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# BU406

## NPN Epitaxial Silicon Transistor

### Features

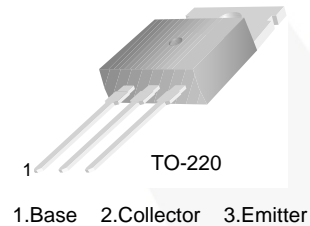
- High-Voltage Capability
- High Switching Speed
- Low Saturation Voltage

### Applications

- Horizontal deflection for TV and CRT

### Description

The BU406 is a 400 V 7 A Silicon Epitaxial Planar NPN Transistor. The BU406 is designed for high speed switching applications which utilizes the industry standard TO-220 package offering flexibility in design and excellent Power Dissipation.



### Ordering Information

Part Number	Marking	Package	Packing Method
BU406	BU406	TO-220 3L	Rail
BU406TU	BU406		

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_C = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO}$	Collector-Emitter Voltage	200	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current (DC)	7	A
$I_{CP}$	Collector Current (Pulse)	10	A
$I_B$	Base Current	4	A
$P_C$	Collector Dissipation	60	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 to 150	$^\circ\text{C}$

**Electrical Characteristics**Values are at  $T_C = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Test Condition	Min.	Max.	Units
$I_{CES}$	Collector Cut-Off Current	$V_{CE} = 400\text{ V}, V_{BE} = 0$		5	mA
		$V_{CE} = 250\text{ V}, V_{BE} = 0$		100	$\mu\text{A}$
		$V_{CE} = 250\text{ V}, V_{BE} = 0$ at $T_C = 150^\circ\text{C}$		1	mA
$I_{EBO}$	Emitter Cut-Off Current	$V_{BE} = 6\text{ V}, I_C = 0$		1	mA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{ A}, I_B = 0.5\text{ A}$		1	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{ A}, I_B = 0.5\text{ A}$		1.2	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}$	10		MHz
$t_{OFF}$	Turn-Off Time	$I_C = 5\text{ A}, I_B = 0.5\text{ A}$		0.75	$\mu\text{s}$

## Typical Performance Characteristics

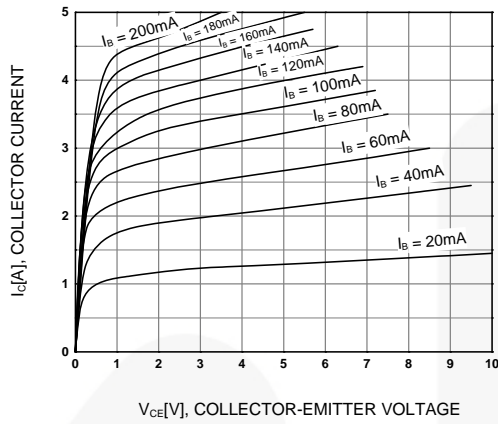


Figure 1. Static Characteristic

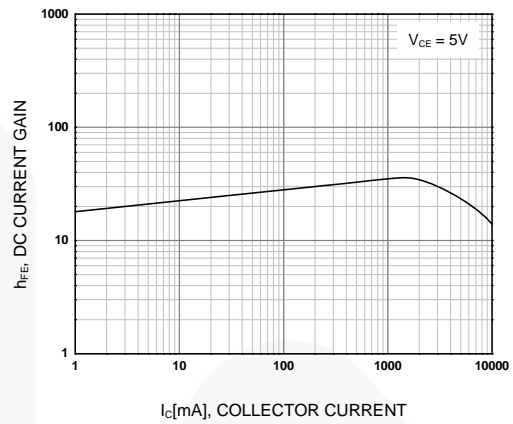


Figure 2. DC Current Gain

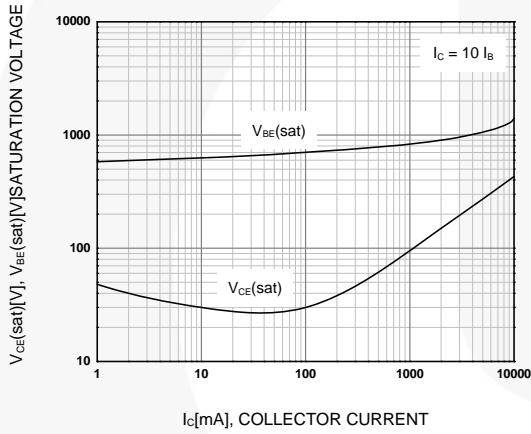


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

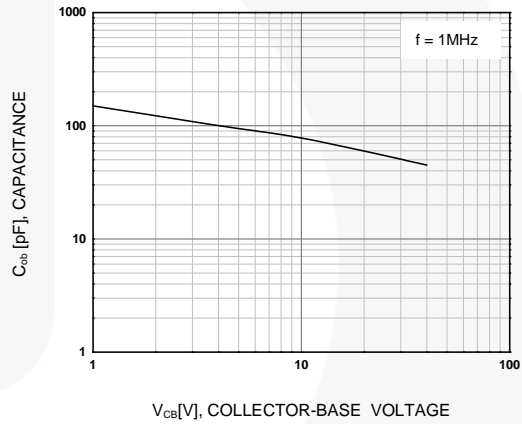


Figure 4. Collector Output Capacitance

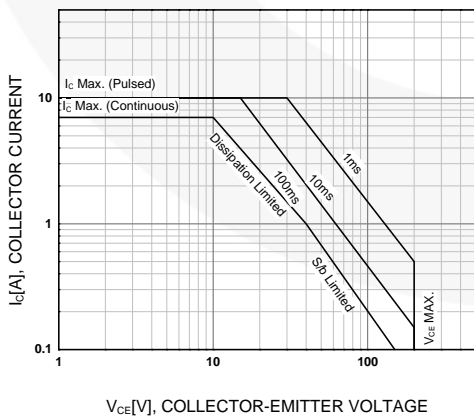


Figure 5. Safe Operating Area

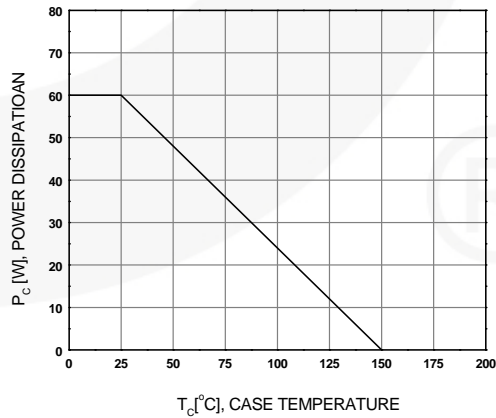


Figure 6. Power Derating

Physical Dimensions

TO-220

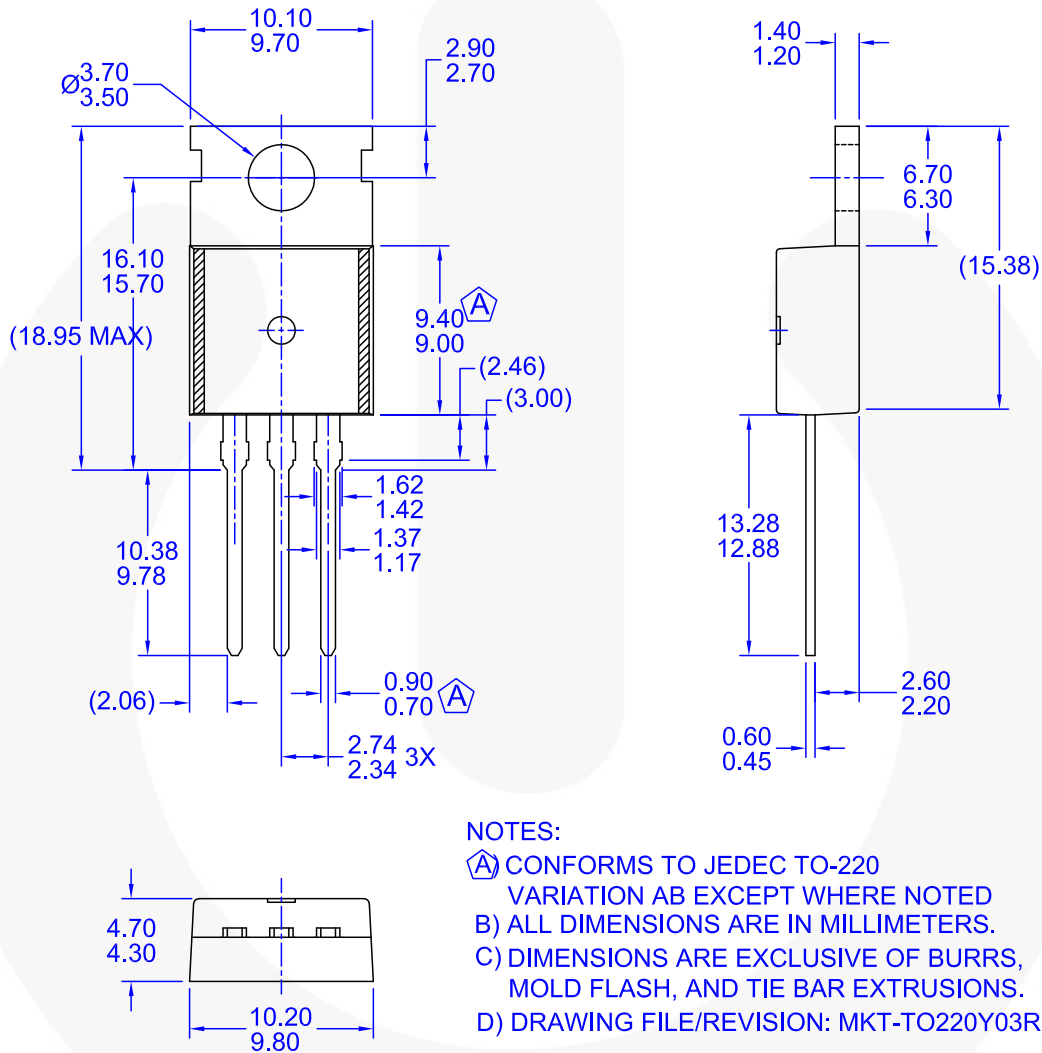


Figure 7. TO-220, MOLDED, 3-LEAD, JEDEC VARIATION AB

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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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