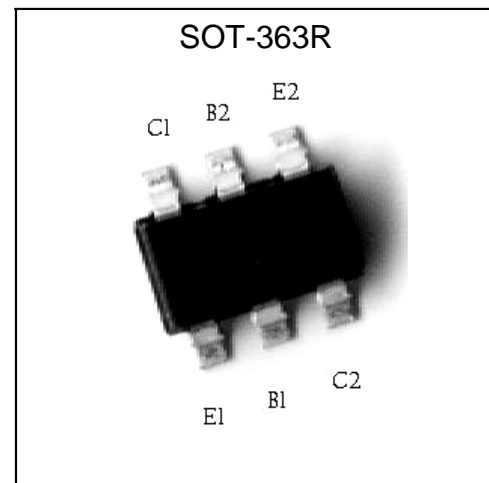
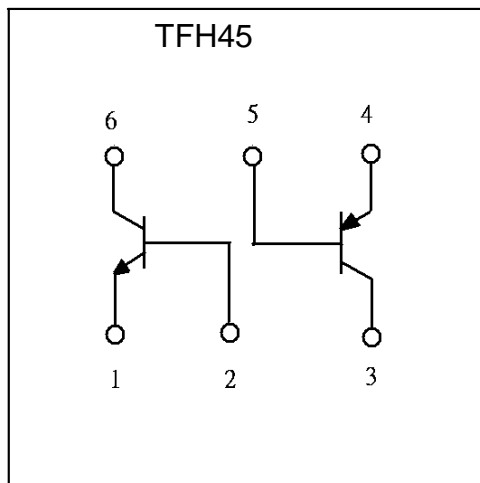


TFH45

Features

- Includes a TFS2412 chip and a TFS1037 chip in a SOT-363 package.
- Mounting possible with SOT-323 automatic mounting machines.
- Transistor elements are independent, eliminating interference.
- Mounting cost and area can be cut in half.

Equivalent Circuit



Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | | Unit |
|---------------------------|------------------|---------------|-----------|------|
| | | TR1 (NPN) | TR2 (PNP) | |
| Collector-Base Voltage | V _{CB0} | 60 | -60 | V |
| Collector-Emitter Voltage | V _{CEO} | 50 | -50 | V |
| Emitter-Base Voltage | V _{EBO} | 7 | -6 | V |
| Collector Current | I _c | 150 | -150 | mA |
| Power Dissipation | P _d | 200(total) *1 | | mW |
| Junction Temperature | T _j | 150 | | °C |
| Storage Temperature | T _{stg} | -55~+150 | | °C |

Note: *1 150mW per element must not be exceeded.



Characteristics (Ta=25°C)

• TR1 (NPN)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-----------------------|------|------|------|------|---|
| BV _{CB0} | 60 | - | - | V | I _C =100μA |
| BV _{CEO} | 50 | - | - | V | I _C =1mA |
| BV _{EBO} | 7 | - | - | V | I _E =50μA |
| I _{CB0} | - | - | 0.1 | μA | V _{CB} =60V |
| I _{EBO} | - | - | 0.1 | μA | V _{EB} =7V |
| *V _{CE(sat)} | - | 0.2 | 0.4 | V | I _C =50mA, I _B =5mA |
| *h _{FE} | 200 | - | 600 | | V _{CE} =6V, I _C =1mA |
| f _T | 80 | 180 | - | MHz | V _{CE} =12V, I _C =2mA, f=100MHz |
| C _{ob} | - | 2 | 3.5 | pF | V _{CB} =12V, f=1MHz |

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

• TR2 (PNP)

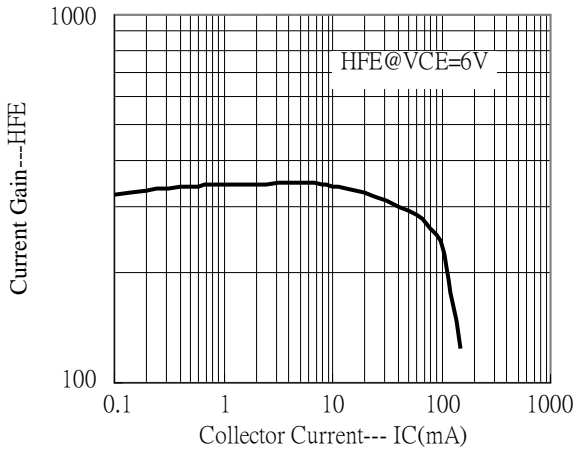
| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-----------------------|------|-------|------|------|---|
| BV _{CB0} | -60 | - | - | V | I _C =-50μA |
| BV _{CEO} | -50 | - | - | V | I _C =-1mA |
| BV _{EBO} | -6 | - | - | V | I _E =-50μA |
| I _{CB0} | - | - | -0.1 | μA | V _{CB} =-60V |
| I _{EBO} | - | - | -0.1 | μA | V _{EB} =-6V |
| *V _{CE(sat)} | - | -0.25 | -0.5 | V | I _C =-50mA, I _B =-5mA |
| *h _{FE} | 200 | - | 600 | | V _{CE} =-6V, I _C =-1mA |
| f _T | 60 | 140 | - | MHz | V _{CE} =-12V, I _C =-2mA, f=100MHz |
| C _{ob} | - | 4 | 5 | pF | V _{CB} =-12V, f=1MHz |

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

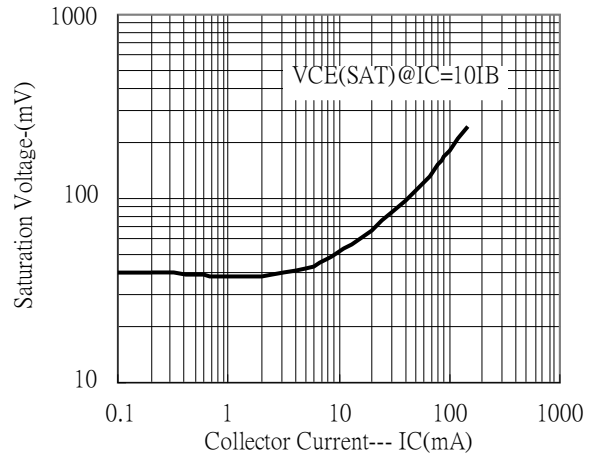
Characteristic curves

• TR1 (NPN)

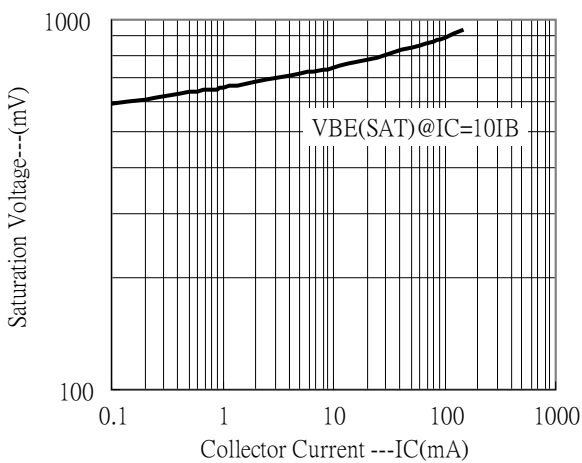
Current Gain vs Collector Current



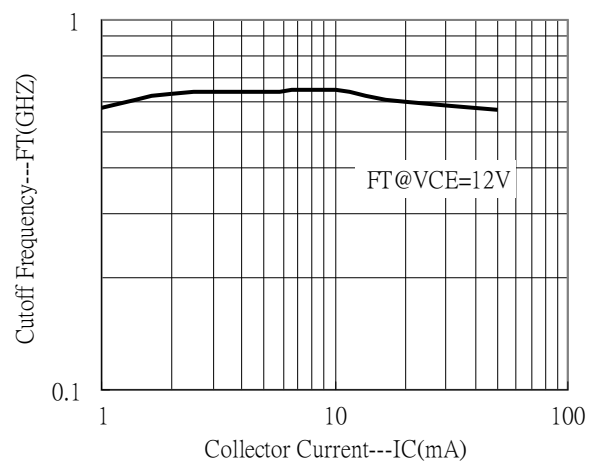
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current



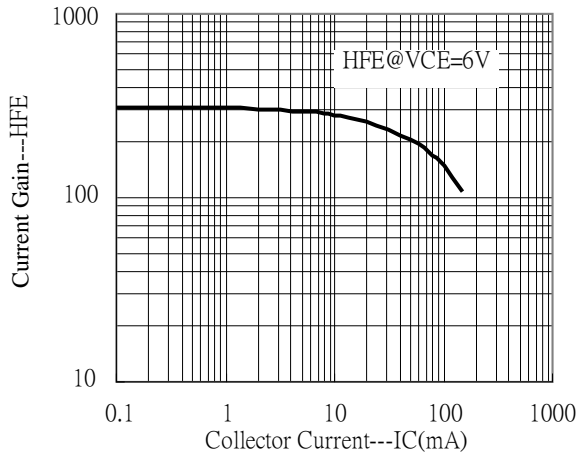
Cutoff Frequency vs Collector Current



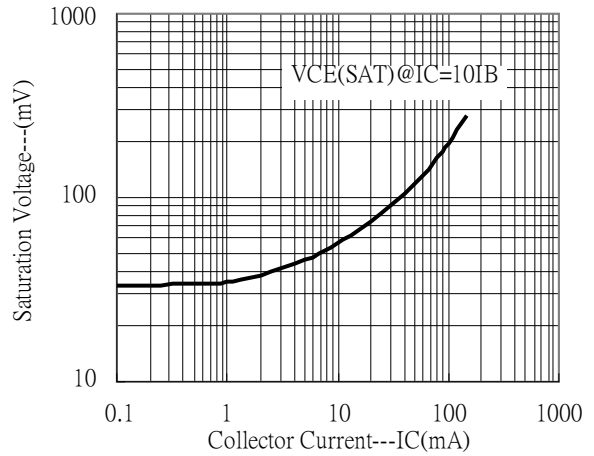


• TR2 (PNP)

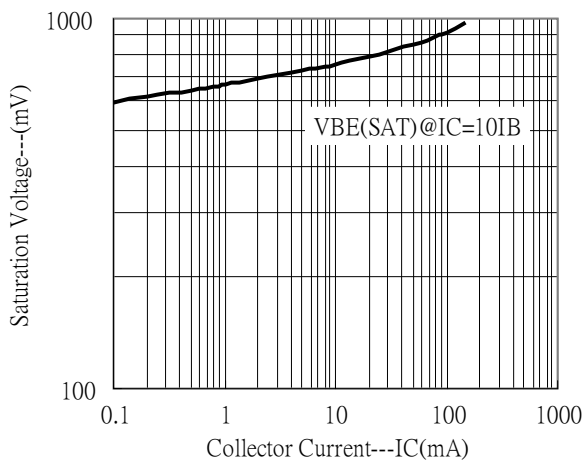
Current Gain vs Collector Current



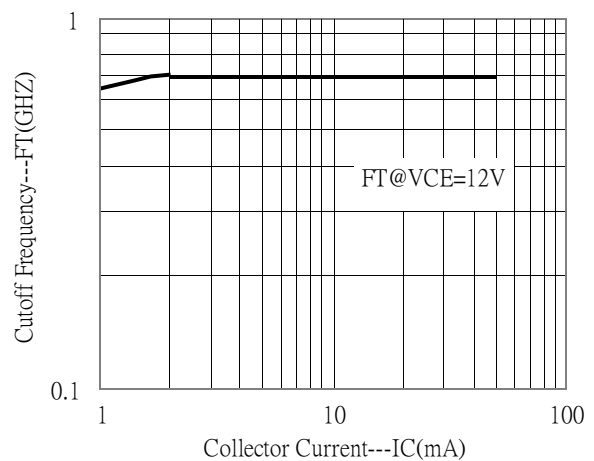
Saturation Voltage vs Collector Current



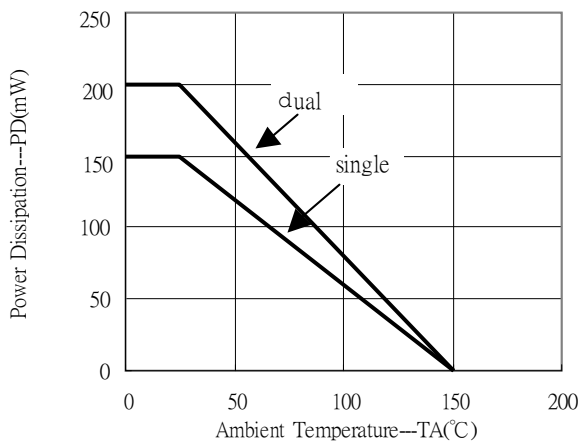
Saturation Voltage vs Collector Current



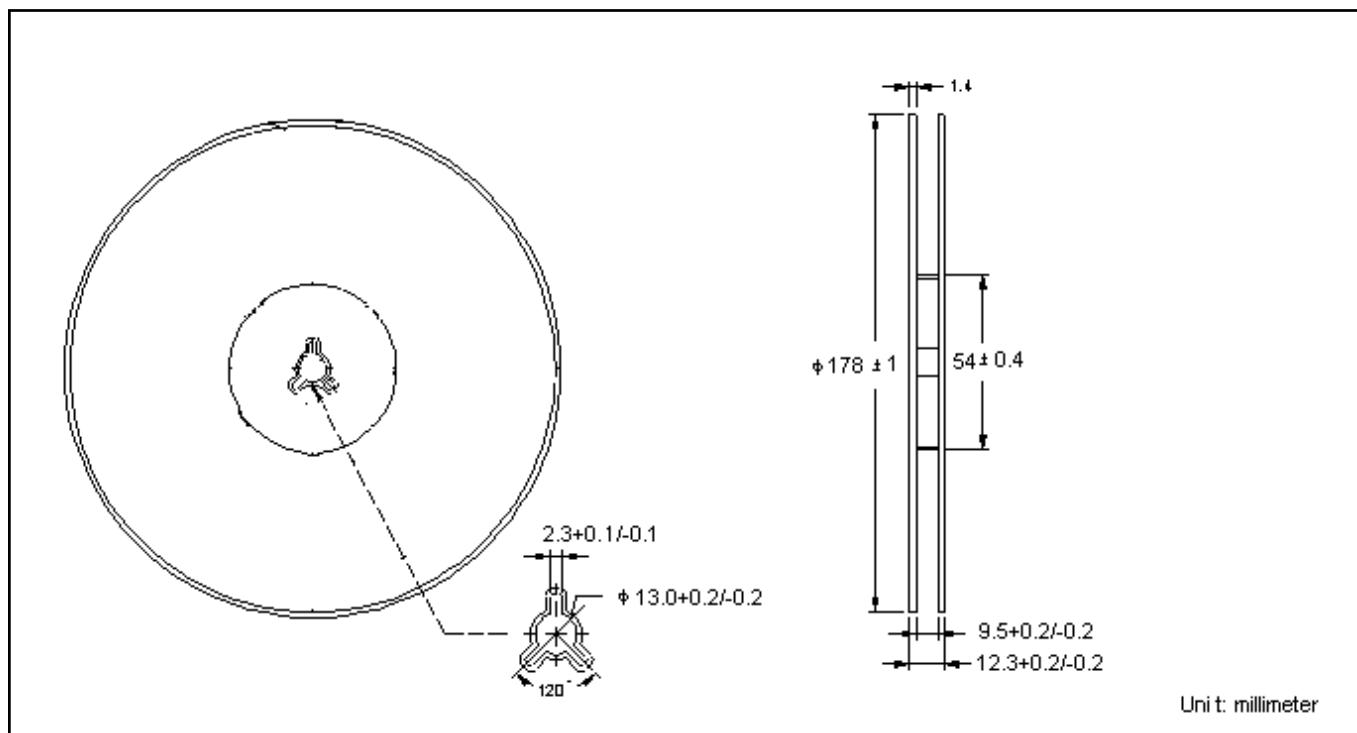
Cutoff Frequency vs Collector Current



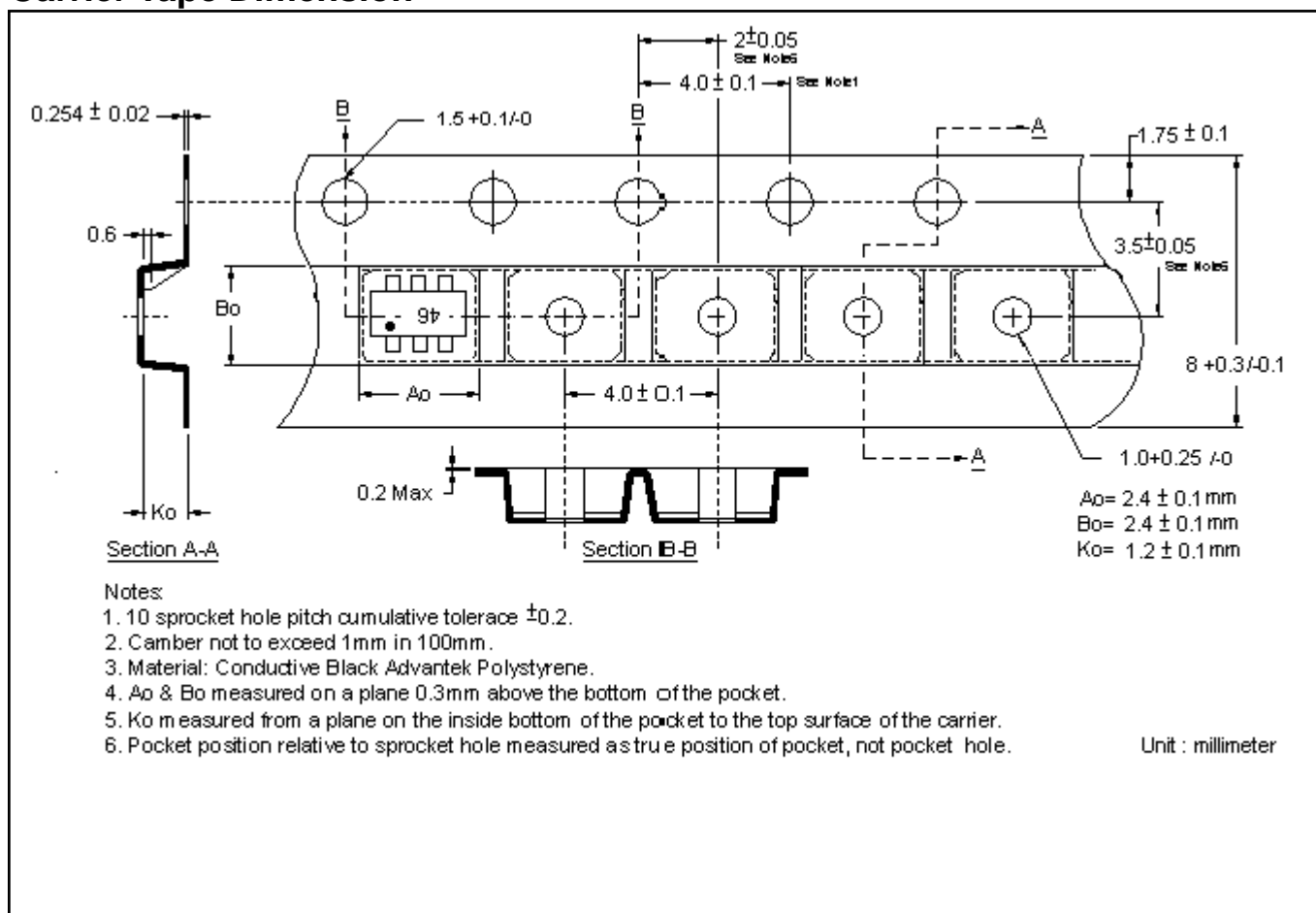
Power Derating Curves



Reel Dimension



Carrier Tape Dimension



SOT-363R Dimension

Style:
 Pin 1. Emitter1 (E1)
 Pin 2. Base1 (B1)
 Pin 3. Collector2 (C2)
 Pin 4. Emitter2 (E2)
 Pin 5. Base2 (B2)
 Pin 6. Collector1 (C1)

Marking:

6-Lead SOT-363R Plastic Surface Mounted Package

*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|----------|-------|-------------|------|-----|-----------|-------|-------------|------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.071 | 0.087 | 1.8 | 2.2 | J | 0.004 | 0.010 | 0.1 | 0.25 |
| B | 0.045 | 0.053 | 1.15 | 1.35 | K | 0.004 | 0.012 | 0.1 | 0.30 |
| C | 0.031 | 0.043 | 0.8 | 1.1 | N | 0.008 REF | | 0.20 REF | |
| D | 0.004 | 0.012 | 0.1 | 0.3 | S | 0.079 | 0.087 | 2.00 | 2.20 |
| G | 0.026BSC | | 0.65BSC | | Y | 0.012 | 0.016 | 0.30 | 0.40 |
| H | - | 0.004 | - | 0.1 | | | | | |

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local Tin Far sales office.

Material :

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

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