

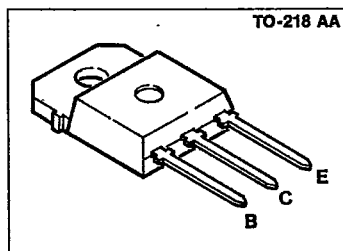
T-33-13

SIRET® Siemens Ring Emitter Transistor

BUP 101

$V_{CE} = 1000 \text{ V}$
 $I_C = 15 \text{ A}$

- N channel
- Breakdown-proof
- Package: TO-218 AA (TOP-3) ¹⁾



Type	Ordering code
BUP 101	C67060-A1000-A2

Maximum Ratings

at $T_j = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{VBO}	1000	V
Collector-emitter voltage ²⁾ $V_{BE} = -2.5 \text{ V}$	$V_{CEV(sus)}$	1000	
Emitter-base voltage	V_{EBO}	6	
Collector current	I_C	15	A
Max. collector current $t_p < 5 \mu\text{s}$	I_{CM}	25	
Max. collector current at turn-on $t_p \leq 0.5 \mu\text{s}$	I_{CSM}	50	
Base current	I_B	5	
Operating and storage temperature range	T_{op} T_{stg}	$-55 \dots +150$	$^\circ\text{C}$
Power dissipation $T_C = 60^\circ\text{C}$	P_{tot}	90	W
Thermal resistance junction-case	R_{thJC}	≤ 1	K/W

¹⁾ See chapter Package Outlines.

²⁾ The values are permissible with negative base voltage only.

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Characteristics

at $T_j = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values		Unit
		min.	typ.	

Static characteristics

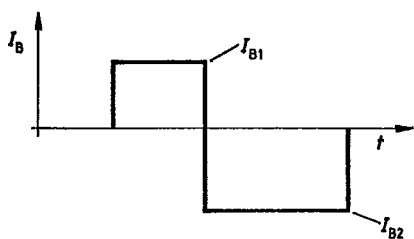
Collector-emitter current $T_j = 125^\circ\text{C}$, $V_{CE} = V_{CEV}$, $V_{BE} = -2.5\text{ V}$	I_{CEV}	—	< 0.1	mA
Collector-emitter voltage $V_{BE} = -2.5\text{ V}$	$V_{CEV(sus)}$	1000	—	V
Collector-emitter saturation voltage $I_C = 10\text{ A}$, $I_{B1} = 2.5\text{ A}$ $I_C = 15\text{ A}$, $I_{B1} = 4\text{ A}$	V_{CEsat}	— —	1 5	
Base-emitter saturation voltage $I_C = 10\text{ A}$, $I_{B1} = 2.5\text{ A}$	V_{BEsat}	—	1	
Emitter-base voltage $I_{B1} = 10\text{ }\mu\text{A}$	V_{EB}	6.5	8	

Dynamic characteristics

Switching times at turn-off (inductive load)

Storage time $V_{CC} = 800\text{ V}$, $I_C = 10\text{ A}$, $I_{B1} = -I_{B2} = 2\text{ A}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	t_s	— —	1.5 3	μs
Fall time $V_{CC} = 800\text{ V}$, $I_C = 10\text{ A}$, $I_{B1} = -I_{B2} = 2\text{ A}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	t_f	— —	0.05 0.05	

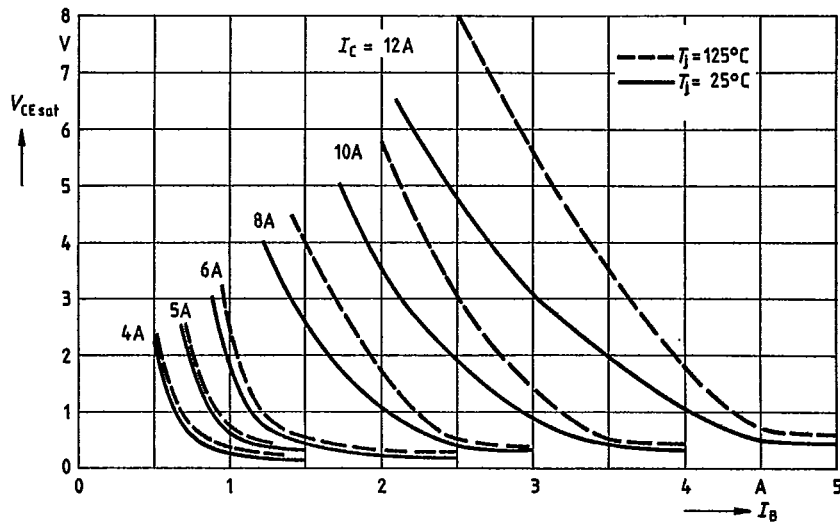
Base current $I_B = f(t)$
(schematic diagram)



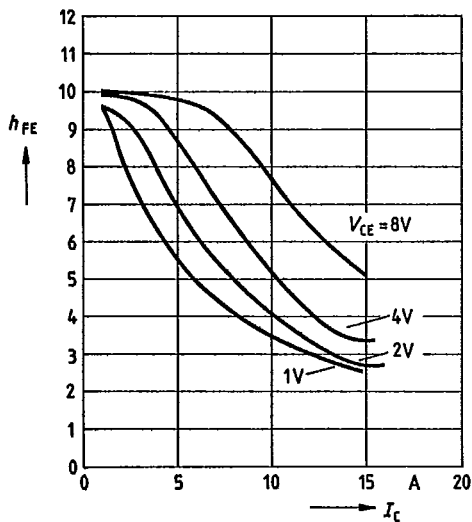
Characteristics at $T_j = 25^\circ\text{C}$, unless otherwise specified.

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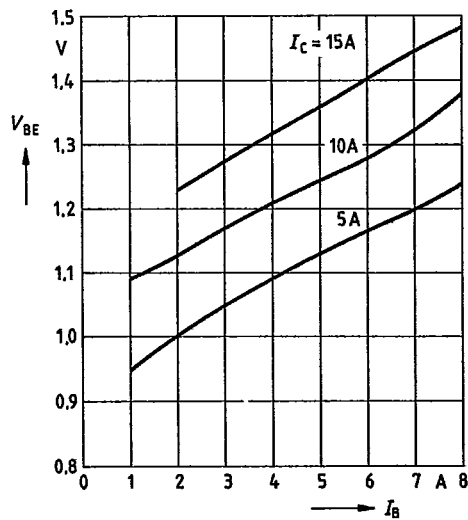
Saturation voltage $V_{CEsat} = f(I_B)$



Current gain $h_{FE} = f(I_C)$
 $V_{CE} = 1\text{V} \dots 8\text{V}$

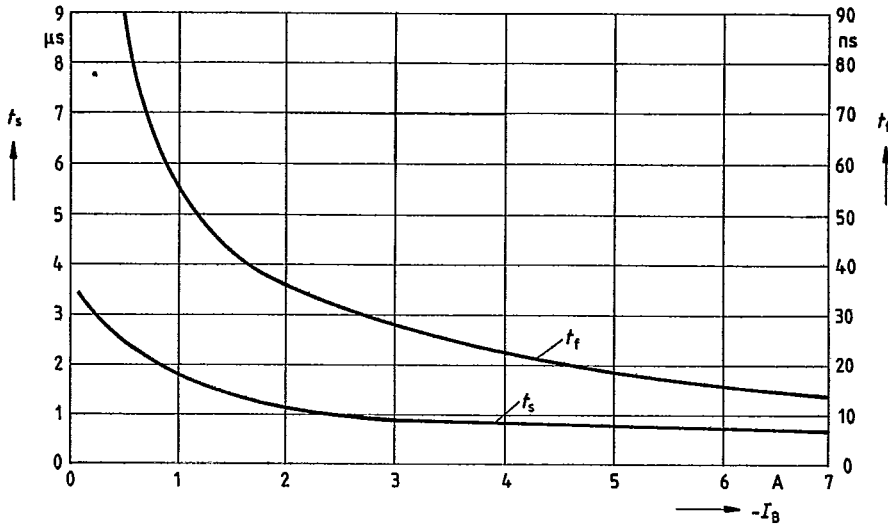


Base-emitter voltage $V_{BE} = f(I_B)$
 $I_C = 5\text{A} \dots 15\text{A}$

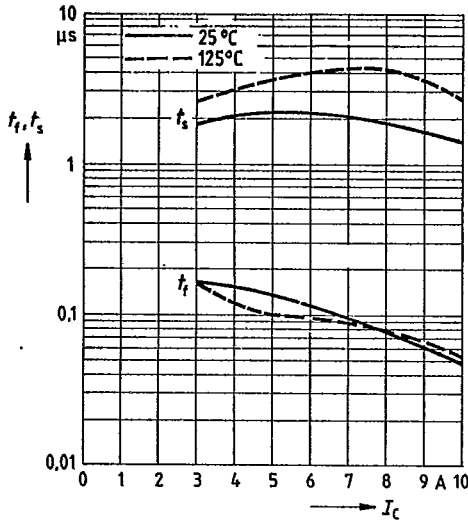


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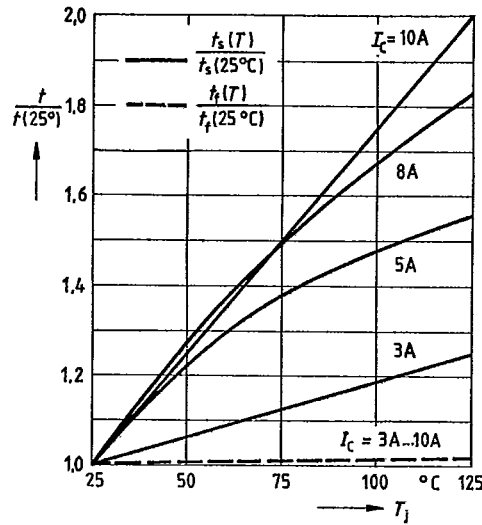
Switching time $t_s, t_f = f(-I_B)$
 $V_{CC} = 500 \text{ V}, I_C = 8 \text{ A}$



Storage time $t_s = f(I_C)$
 Fall time $t_f = f(I_C)$
 $V_{CC} = 800 \text{ V}, I_C/I_B = 5, I_{B1} = -I_{B2}$

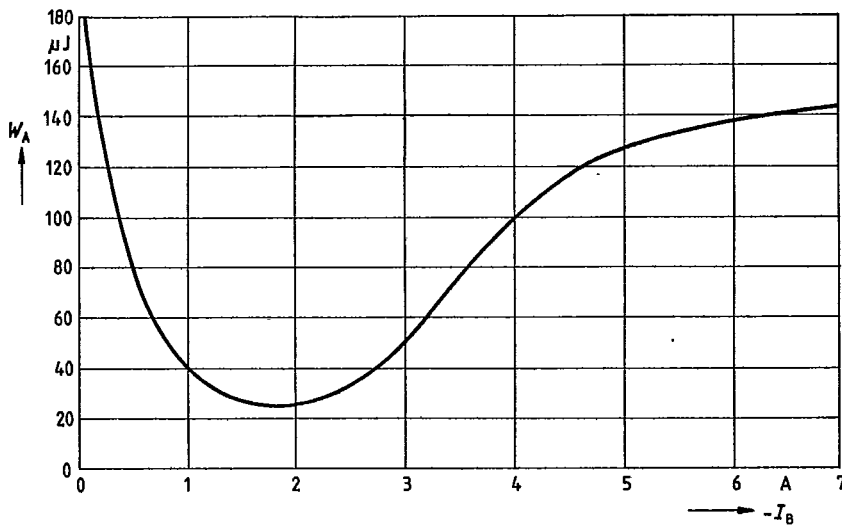


Temperature dependence of storage and fall time
 $\frac{t}{t(25^\circ\text{C})} = f(T_j)$
 $I_C = 3 \dots 10 \text{ A}, V_{CC} = 800 \text{ V}, I_C/I_B = 5, I_{B1} = -I_{B2}$



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Heat loss at turn-off $W_A = f(-I_B)$
 $V_{CC} = 500 \text{ V}, I_C = 8 \text{ A}$



Safe operating area at negative base supply (RBSOA)

Max. collector-emitter voltage V_{CE}
 $T_j = 25^\circ\text{C} \dots 125^\circ\text{C}$

Max. supply voltage V_{CC}

