FJT44
NPN Epitaxial Silicon Transistor

Features
• High Voltage Transistor

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{CBO}$</td>
<td>Collector-Base Voltage</td>
<td>500</td>
<td>V</td>
</tr>
<tr>
<td>$V_{CEO}$</td>
<td>Collector-Emitter Voltage</td>
<td>400</td>
<td>V</td>
</tr>
<tr>
<td>$V_{EBO}$</td>
<td>Emitter-Base Voltage</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>$I_C$</td>
<td>Collector Current</td>
<td>300</td>
<td>mA</td>
</tr>
<tr>
<td>$P_C$</td>
<td>Collector Dissipation ($T_A = 25^\circ C$)</td>
<td>2</td>
<td>W</td>
</tr>
<tr>
<td>$T_J$</td>
<td>Junction Temperature</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>$T_{STG}$</td>
<td>Storage Temperature Range</td>
<td>-55 to 150</td>
<td>°C</td>
</tr>
</tbody>
</table>

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics* $T_A=25^\circ C$ unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{JUA}$</td>
<td>Thermal Resistance, Junction to Ambient</td>
<td>62.5</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

* Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm. mounting pad for the collector lead min. 6 cm²

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
<th>Packing size</th>
<th>Packing Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FJT44KTF</td>
<td>SOT-223</td>
<td>2500 pcs</td>
<td>Tape and Reel</td>
<td></td>
</tr>
<tr>
<td>FJT44TF</td>
<td>SOT-223</td>
<td>4000 pcs</td>
<td>Tape and Reel</td>
<td></td>
</tr>
</tbody>
</table>
### Electrical Characteristics

* TA = 25°C unless otherwise noted*

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BV_{CBO}</td>
<td>Collector-Base Breakdown Voltage</td>
<td>I_C = 100μA, I_E = 0</td>
<td>500</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>BV_{CEO}</td>
<td>Collector-Emitter Breakdown Voltage</td>
<td>I_C = 1mA, I_B = 0</td>
<td>400</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>BV_{EBO}</td>
<td>Emitter-Base Breakdown Voltage</td>
<td>I_E = 100μA, I_C = 0</td>
<td>6</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>I_{CBO}</td>
<td>Collector-Base Cutoff Current</td>
<td>V_CB = 400V, I_E = 0</td>
<td>100</td>
<td></td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td>I_{CES}</td>
<td>Collector-Emitter Cutoff Current</td>
<td>V_CE = 400V, V_BE = 0</td>
<td>500</td>
<td></td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td>I_{EBO}</td>
<td>Emitter-Base Cutoff Current</td>
<td>V_CE = 4V, I_C = 0</td>
<td>100</td>
<td></td>
<td></td>
<td>nA</td>
</tr>
</tbody>
</table>
| h_{FE}   | DC Current Gain                  | V_CE=10V, I_C=1mA  
|          |                                  | V_CE=10V, I_C=10mA  
|          |                                  | V_CE=10V, I_C=50mA  
|          |                                  | V_CE=10V, I_C=100mA | 40   | 50   | 200  |       |
| V_{CE(sat)} | Collector-Emitter Saturation Voltage | I_C = 1mA, I_B = 0.1mA  
|          |                                  | I_C = 10mA, I_B = 1mA 
|          |                                  | I_C = 50mA, I_B = 5mA | 0.4  | 0.5  | 0.75  | V     |
| V_{BE(sat)} | Base-Emitter Saturation Voltage | I_C = 10mA, I_B = 1mA |      |      |      | V     |
| C_{obo}  | Output Capacitance               | V_CB = 20V, I_E = 0, f = 1MHz | 7    |      |      | pF    |

*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%*
Typical Performance Characteristics

Figure 1. DC current Gain

Figure 2. Turn-On Switching Times

Figure 3. Turn-Off Switching Times

Figure 4. Capacitance

Figure 5. On Voltage

Figure 6. Collector Saturation Region
Figure 1. High Frequency Current Gain
Physical Dimensions

SOT-223

Dimensions in Millimeters
TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

AccuPower™
Auto-SPM™
Build it Now™
CorePLUS™
CorePOWER™
CROSSVOLT™
CTL™
Current Transfer Logic™
EcoSPARK®
EfficientMax™
EZSWITCH™
Fairchild®
Fairchild Semiconductor®
FACT Quiet Series™
FACT®
FastvCore™
FETBench™
FlashWriter™
FPS™
F-FPS™
FRFET®
Global Power Resource™
Green FPS™
Green FPS™ e-Series™
Gmax™
GTO™
IntelliMAX™
ISOPLANAR™
MegaBuck™
MICROCOUPLER™
MicroFET™
MicroPak™
MillerDrive™
MotionMax™
Motion-SPM™
OPTOLOGIC™
OPTOPLANAR™
PDP SPM™
Power-SPM™
PowerTrench®
PowerXS™
Programmable Active Droop™
QFET™
QS™
Quiet Series™
RapidConfigure™
Saving our world, 1mW/W/kW at a time™
SmartMax™
SMART START™
SPM®
STEALTH™
SuperFET™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SuperMOS™
SyncFET™
Sync-Lock™
SYSTEM™

Disclaimer

Fairchild Semiconductor reserves the right to make changes without further notice to any products herein to improve reliability, function, or design. Fairchild does not assume any liability arising out of the application or use of any product or circuit, described herein, nor does it convey any license under its patent rights, nor the rights of others. These specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers these products.

Life Support Policy

Fairchild’s products are not authorized for use as critical components in life support devices or systems without the express written approval of Fairchild Semiconductor Corporation.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Anti-Counterfeiting Policy

Fairchild Semiconductor Corporation’s Anti-Counterfeiting Policy. Fairchild’s Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild’s quality standards for handling and storage and provide access to Fairchild’s full range of up-to-date technical and product information.

Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

Product Status Definitions

<table>
<thead>
<tr>
<th>Datasheet Identification</th>
<th>Product Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Information</td>
<td>Formative / In Design</td>
<td>Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
</tr>
<tr>
<td>Preliminary</td>
<td>First Production</td>
<td>Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.</td>
</tr>
<tr>
<td>No Identification Needed</td>
<td>Full Production</td>
<td>Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.</td>
</tr>
<tr>
<td>Obsolete</td>
<td>Not In Production</td>
<td>Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.</td>
</tr>
</tbody>
</table>