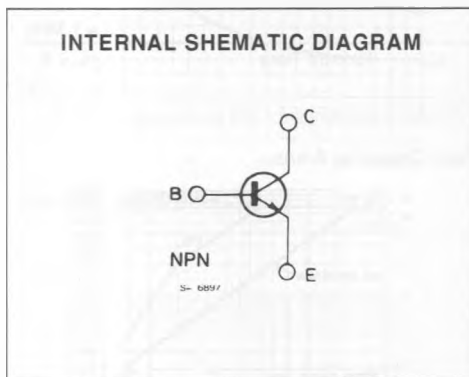
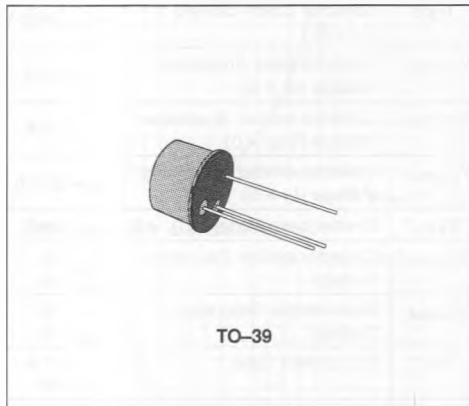


## HIGH CURRENT, GENERAL PURPOSE TRANSISTOR

### DESCRIPTION

The BU125 is a silicon epitaxial planar NPN transistor in Jedec TO-39 metal case. It is used in switching output and general purpose applications.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	130	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	60	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	7	A
$P_{Tot}$	Total Power Dissipation at $T_{case} \leq 25\text{ }^\circ\text{C}$ $T_{amb} \leq 50\text{ }^\circ\text{C}$	1	W
		10	W
$T_{stg}$	Storage Temperature	- 65 to 200	$^\circ\text{C}$
$T_j$	Junction Temperature	200	$^\circ\text{C}$

**THERMAL DATA**

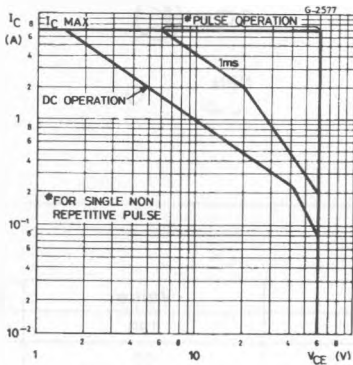
$R_{th(j)-case}$	Thermal Resistance Junction-case	Max	15	°C/W
$R_{th(j)-amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

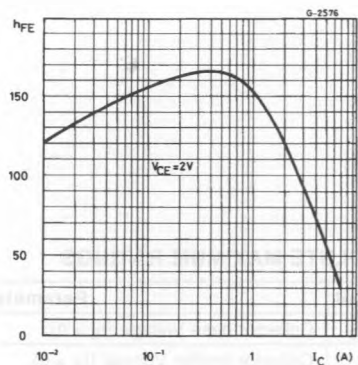
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 100\text{ V}$			0.02	10	$\mu\text{A}$
$V_{(BR)CBO}^*$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 1\text{ mA}$		130			V
$V_{(BR)CES}^*$	Collector-emitter Breakdown Voltage ( $V_{BE} = 0$ )	$I_C = 1\text{ mA}$		130			V
$V_{CE0(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 50\text{ mA}$		60			V
$V_{EBO}^*$	Emitter-base Voltage ( $I_C = 0$ )	$I_E = 1\text{ mA}$		5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 1\text{ A}$	$I_B = 0.1\text{ A}$			0.25	V
		$I_C = 5\text{ A}$	$I_B = 0.5\text{ A}$			1.2	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 1\text{ A}$	$I_B = 0.1\text{ A}$		0.9	1	V
		$I_C = 5\text{ A}$	$I_B = 0.5\text{ A}$		1.3	1.6	V
$h_{FE}^*$	DC Current Gain	$I_C = 0.1\text{ A}$	$V_{CE} = 2\text{ V}$	40	155		
		$I_C = 5\text{ A}$	$V_{CE} = 2\text{ V}$	15	60		
$f_T$	Transition Frequency	$I_C = 0.5\text{ A}$	$V_{CE} = 5\text{ V}$	50			MHz
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\text{ MHz}$	$V_{CB} = 10\text{ V}$			80	pF
$t_{off}$	Turn-off Time	$I_C = 5\text{ A}$ $I_{B1} = -I_{B2} = 0.5\text{ A}$	$V_{CC} = 20\text{ V}$			0.65	$\mu\text{s}$

\* Pulsed : pulse duration = 300  $\mu\text{s}$ , duty cycle = 1.5 %

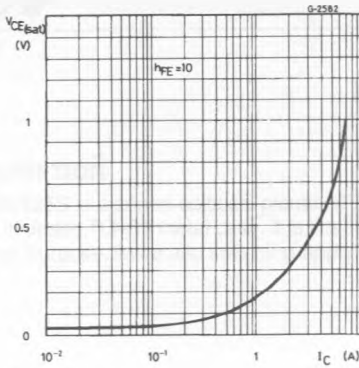
**Safe Operating Areas**



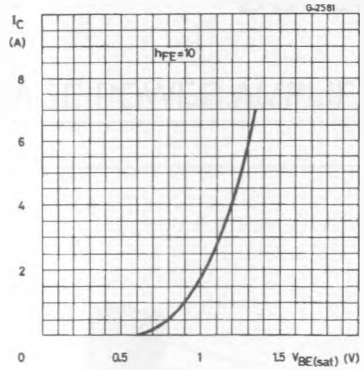
**DC Current Gain**



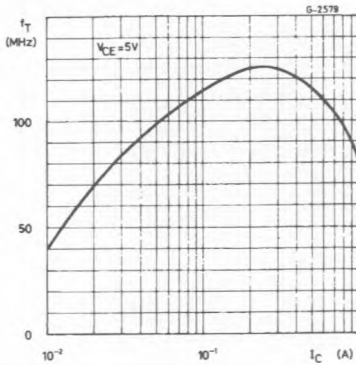
Collector-emitter Saturation Voltage



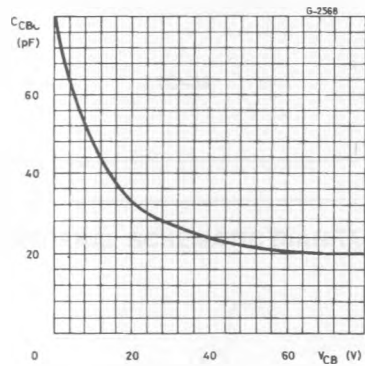
Base-emitter Saturation Voltage



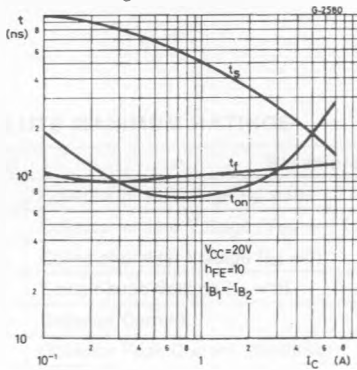
Transition Frequency



Collector-base Capacitance



Saturated Switching Characteristics



Power Rating Chart

