

### **Rochester Electronics Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

### **Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
  - Class Q Military
  - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
  - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

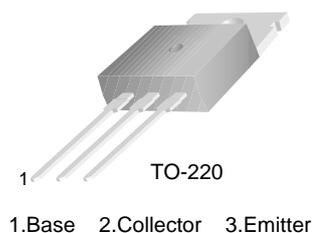
Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

# D44H11TU

## NPN Epitaxial Silicon Transistor

- Low Collector-Emitter Saturation Voltage :  $V_{CE(sat)} = 1V$  (Max.) @ 8A
- Fast Switching Speeds
- Complement to KSE45H



### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	10	A
$I_{CP}$	Collector-Current (Pulse)	20	A
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 to 150	$^\circ\text{C}$

### Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	$T_c = 25^\circ\text{C}$	50
		$T_a = 25^\circ\text{C}$	1.67
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.5	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	74.8	$^\circ\text{C/W}$

**Electrical Characteristics**  $T_a = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}, I_B = 0$	80			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 500\mu\text{A}, I_C = 0$	5			V
$I_{CES}$	Collector Cut-off Current	$V_{CE} = \text{Rated } V_{CEO}, V_{EB} = 0$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			100	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 1\text{V}, I_C = 2\text{A}$	60			
$V_{CE(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C = 8\text{A}, I_B = 0.4\text{A}$			1	V
$V_{BE(\text{sat})}$	Base-Emitter Saturation Voltage	$I_C = 8\text{A}, I_B = 0.8\text{A}$			1.5	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}$		50		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		130		pF
$t_{ON}$	Turn On Time	$V_{CC} = 20\text{V}, I_C = 5\text{A}$ $I_{B1} = - I_{B2} = 0.5\text{A}$		300		ns
$t_{STG}$	Storage Time			500		ns
$t_F$	Fall Time			140		ns

**NOTES:**

- 1) These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) These ratings are based on a maximum junction temperature of 150degrees C.

## Typical Performance Characteristics

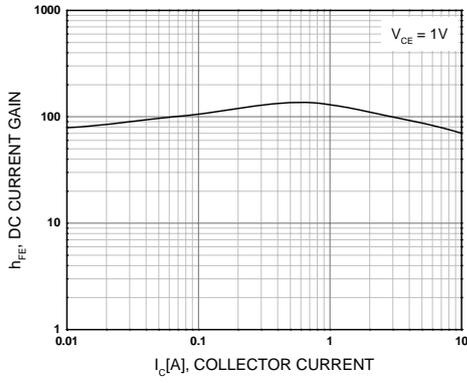


Figure 1. DC current Gain

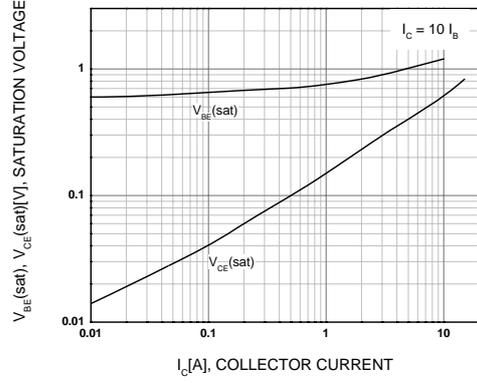


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

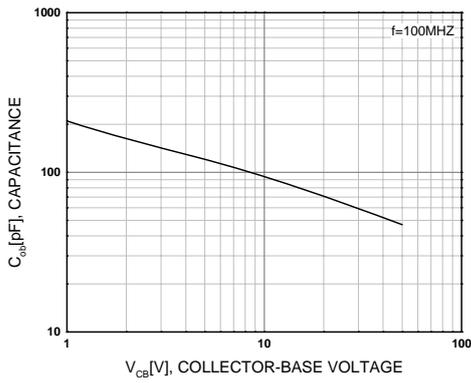


Figure 3. Collector Output Capacitance

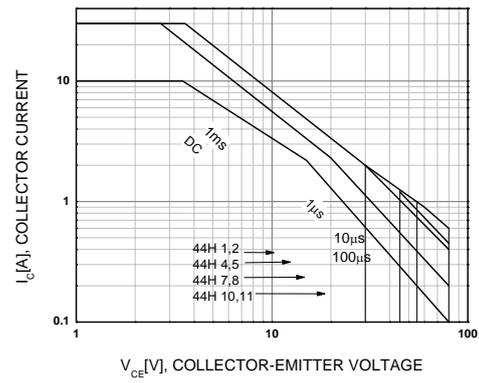


Figure 4. Safe Operating Area

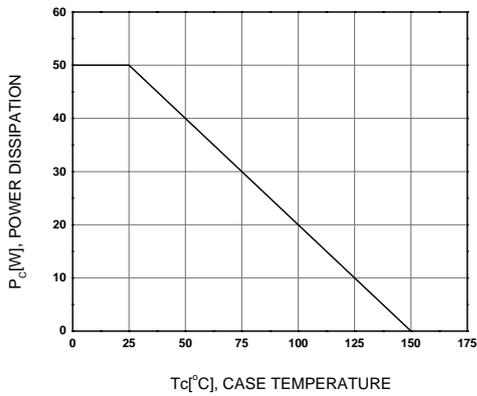
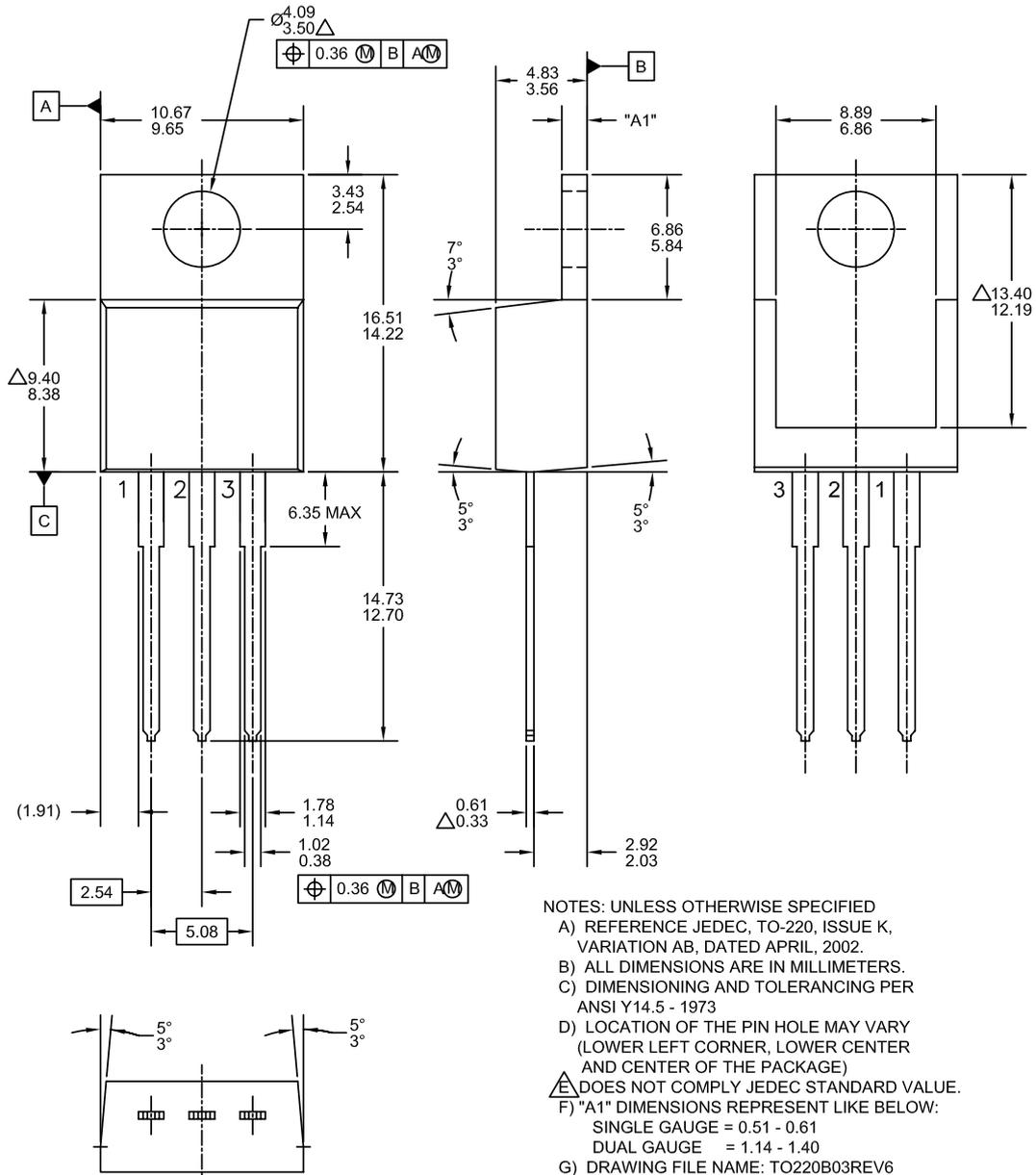


Figure 5. Power Derating

**Mechanical Dimensions**

**TO-220**



Dimensions in Millimeters



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**PRODUCT STATUS DEFINITIONS**

**Definition of Terms**

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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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