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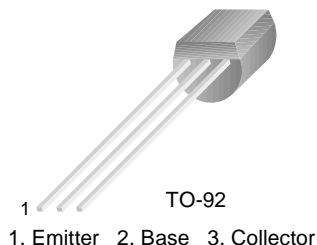
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## KSP13/14

### 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

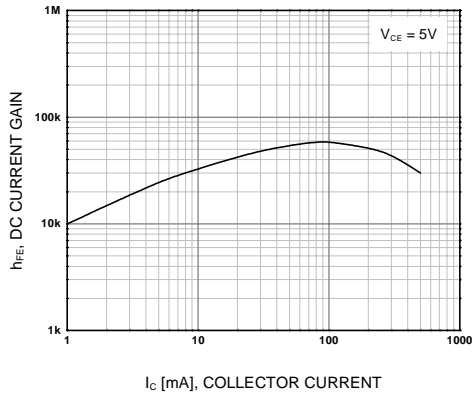


Figure 1. DC current Gain

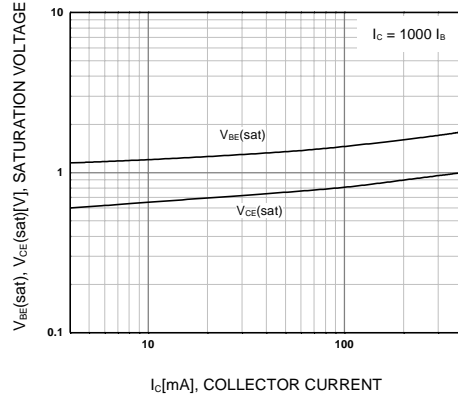


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

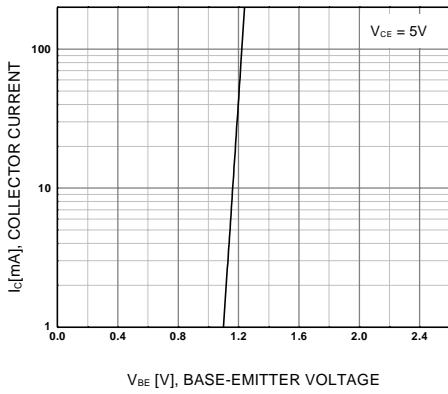


Figure 3. Base-Emitter On Voltage

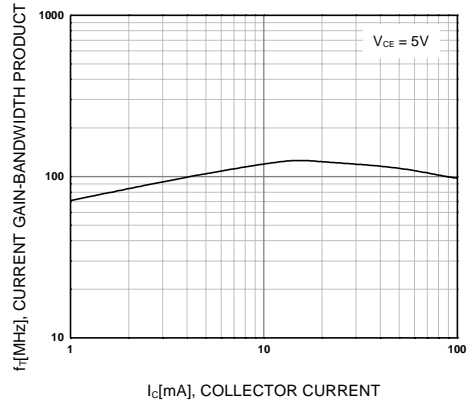


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

KSP13/14

## TO-92



Dimensions in Millimeters

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