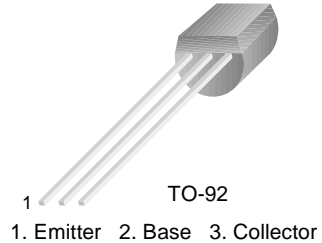


KSP13/14

Darlington Transistor

- Collector-Emitter Voltage: $V_{CES}=30V$
- Collector Power Dissipation: P_C (max)=625mW



NPN Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings $T_a=25^\circ C$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CES}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current	500	mA
P_C	Collector Power Dissipation	625	mW
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ C$

Electrical Characteristics $T_a=25^\circ C$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CES}	Collector-Emitter Breakdown Voltage	$I_C=100\mu A, I_B=0$	30		V
I_{CBO}	Collector Cut-off Current	$V_{CB}=30V, I_E=0$		100	nA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=10V, I_C=0$		100	nA
h_{FE}	* DC Current Gain				
	: KSP13	$V_{CE}=5V, I_C=10mA$	5K		
	: KSP14		10K		
	: KSP13	$V_{CE}=5V, I_C=100mA$	10K		
	: KSP14		20K		
V_{CE} (sat)	Collector-Emitter Saturation Voltage	$I_C=100mA, I_B=0.1mA$		1.5	V
V_{BE} (on)	Base-Emitter On Voltage	$V_{CE}=5V, I_C=100mA$		2.0	V
f_T	Current Gain Bandwidth Product	$V_{CE}=5V, I_C=10mA$ $f=100MHz$	125		MHz

* Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Characteristics

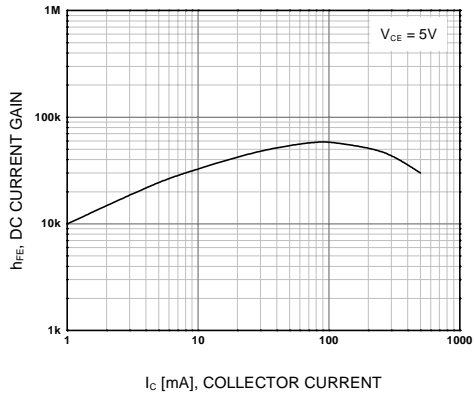


Figure 1. DC current Gain

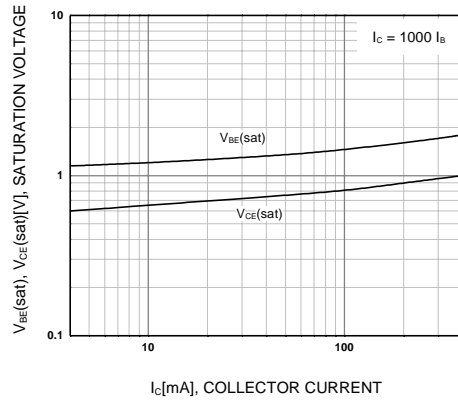


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

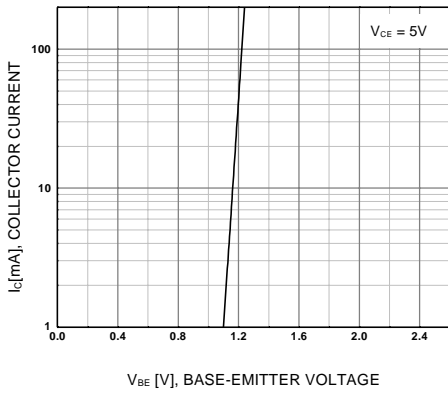


Figure 3. Base-Emitter On Voltage

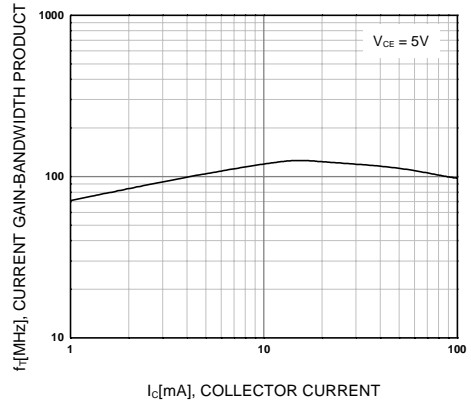
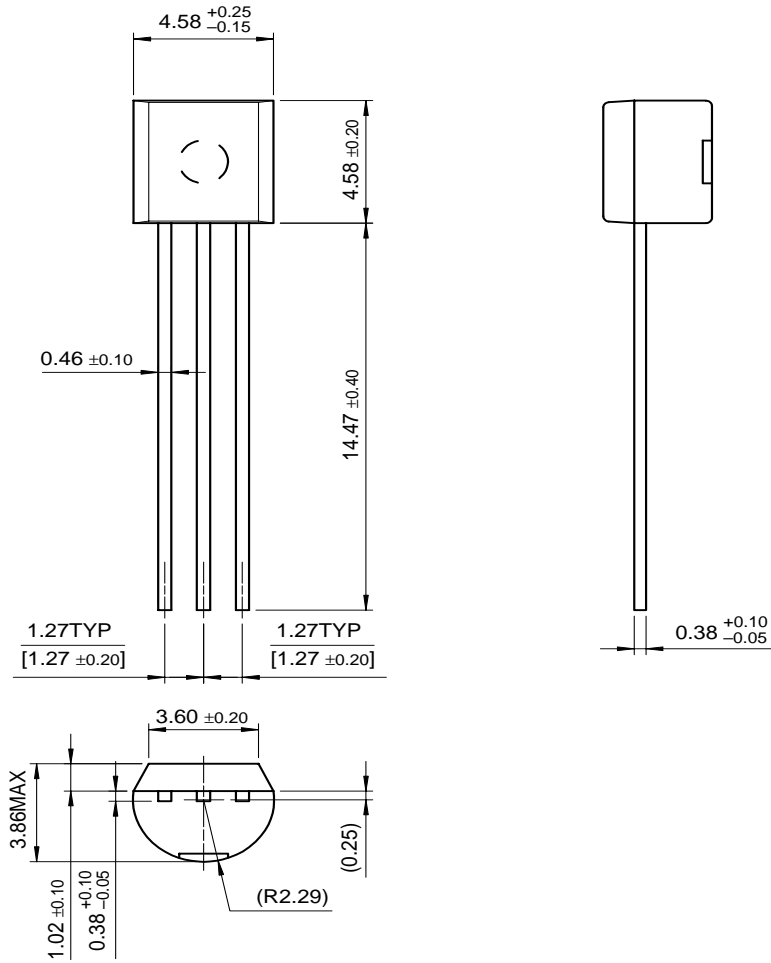


Figure 4. Current Gain Bandwidth Product

Package Dimensions

KSP13/14

TO-92



Dimensions in Millimeters

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KSP13

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- Collector Power Dissipation: $P_C (max) = 625mW$

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Product	Product status	Pricing*	Package type	Leads	Packing method
KSP13TF	Full Production	\$0.053	TO-92	3	TAPE REEL
KSP13TA	Full Production	\$0.053	TO-92	3	TAPE REEL
KSP13BU	Full Production	\$0.053	TO-92	3	BULK

* 1,000 piece Budgetary Pricing

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KSP14BU	Full Production	\$0.053	TO-92	3	BULK

* 1,000 piece Budgetary Pricing

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