

BF757
BF758
BF759

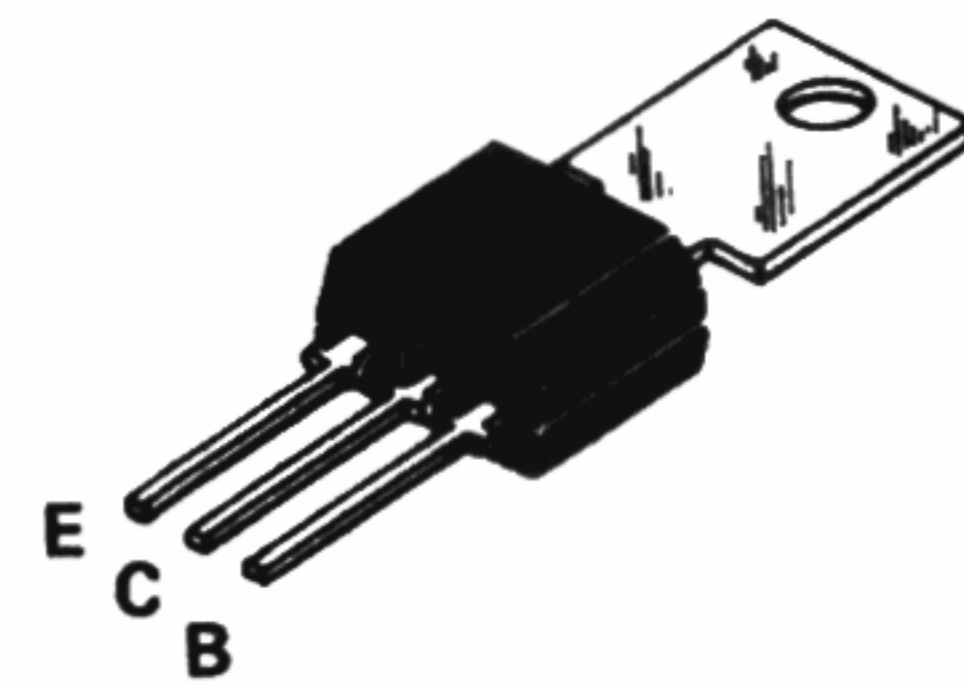


**NPN SILICON ANNULAR
HIGH VOLTAGE AMPLIFIER TRANSISTORS**

... designed for high-voltage TV video and chroma output circuits, high-voltage linear amplifiers, and high-voltage transistor regulators.

- High Collector-Emitter Breakdown Voltage –
 $BV_{CEO} = 350 \text{ Vdc (Min) @ } I_C = 1.0 \text{ mAdc} - \text{BF759}$
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 0.6 \text{ Vdc (Max) @ } I_C = 30 \text{ mAdc}$
- Low Collector-Base Capacitance –
 $C_{re} = 3.0 \text{ pF (Max) @ } V_{CB} = 20 \text{ Vdc}$
- Duowatt Package –
2 Watts Free Air Dissipation @ $T_A = 25^\circ\text{C}$
- Complements to NPN BF760/BF761/BF762

**NPN SILICON
AMPLIFIER TRANSISTORS**

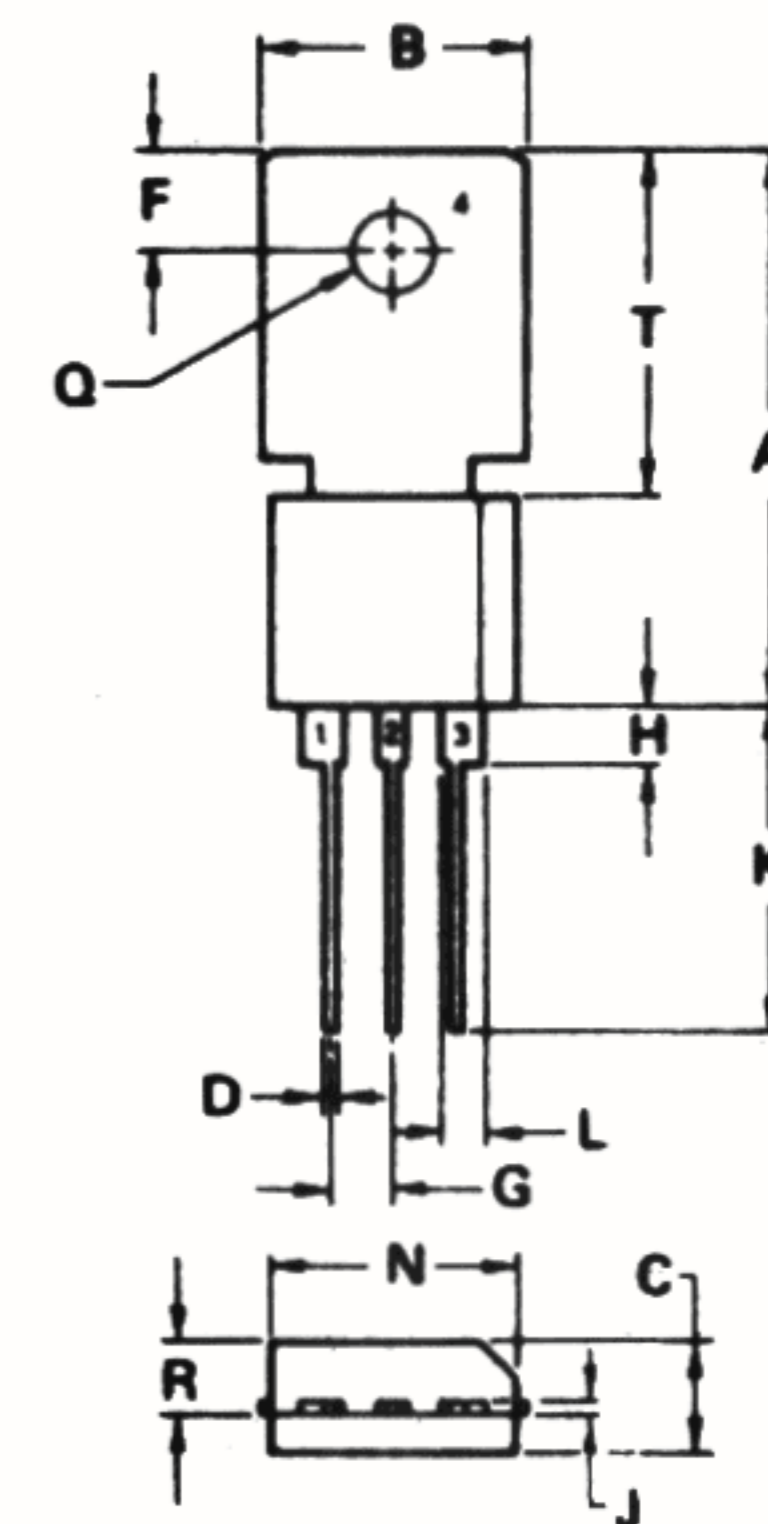


MAXIMUM RATINGS

Rating	Symbol	BF757	BF758	BF759	Unit
*Collector-Emitter Voltage	V_{CEO}	250	300	350	Vdc
*Collector-Base Voltage	V_{CBO}	250	300	350	Vdc
*Emitter-Base Voltage	V_{EBO}	← 6.0 →			Vdc
*Collector Current – Continuous	I_C	← 0.5 →			Adc
Peak		← 0.7 →			
*Base Current	I_B	← 250 →			mAdc
*Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	← 2.0 →			Watts
Derate above 25°C		← 16 →			
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	← 10 →			Watts
Derate above 25°C		← 80 →			
*Operating and Storage Junction Temperature Range	T_J, T_{stg}	← -55 to +150 →			$^\circ\text{C}$
*Solder Temperature, 1/16" from Case for 10 Seconds	—	← 260 →			$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	12.5	$^\circ\text{C/W}$



STYLE 2
PIN 1. EMITTER
2. COLLECTOR
3. BASE
4. COLLECTOR

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	21.84	22.35	0.860	0.880
B	9.91	10.41	0.390	0.410
C	4.39	4.65	0.173	0.183
D	0.58	0.74	0.023	0.029
F	3.56	4.06	0.140	0.160
G	2.41	2.67	0.095	0.105
H	1.70	1.96	0.067	0.077
J	0.48	0.66	0.019	0.026
K	12.19	12.95	0.480	0.510
L	1.65	2.03	0.065	0.080
N	9.91	10.16	0.390	0.400
Q	3.56	3.81	0.140	0.150
R	1.07	1.75	0.042	0.069
T	7.87	9.14	0.310	0.360

CASE 306-04

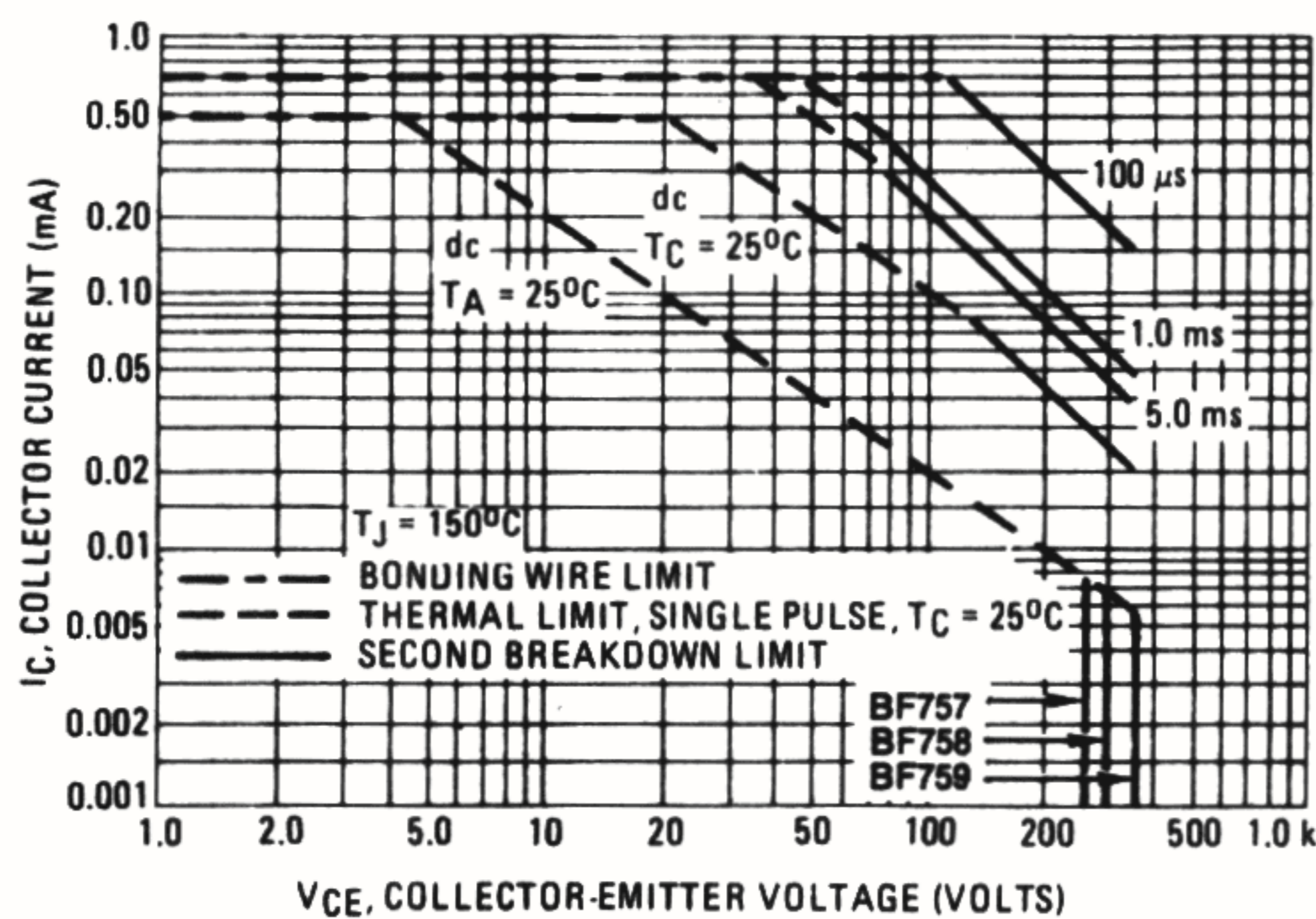
***ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ($I_C = 1.0 \text{ mAdc}, I_B = 0$)	BV_{CEO}	250	—	Vdc
BF757		300	—	
BF758		350	—	
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}, I_E = 0$)	BV_{CBO}	250	—	Vdc
BF757		300	—	
BF758		350	—	
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}, I_C = 0$)	BV_{EBO}	6.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 150 \text{ Vdc}, I_E = 0$)	I_{CBO}	—	0.2	μAdc
($V_{CB} = 200 \text{ Vdc}, I_E = 0$)	BF757	—	0.2	
($V_{CB} = 250 \text{ Vdc}, I_E = 0$)	BF758	—	0.2	
BF759		—	0.2	
Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}, I_C = 0$)	I_{EBO}	—	0.1	μAdc
ON CHARACTERISTICS(1)				
DC Current Gain ($I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$) ($I_C = 30 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	h_{FE}	25 40	— 180	—
Collector-Emitter Saturation Voltage ($I_C = 30 \text{ mAdc}, I_B = 3.0 \text{ mAdc}$) ($I_C = 50 \text{ mAdc}, I_B = 5 \text{ mAdc}$)	$V_{CE(sat)}$	—	0.6 1.5	Vdc
Base-Emitter On Voltage ($I_C = 30 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	$V_{BE(on)}$	—	1.0	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain – Bandwidth Product ($I_C = 10 \text{ mAdc}, V_{CE} = 20 \text{ Vdc}, f = 20 \text{ MHz}$)	f_T	45	200	MHz
Common Emitter Reverse Transfer Capacitance ($V_{CB} = 20 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$)	C_{re}	—	3.0	pF

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

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TYPICAL CHARACTERISTICS



There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 1 is based on $T_{J(pk)} = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150^\circ\text{C}$. $T_{J(pk)}$ may be calculated from the data in Figure 6. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown. (See AN-415A).

FIGURE 1 – ACTIVE-REGION SAFE-OPERATING AREA

TYPICAL CHARACTERISTICS (continued)

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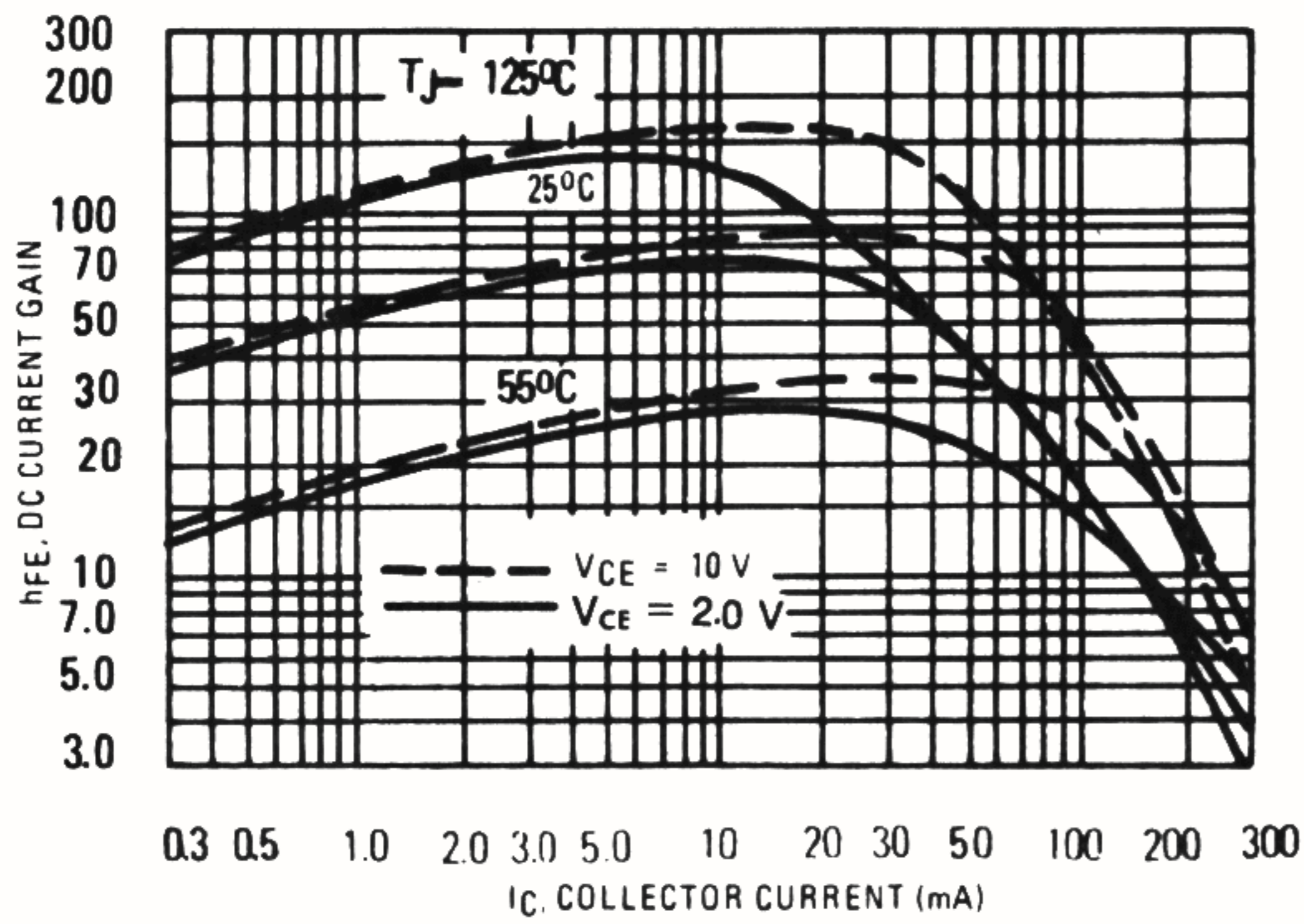


FIGURE 2 - DC CURRENT GAIN

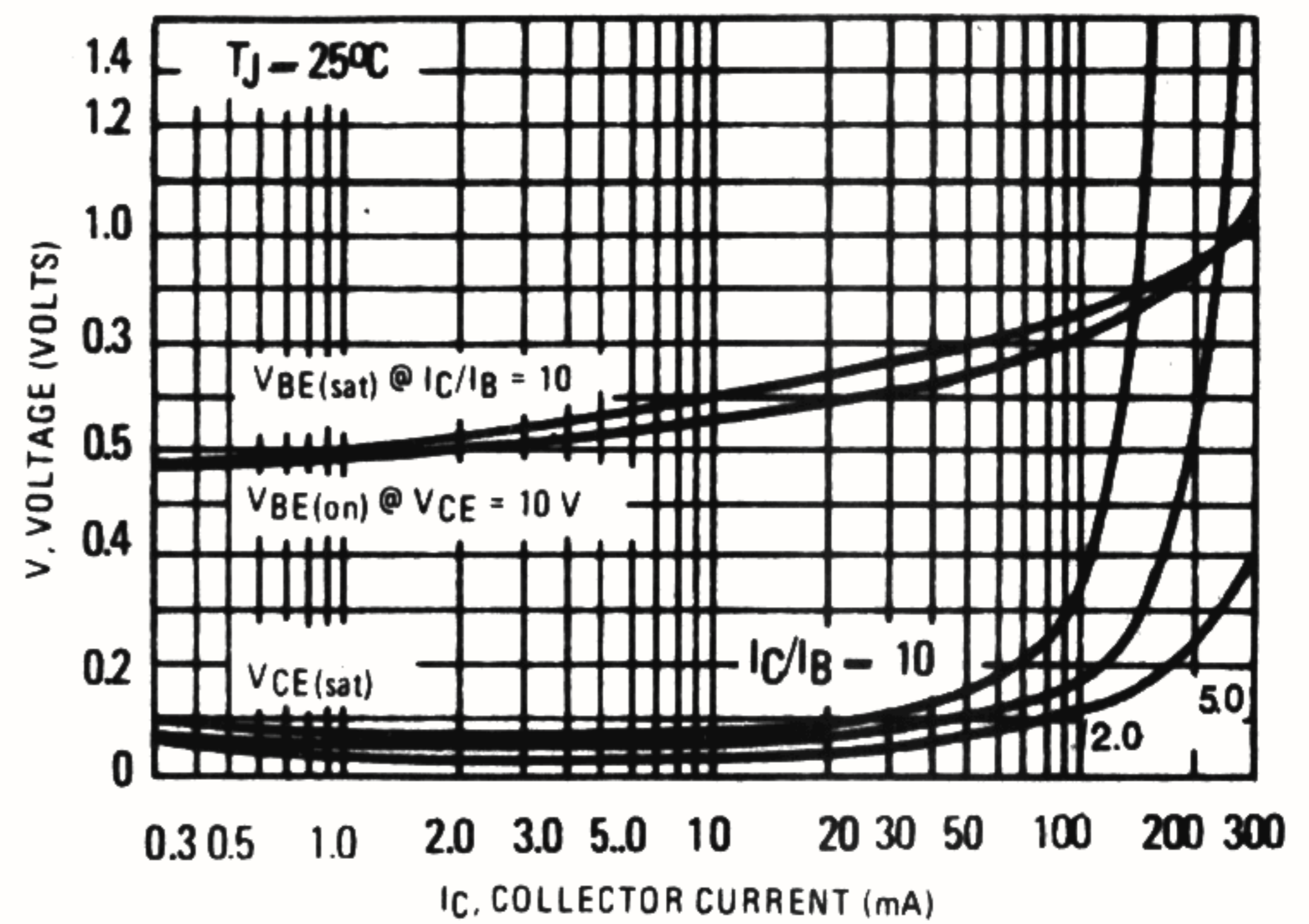


FIGURE 3 - "ON" VOLTAGES

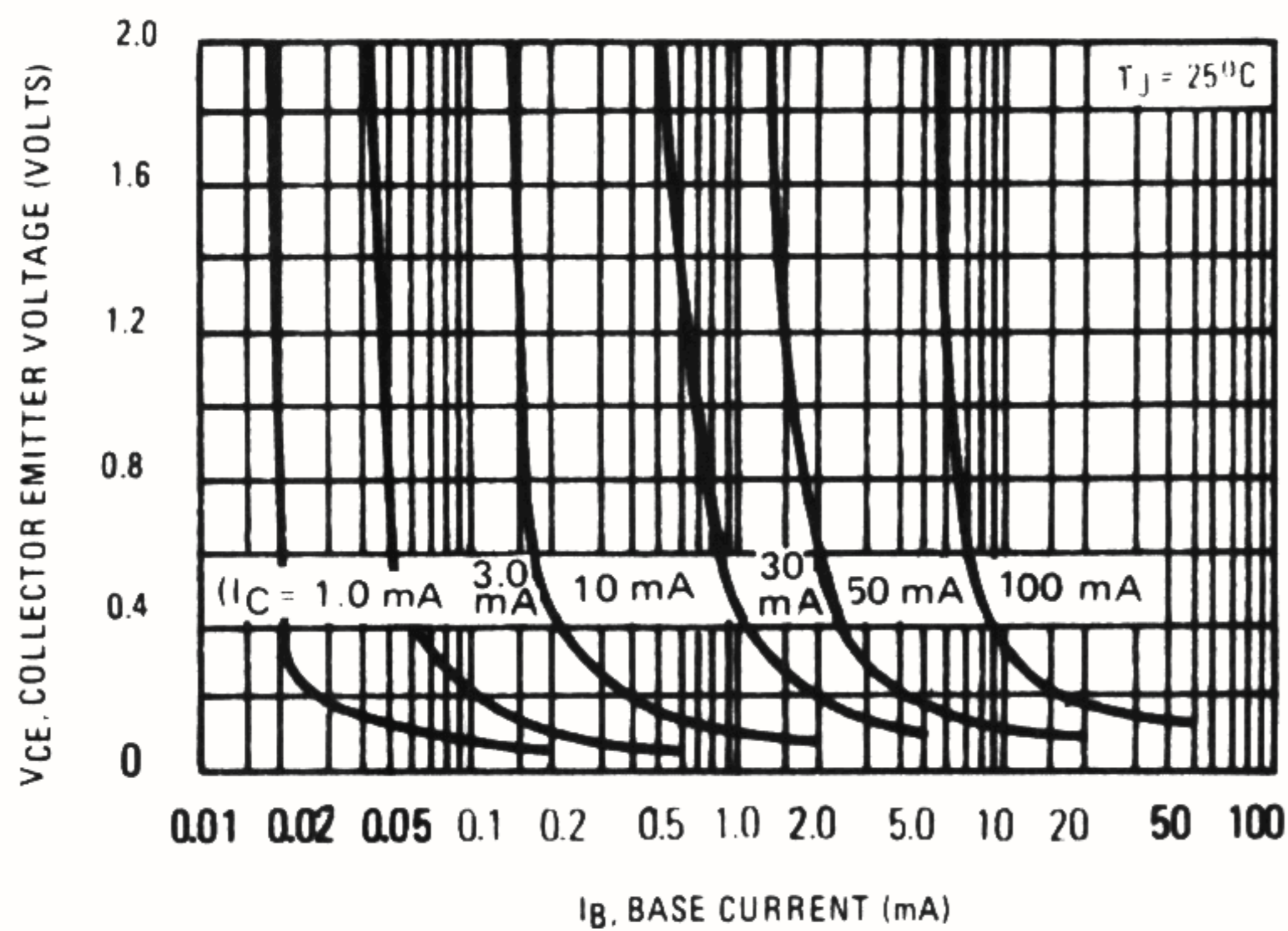


FIGURE 4 - COLLECTOR SATURATION REGION

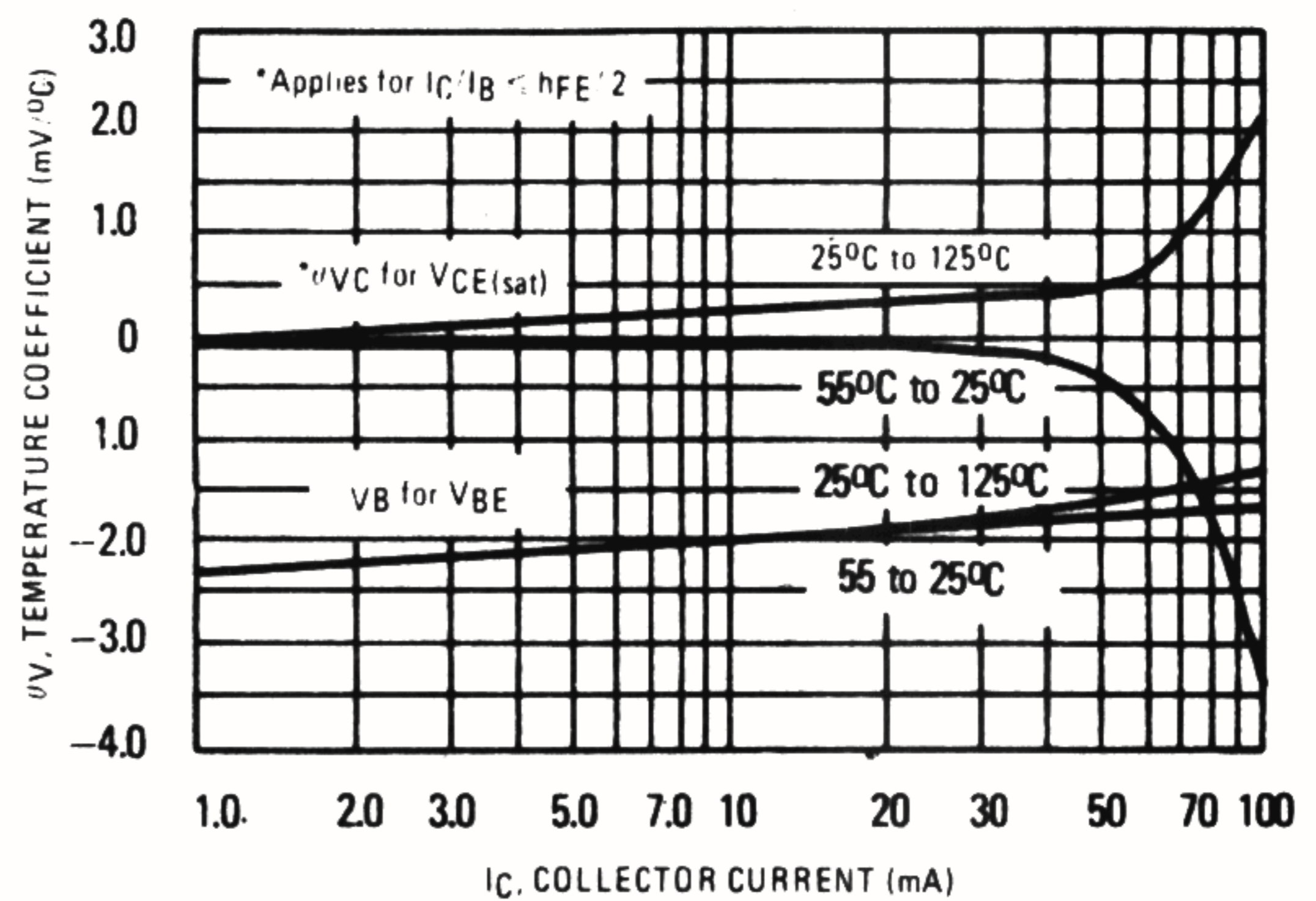


FIGURE 5 - TEMPERATURE COEFFICIENTS

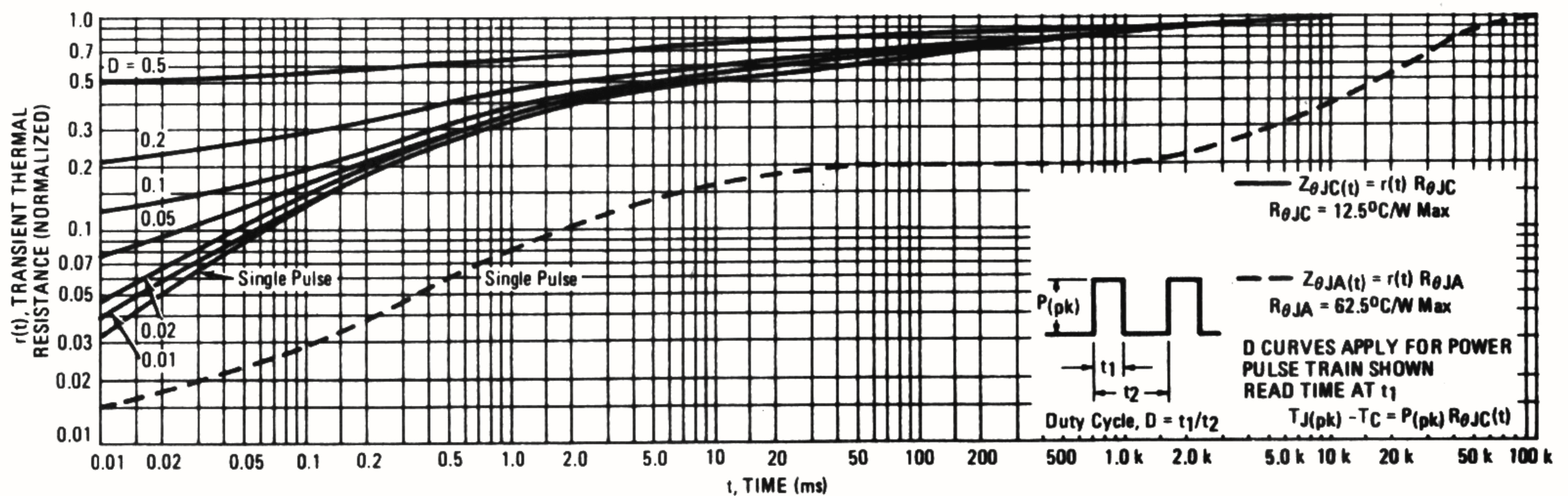


FIGURE 6 - THERMAL RESPONSE

TYPICAL CHARACTERISTICS (continued)

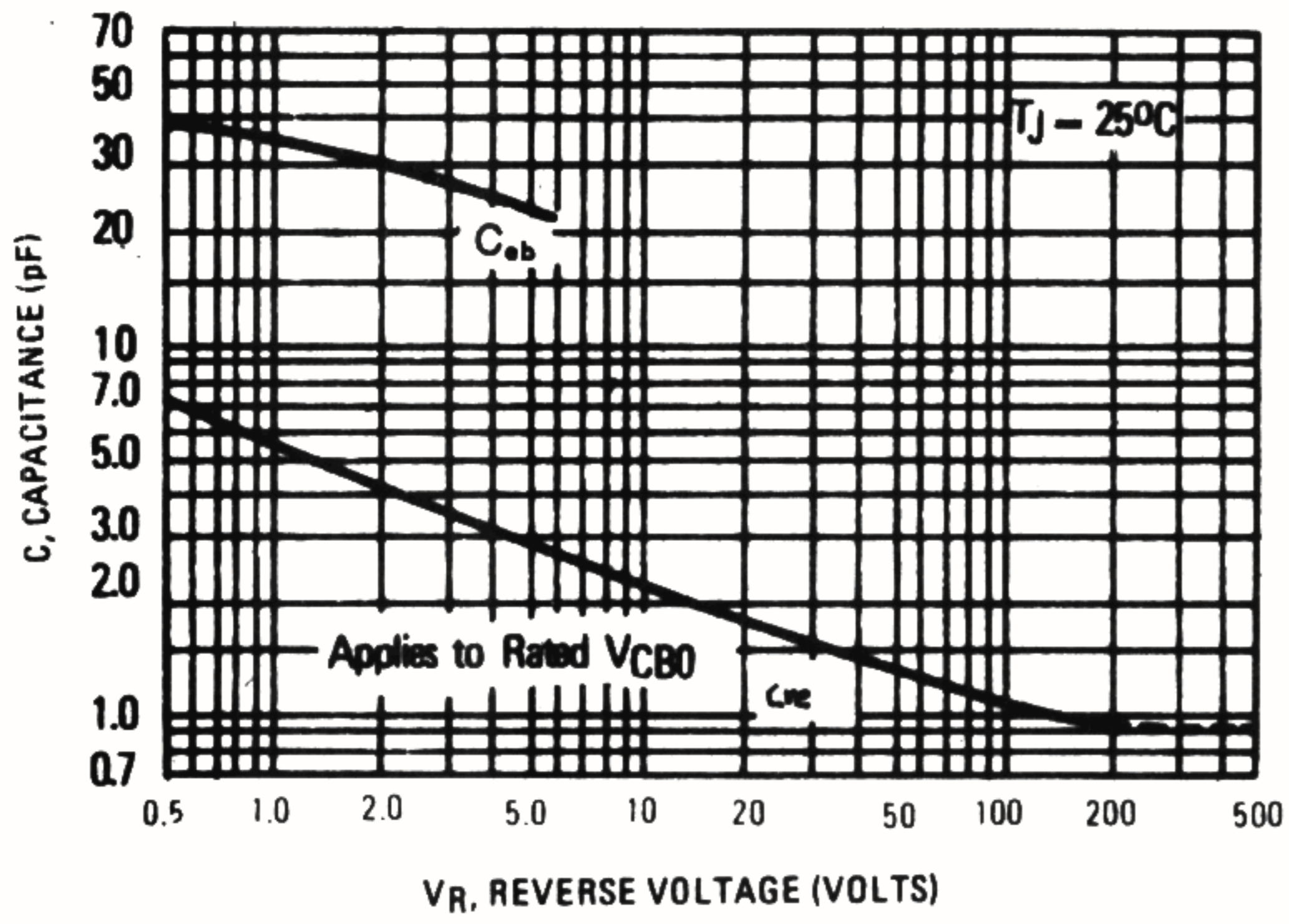


FIGURE 7 - CAPACITANCE

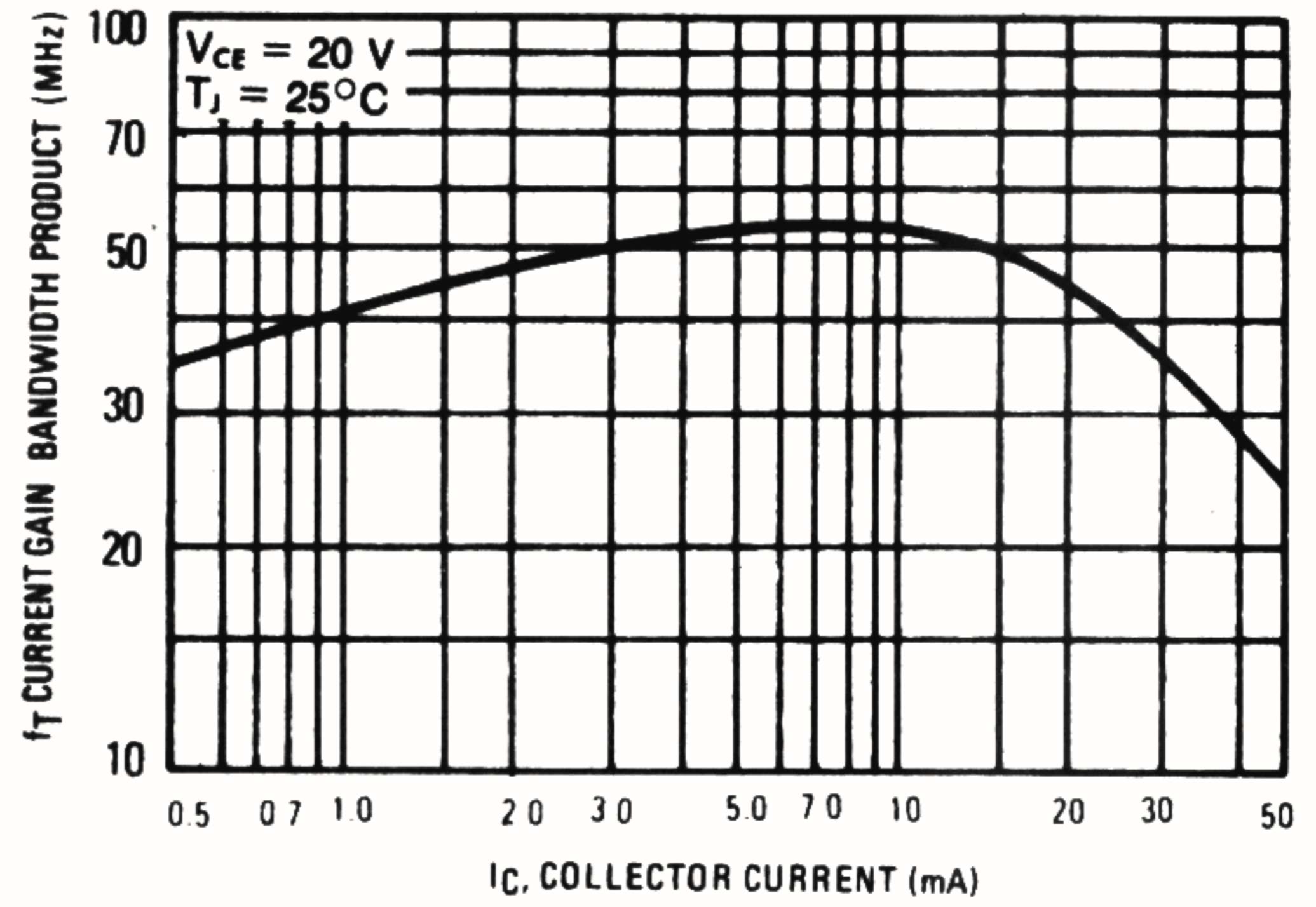


FIGURE 8 - CURRENT-GAIN - BANDWIDTH PRODUCT

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