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## 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		
$V_{CE(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C=4\text{mA}$ , $I_B=0.4\text{mA}$		0.5	V
$V_{BE(\text{on})}$	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

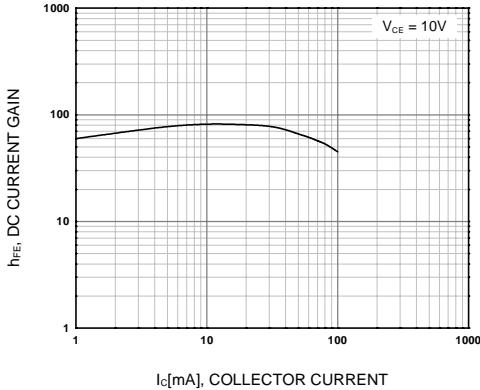


Figure 1. DC current Gain

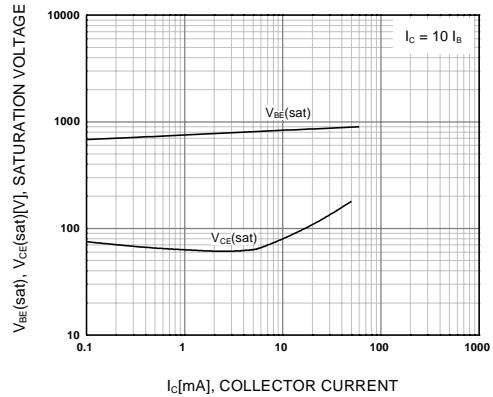


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

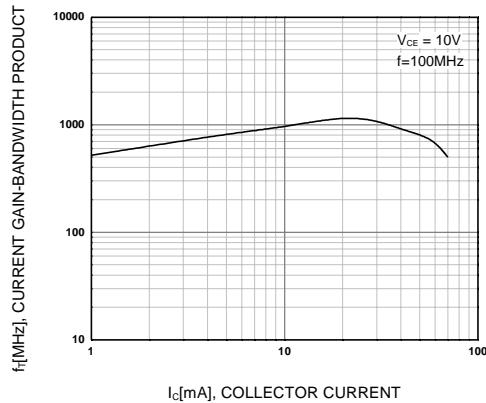


Figure 3. Current Gain Bandwidth Product

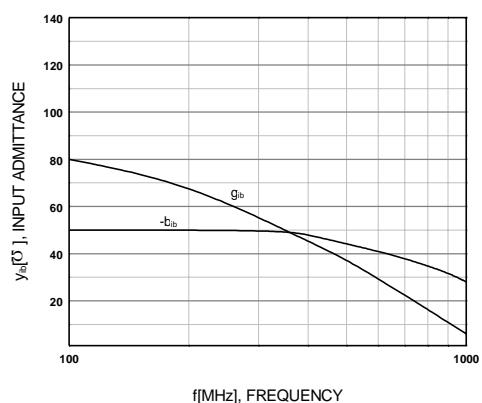


Figure 4. Rectangular Form

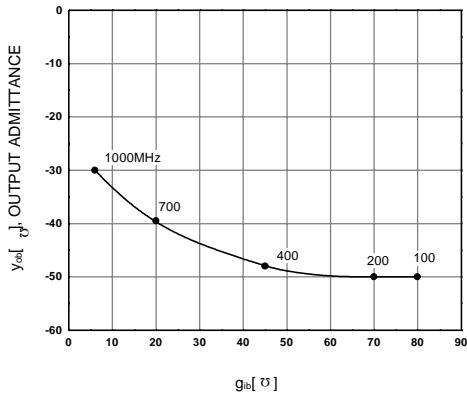


Figure 5. Polar Form

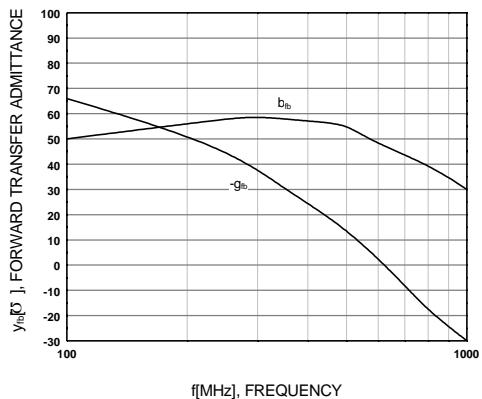


Figure 6. Rectangular Form

## Typical Characteristics (Continued)

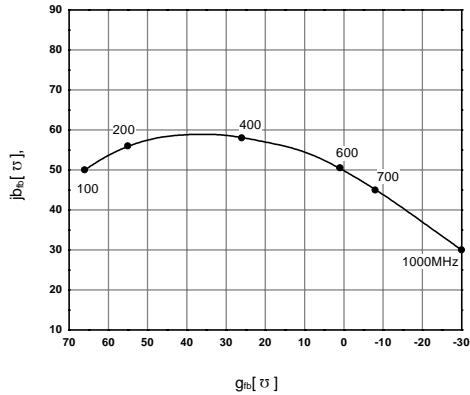


Figure 7. Polar Form

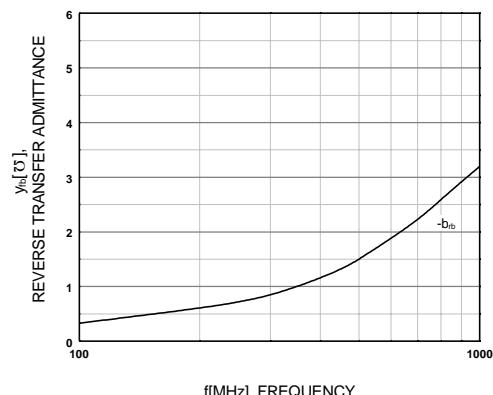


Figure 8. Rectangular Form

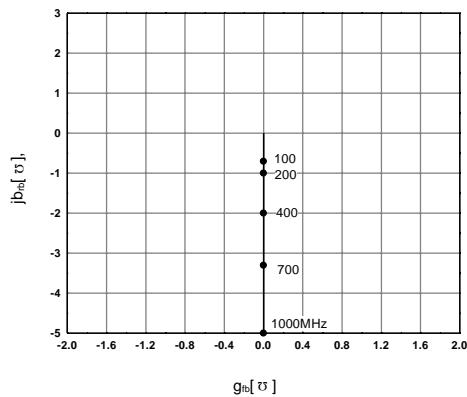


Figure 9. Polar Form

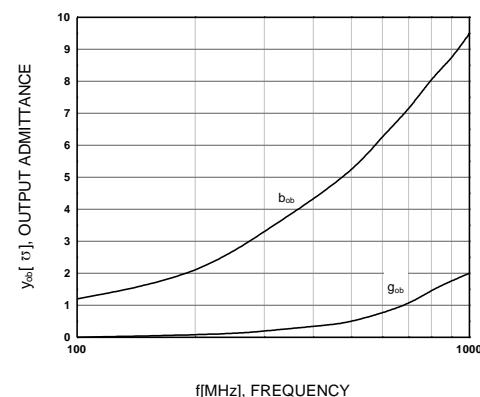


Figure 10. Rectangular Form

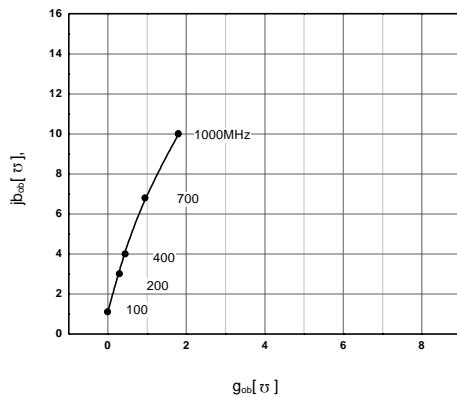
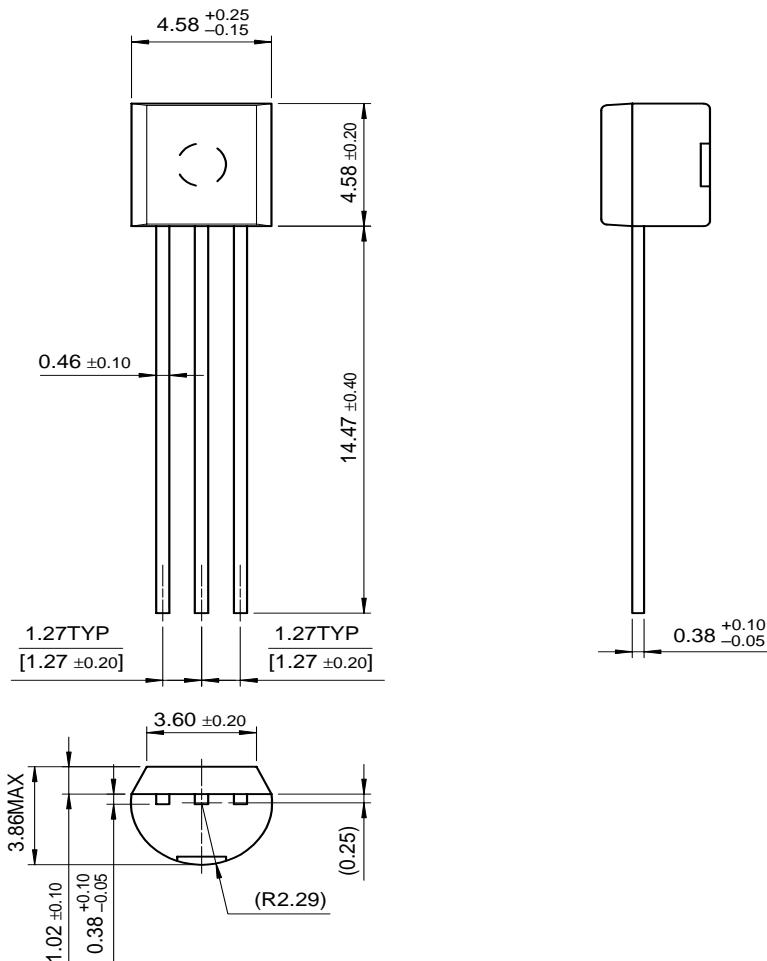


Figure 11. Polar Form

## Package Dimensions

TO-92



Dimensions in Millimeters

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