain

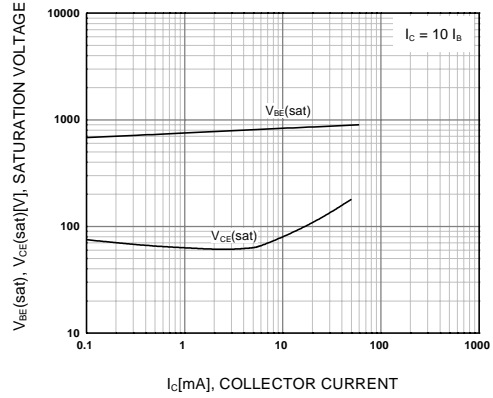


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

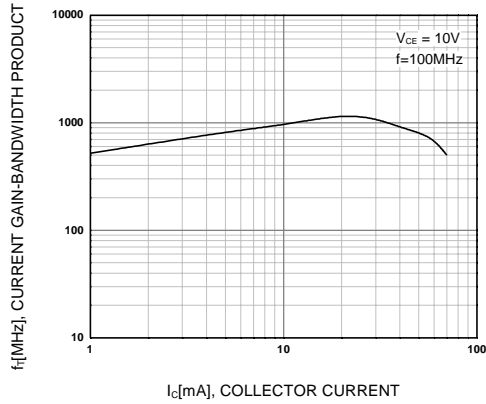


Figure 3. Current Gain Bandwidth Product

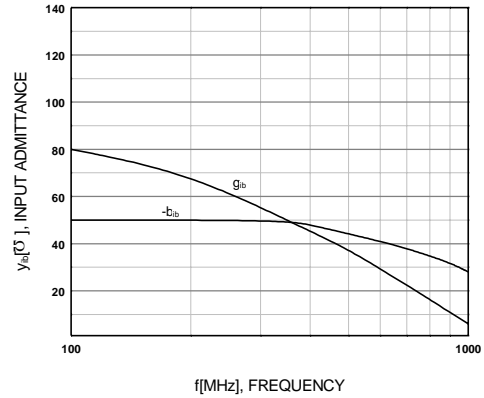


Figure 4. Rectangular Form

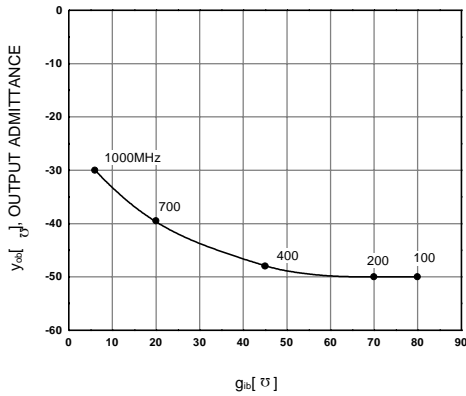


Figure 5. Polar Form

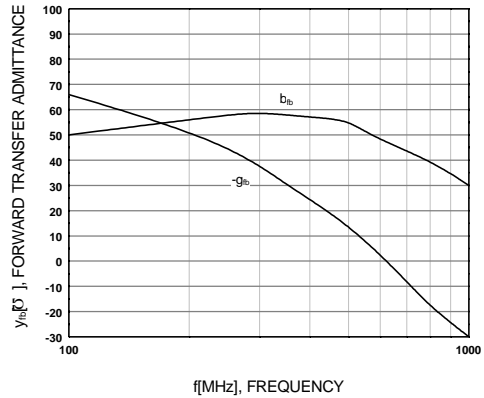


Figure 6. Rectangular Form

Typical Characteristics (Continued)

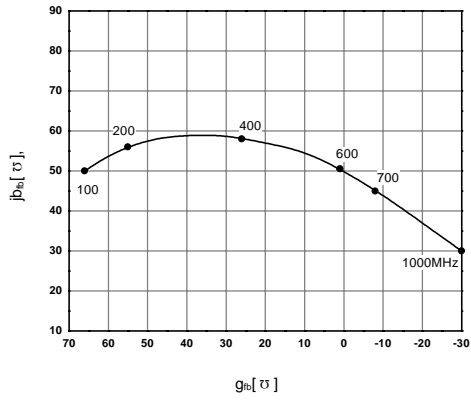


Figure 7. Polar Form

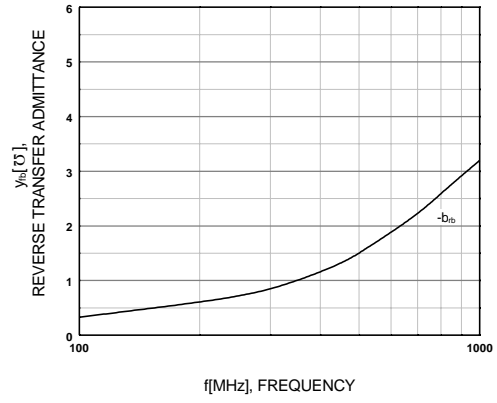


Figure 8. Rectangular Form

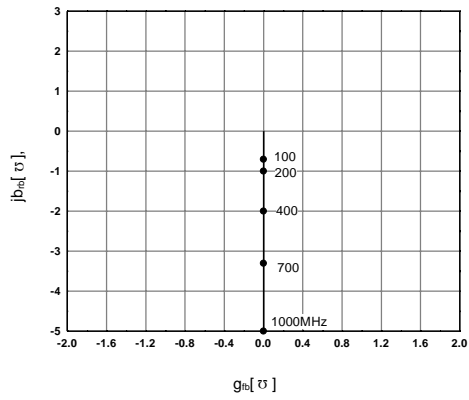


Figure 9. Polar Form

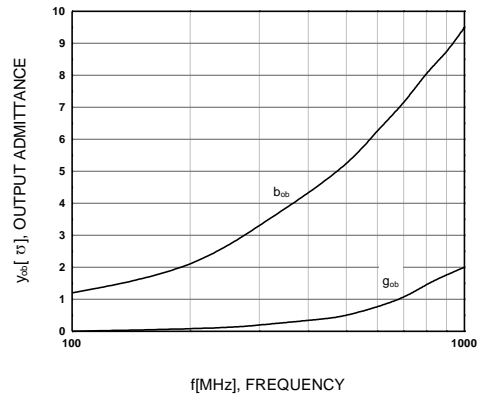


Figure 10. Rectangular Form

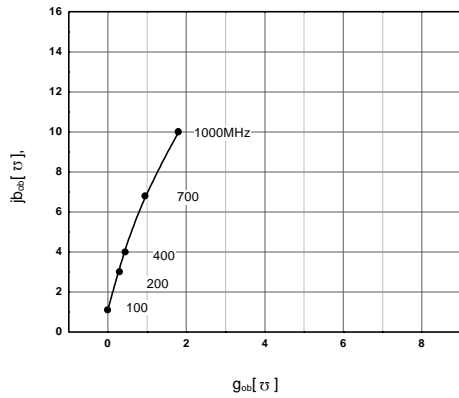
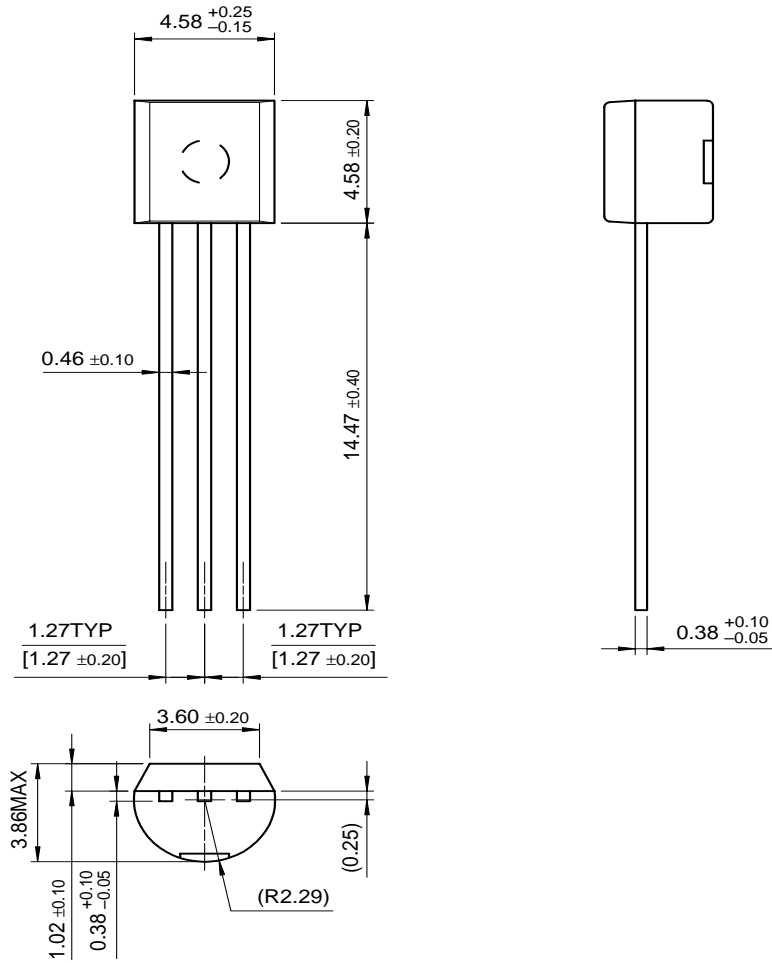


Figure 11. Polar Form

# Package Dimensions

KSP10

## TO-92



Dimensions in Millimeters

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