

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°C	2.8	mW/ $^\circ\text{C}$
P_C	Collector Power Dissipation ($T_C=25^\circ\text{C}$)	1.0	W
	Derate above 25°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	$^\circ\text{C/W}$
$R_{th(j-a)}$	Thermal Resistance, Junction to Ambient	357	$^\circ\text{C/W}$

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

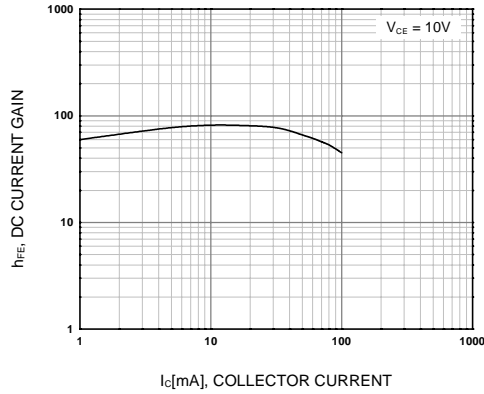


Figure 1. DC current Gain

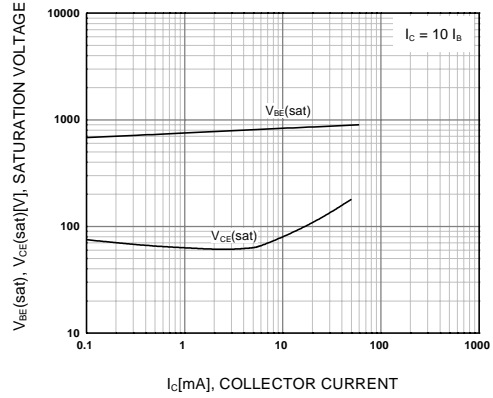


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

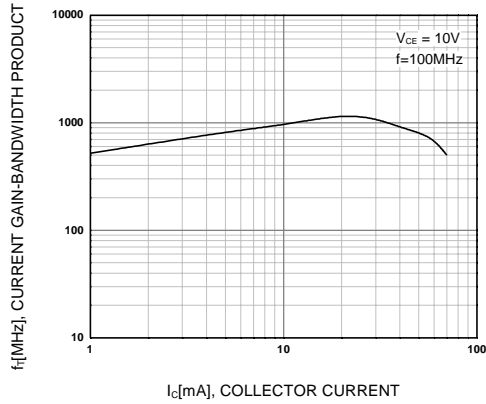


Figure 3. Current Gain Bandwidth Product

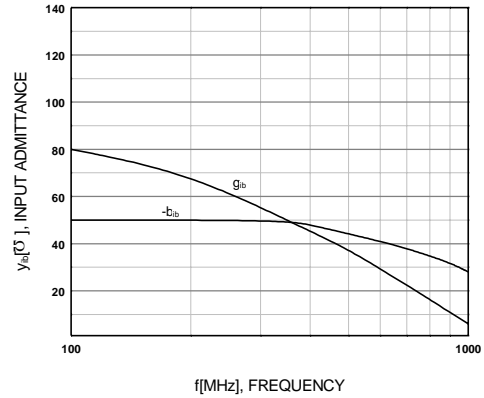


Figure 4. Rectangular Form

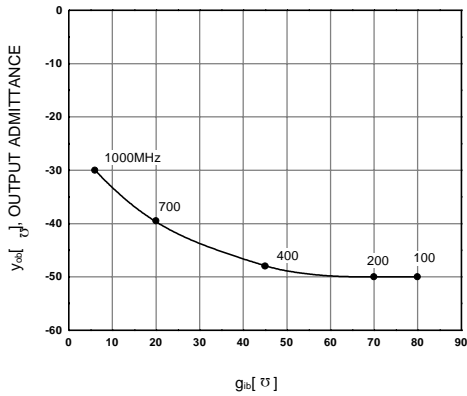


Figure 5. Polar Form

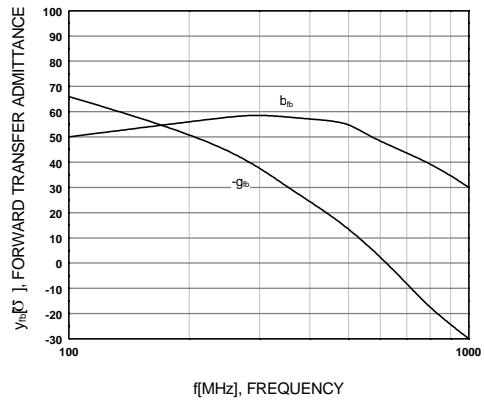


Figure 6. Rectangular Form

Typical Characteristics (Continued)

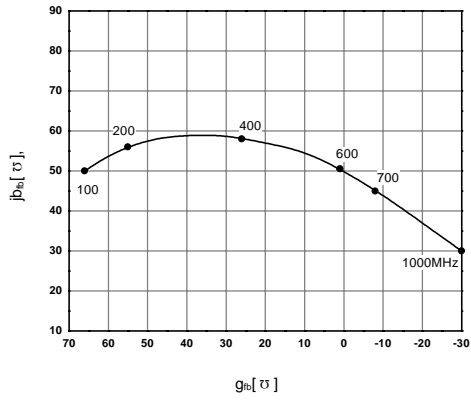


Figure 7. Polar Form

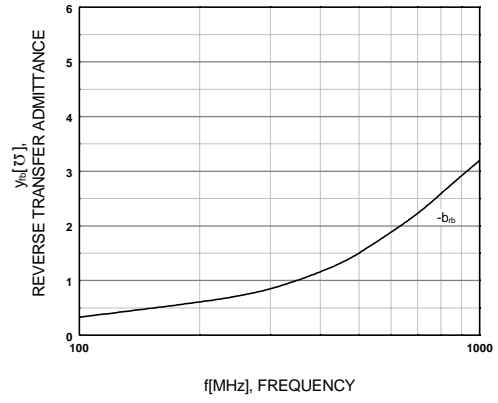


Figure 8. Rectangular Form

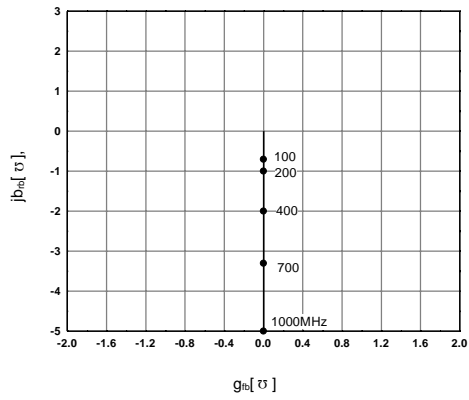


Figure 9. Polar Form

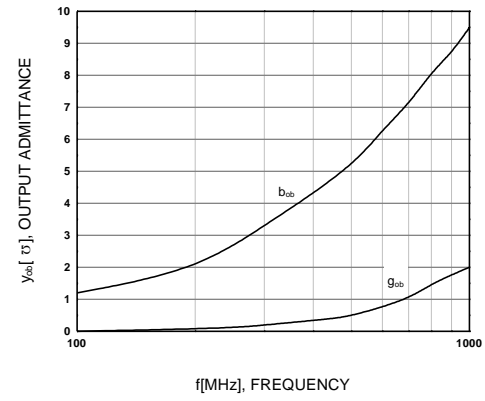


Figure 10. Rectangular Form

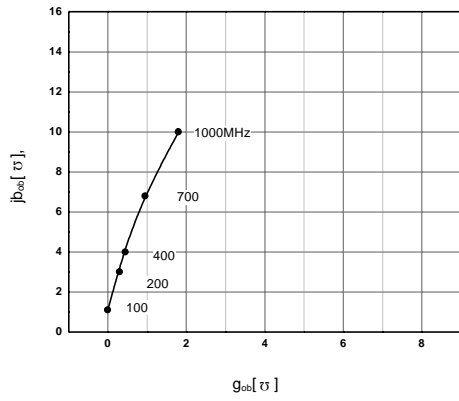
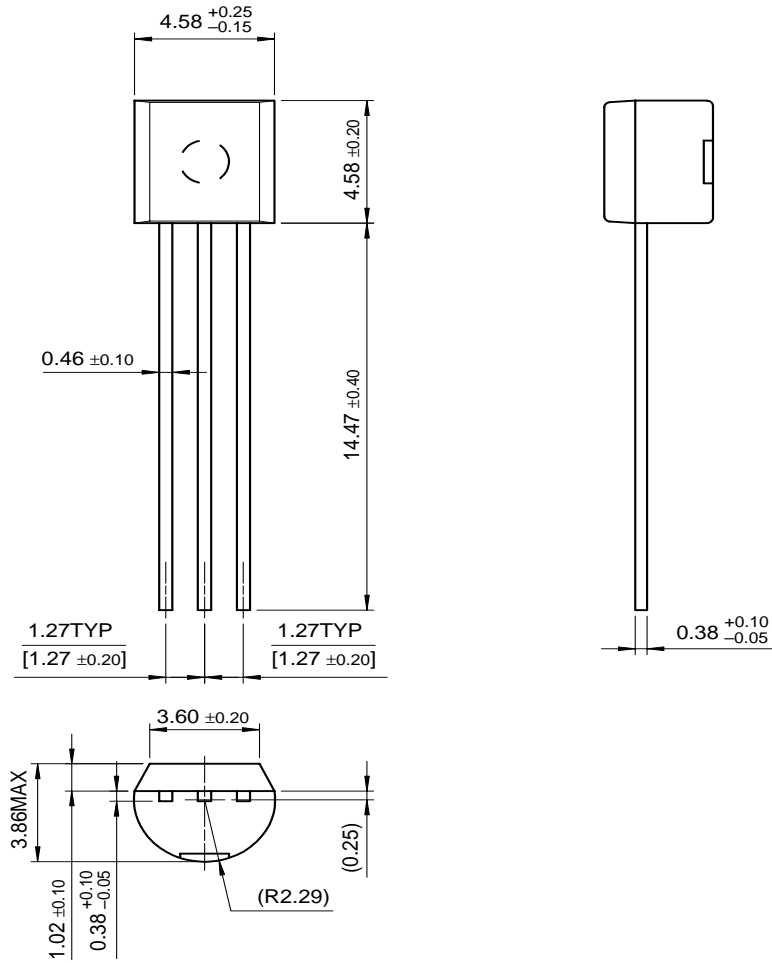


Figure 11. Polar Form

Package Dimensions

KSP10

TO-92



Dimensions in Millimeters

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