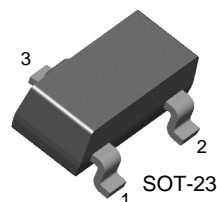


## KST13/14

### Darlington Amplifier Transistor



SOT-23  
1. Base 2. Emitter 3. Collector

### 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                |
| $V_{CES}$ | Collector-Emitter Voltage   | 30    | V                |
| $V_{EBO}$ | Emitter-Base Voltage        | 10    | V                |
| $I_C$     | Collector Current           | 300   | mA               |
| $P_C$     | Collector Power Dissipation | 350   | mW               |
| $T_{STG}$ | Storage Temperature         | 150   | $^\circ\text{C}$ |

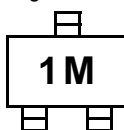
#### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition  | Min. | Max. | Units |
|---------------|--------------------------------------|---|------|------|-------|
| $BV_{CES}$    | Collector-Emitter Breakdown Voltage  | $I_C=100\mu\text{A}$ , $V_{BE}=0$                           | 30   |      | V     |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB}=30\text{V}$ , $I_E=0$                               |      | 100  | nA    |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{EB}=10\text{V}$ , $I_C=0$                               |      | 100  | nA    |
| $h_{FE}$      | DC Current Gain                      |   |      |      |       |
|               | : KST13                              | $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$                      | 5K   |      |       |
|               | : KST14                              | $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$                      | 10K  |      |       |
|               | : KST13                              | $V_{CE}=5\text{V}$ , $I_C=100\text{mA}$                     | 10K  |      |       |
|               | : KST14                              | $V_{CE}=5\text{V}$ , $I_C=100\text{mA}$                     | 20K  |      |       |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=100\text{mA}$ , $I_B=0.1\text{mA}$                     |      | 1.5  | V     |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $V_{CE}=5\text{V}$ , $I_C=100\text{mA}$                     |      | 2.0  | V     |
| $f_T$         | Current Gain Bandwidth Product       | $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$<br>$f=100\text{MHz}$ | 125  |      | MHz   |

### Marking Code

| Type | KST13 | KST14 |
|------|-------|-------|
| Mark | 1M    | 1N    |

Marking



# Typical Characteristics

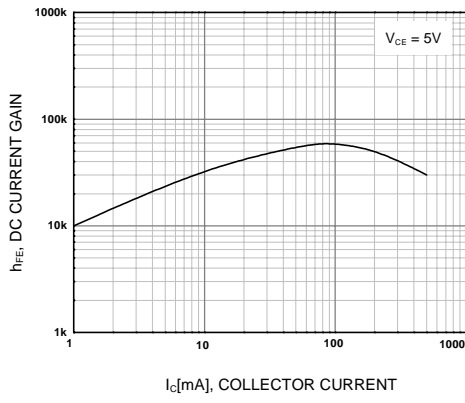


Figure 1. DC Current Gain

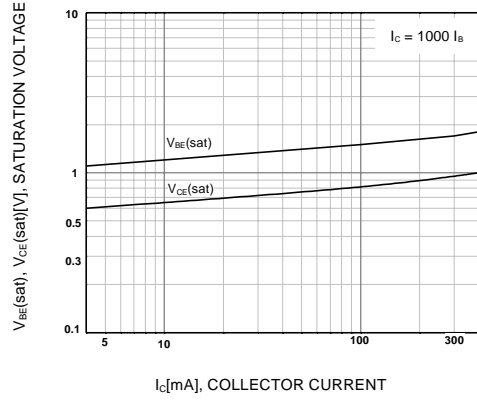


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

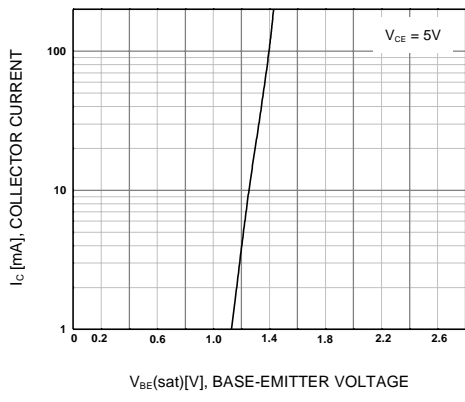


Figure 3. Base-Emitter On Voltage

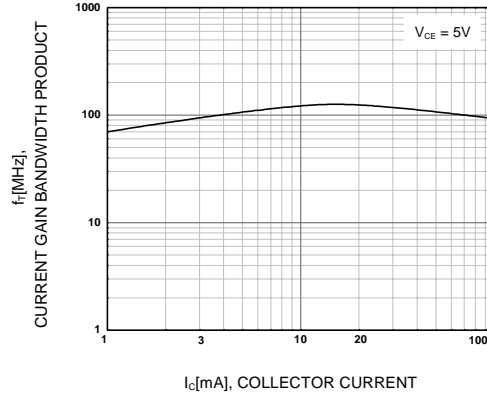


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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