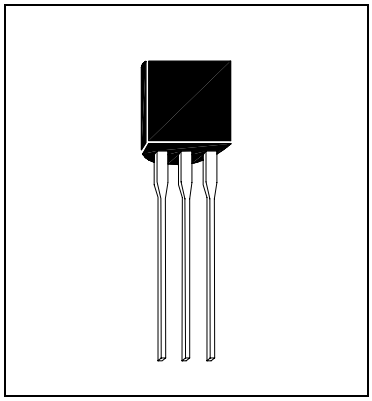
# HMPSA13

NPN SILICON DARLINGTON TRANSISTOR



## Description

The HMPSA13 is designed for applications requiring extremely high current gain at collector to 500mA.

## Features

- High D.C. Current Gain
- Complementary to HMPSA63

## Absolute Maximum Ratings

- Maximum Temperatures
  Storage Temperature ..... -55 ~ +150 °C
  Junction Temperature ..... +150 °C Maximum
- Maximum Power Dissipation
  Total Power Dissipation (Ta=25°C) ..... 600 mW
- Maximum Voltages and Currents (Ta=25°C)
  VCBO Collector to Base Voltage ..... 30 V
  VCES Collector to Emitter Voltage..... 30 V
  VEBO Emitter to Base Voltage ..... 10 V
  IC Collector Current..... 500 mA

## Characteristics (Ta=25°C)

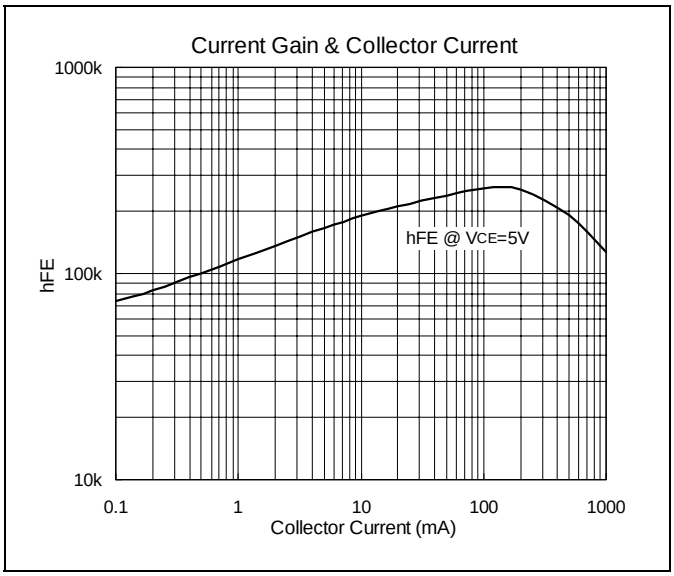
| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|
| BVCBO | 30 | - | - | V | IC=100uA, IE=0 |
| BVCES | 30 | - | - | V | IC=100uA, VBE=0 |
| BVEBO | 10 | - | - | V | IE=10uA, IC=0 |
| ICBO | - | - | 100 | nA | VCB=30V, IE=0 |
| IEBO | - | - | 100 | nA | VEB=10V, IC=0 |
| *VCE(sat)1 | - | - | 1.5 | V | IC=100mA, IB=0.1mA |
| *VCE(sat)2 | - | 1.0 | - | V | IC=500mA, IB=0.5mA |
| *hFE1 | 5 | - | - | K | VCE=5V, IC=10mA |
| *hFE2 | 10 | - | - | K | VCE=5V, IC=100mA |
| *hFE3 | - | 50 | - | K | VCE=5V, IC=500mA |
| fT | 125 | - | - | MHz | VCE=5V, IC=10mA, f=100MHz |
| Cob | - | - | 6 | pF | VCB=10V, f=1MHz |

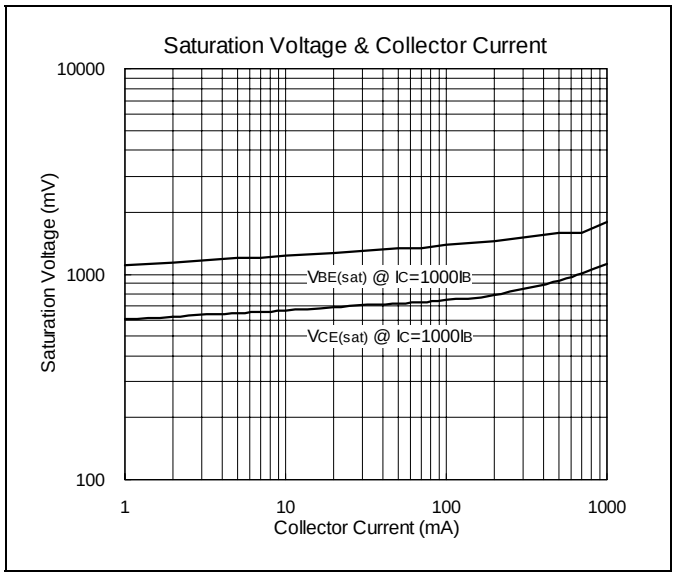
*Pulse Test : Pulse Width ≤380us, Duty Cycle≤2%

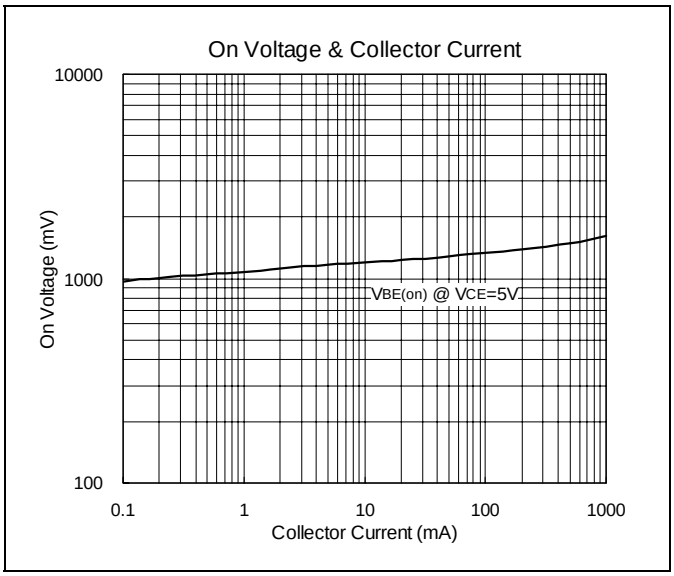
## Classification Of hFE3

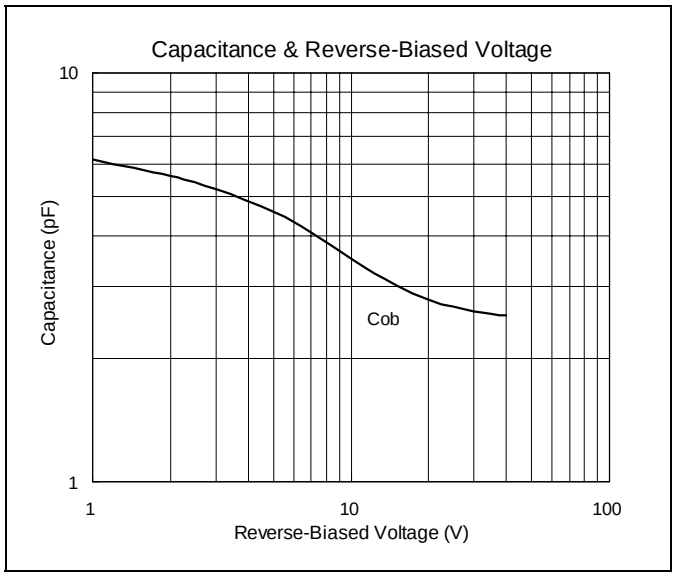
| Rank | VCE(sat)2 | hFE3 |
|---|---|---|
| SUN | <1.2V | >20K |
| N | VCE(sat)2 | hFE3 |

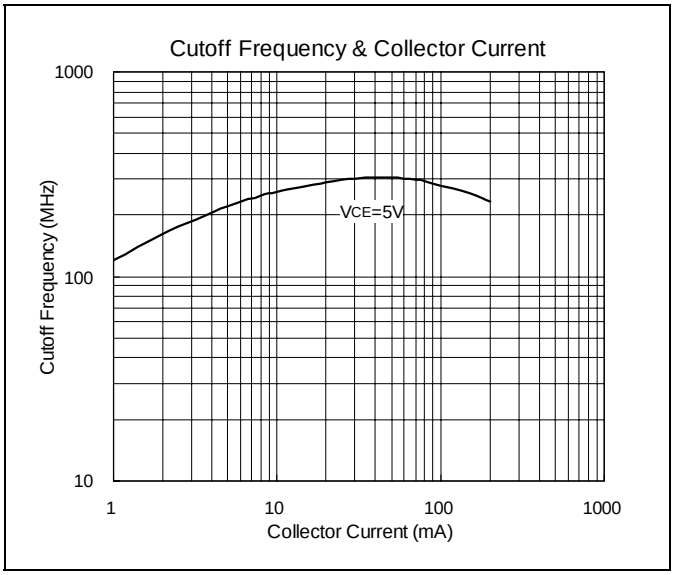
## Characteristics Curve

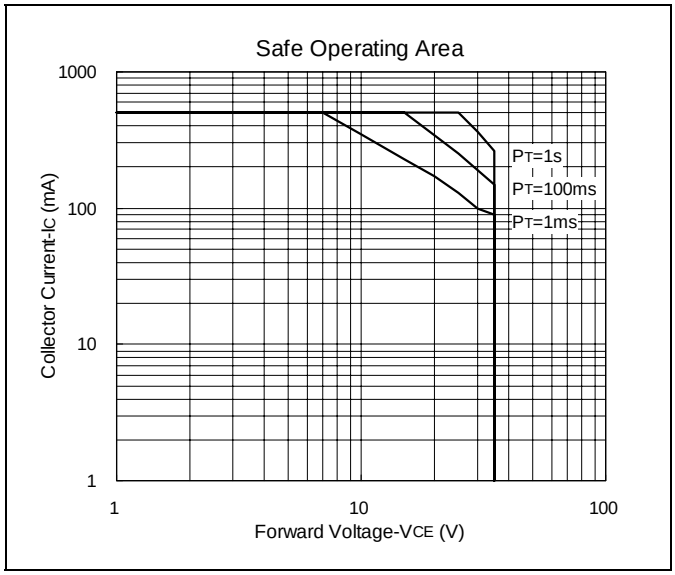


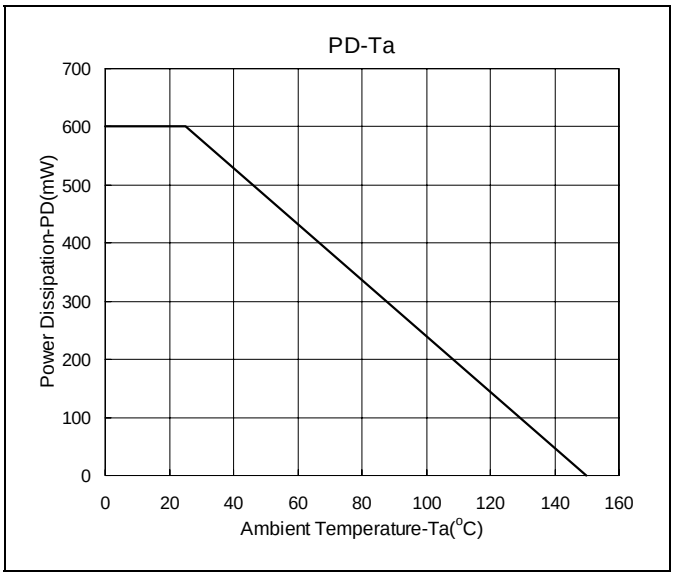



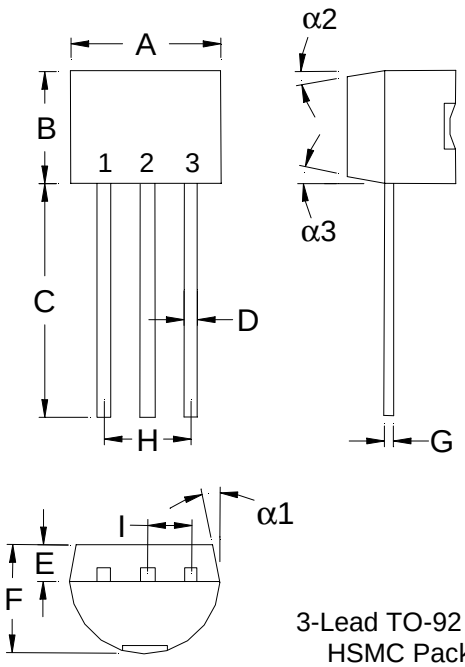



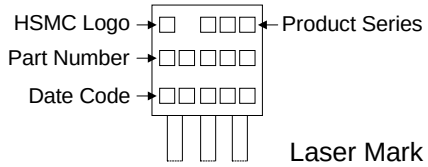

PD-Ta
Power Dissipation-PD(mW)
700
600
500
400
300
200
100
0
0
20
40
60
80
100
120
140
160
Ambient Temperature-Ta(°C)

## TO-92 Dimension

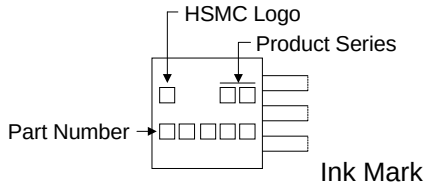



3-Lead TO-92 Plastic Package
HSMC Package Code : A

Marking :




Laser Mark




Ink Mark

Style : Pin 1.Emitter 2.Base 3.Collector

*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|---|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.1704 | 0.1902 | 4.33 | 4.83 | G | 0.0142 | 0.0220 | 0.36 | 0.56 |
| B | 0.1704 | 0.1902 | 4.33 | 4.83 | H | - | *0.1000 | - | *2.54 |
| C | 0.5000 | - | 12.70 | - | I | - | *0.0500 | - | *1.27 |
| D | 0.0142 | 0.0220 | 0.36 | 0.56 | α1 | - | *5° | - | *5° |
| E | - | *0.0500 | - | *1.27 | α2 | - | *2° | - | *2° |
| F | 0.1323 | 0.1480 | 3.36 | 3.76 | α3 | - | *2° | - | *2° |

Notes : 1.Dimension and tolerance based on our Spec. dated Apr. 25,1996.
2.Controlling dimension : millimeters.
3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material :

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0




***Head Office And Factory :***

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