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BU406

NPN Epitaxial Silicon Transistor

Features

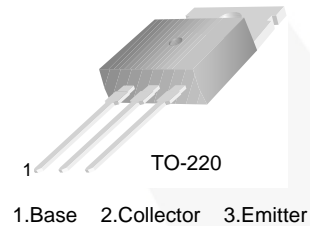
- High-Voltage Capability
- High Switching Speed
- Low Saturation Voltage

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 CharacteristicsValues 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	μA
		$V_{CE} = 250\text{ V}, V_{BE} = 0$ 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	μs

Typical Performance Characteristics

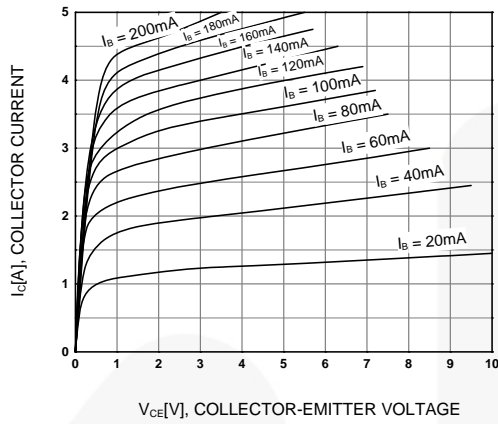


Figure 1. Static Characteristic

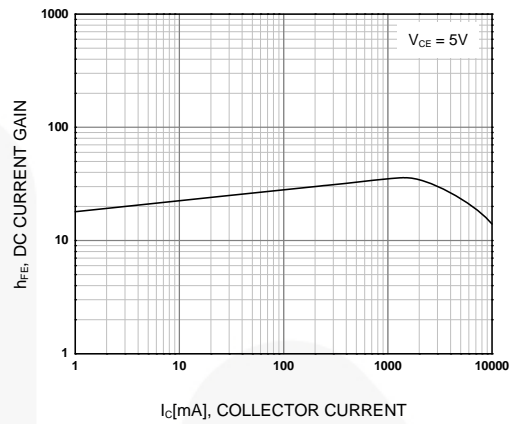


Figure 2. DC Current Gain

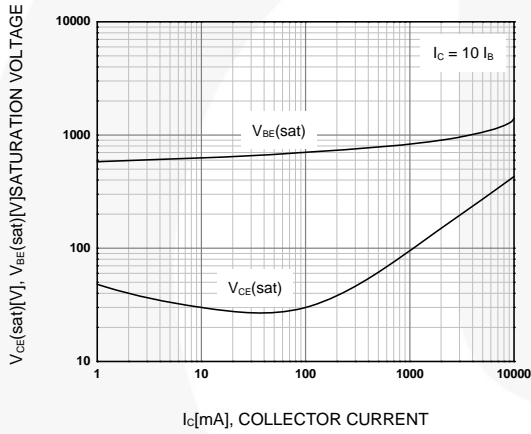


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

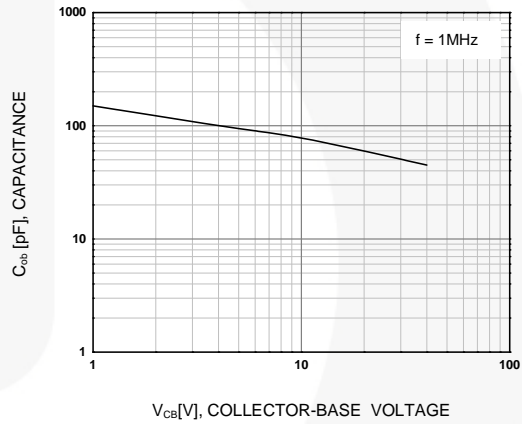


Figure 4. Collector Output Capacitance

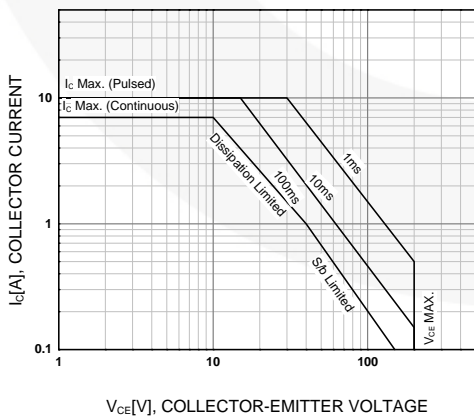


Figure 5. Safe Operating Area

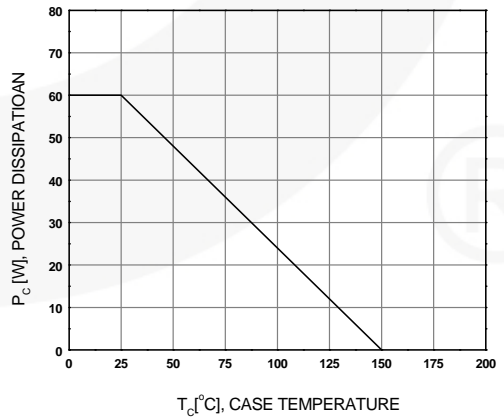


Figure 6. Power Derating

Physical Dimensions

TO-220

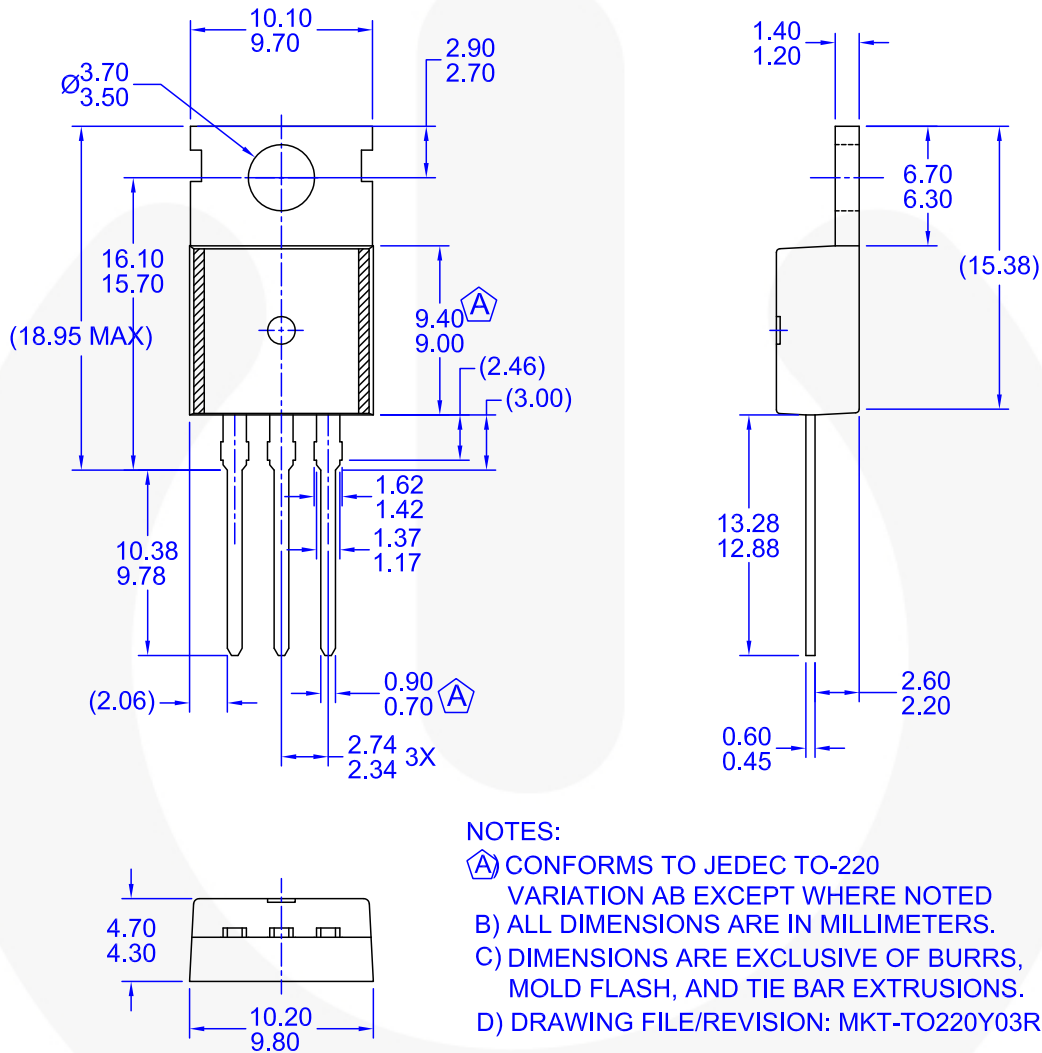


Figure 7. TO-220, MOLDED, 3-LEAD, JEDEC VARIATION AB

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
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Preliminary	First Production	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.
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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