BF760
BF761
BF762

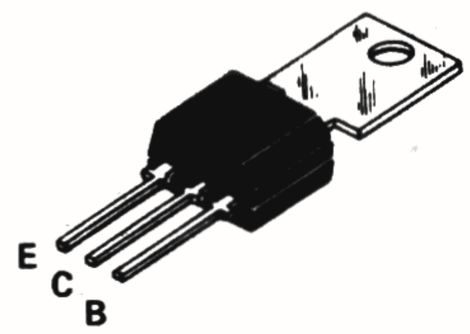
MOTOROLA

PNP 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 Vdc (Min) @ I_C = 1.0 mAdc — **BF762**
- Low Collector-Emitter Saturation Voltage —
  $V_{CE(sat)}$ = 0.75V (Max) @ I_C = 30 mAdc
- Low Collector-Base Capacitance —
  C_{re} = 3.0 pF (Max) @ V_{CB} = 60 Vdc
- Duowatt Package —
  2 Watts Free Air Dissipation @ T_A = 25°C
- **Complementary to NPN BF757/BF758/BF759**

PNP SILICON AMPLIFIER TRANSISTORS

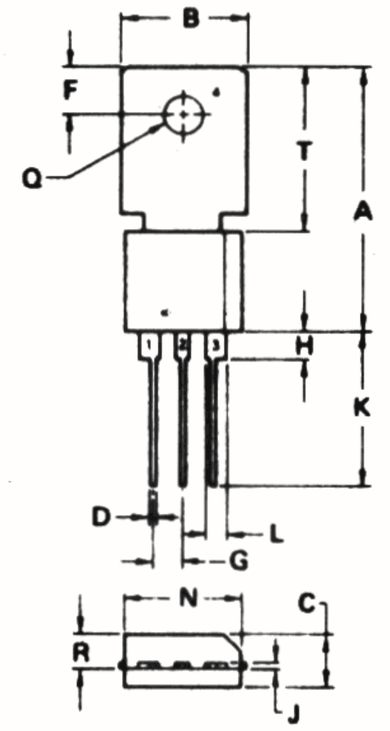


MAXIMUM RATINGS

Rating	Symbol	BF760	BF761	BF762	Unit
*Collector-Emitter Voltage	V_{CEO}	250	300	350	Vdc
*Collector-Base Voltage	V_{CBO}	250	300	350	Vdc
*Emitter-Base Voltage	V_{EBO}	← 5 →			Vdc
*Collector Current — Continuous Peak	I_C	← 0.5 → ← 0.7 →			Adc
*Base Current	I_B	← 250 →			mAdc
*Total Power Dissipation @ T_A = 25°C Derate above 25°C	P_D	← 2.0 → ← 16 →			Watts mW/°C
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	← 10 → ← 80 →			Watts mW/°C
*Operating and Storage Junction Temperature Range	T_J, T_{stg}	← -55 to +150 →			°C
*Solder Temperature, 1/16" from Case for 10 Seconds	—	← 260 →			°C

THERMAL CHARACTERISTICS

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



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

DIM	MILLIMETERS MIN	MAX	INCHES 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

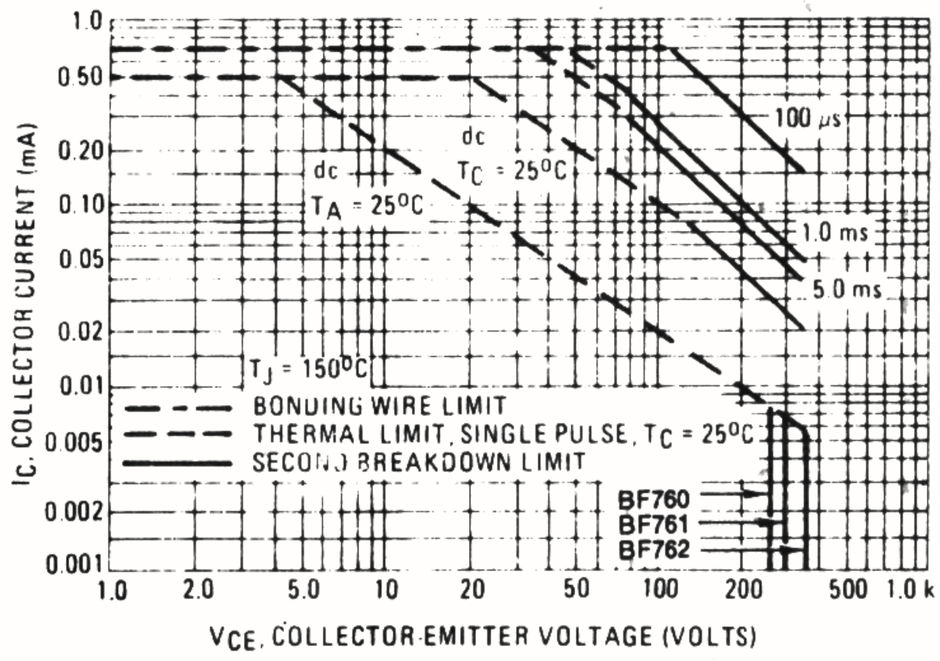
MOTOROLA

***ELECTRICAL CHARACTERISTICS** (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	BF760	BV_{CEO}	250	–	Vdc
	BF761		300	–	
	BF762		350	–	
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BF760	BV_{CBO}	250	–	Vdc
	BF761		300	–	
	BF762		350	–	
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		BV_{EBO}	5	–	Vdc
Collector Cutoff Current		I_{CBO}			μAdc
(V_{CB} = 150 Vdc, I_E = 0)	BF760		–	0.2	
(V_{CB} = 200 Vdc, I_E = 0)	BF761		–	0.2	
(V_{CB} = 250 Vdc, I_E = 0)	BF762		–	0.2	
Emitter Cutoff Current (V_{BE} = 3 Vdc, I_C = 0)		I_{EBO}	–	0.1	μAdc
ON CHARACTERISTICS(1)					
DC Current Gain		h_{FE}			–
(I_C = 1.0 mAdc, V_{CE} = 10 Vdc)			25	–	
(I_C = 30 mAdc, V_{CE} = 10 Vdc)			40	180	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			Vdc
(I_C = 30 mAdc, I_B = 3.0 mAdc)			–	0.75	
			–		
Base-Emitter On Voltage (I_C = 30 mAdc, V_{CE} = 10 Vdc)		$V_{BE(on)}$	–	0.85	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain – Bandwidth Product (I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 20 MHz)		f_T	45	200	MHz
Common Emitter Reverse Transfer Capacitance (V_{CB} = 60 Vdc, I_E = 0, f = 1.0 MHz)		Cre	–	3	pF

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%

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°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150°C$. $T_{J(pk)}$ 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

MOTOROLA

TYPICAL CHARACTERISTICS (continued)

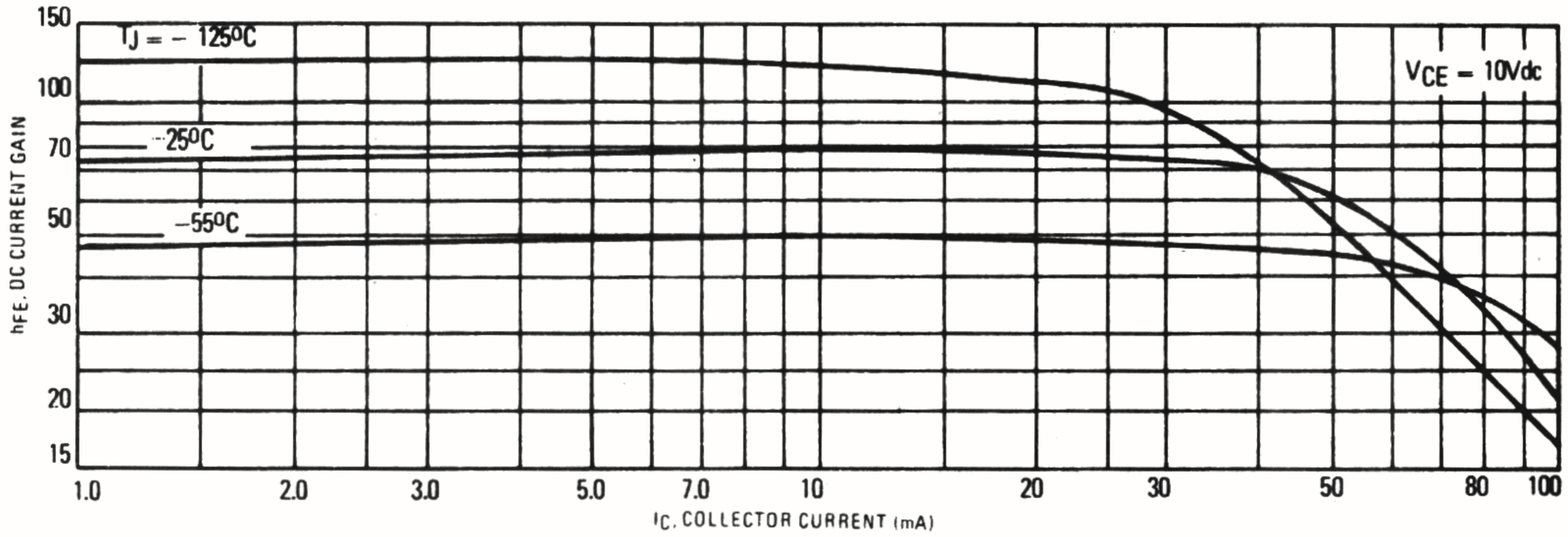


FIGURE 2 – DC CURRENT GAIN

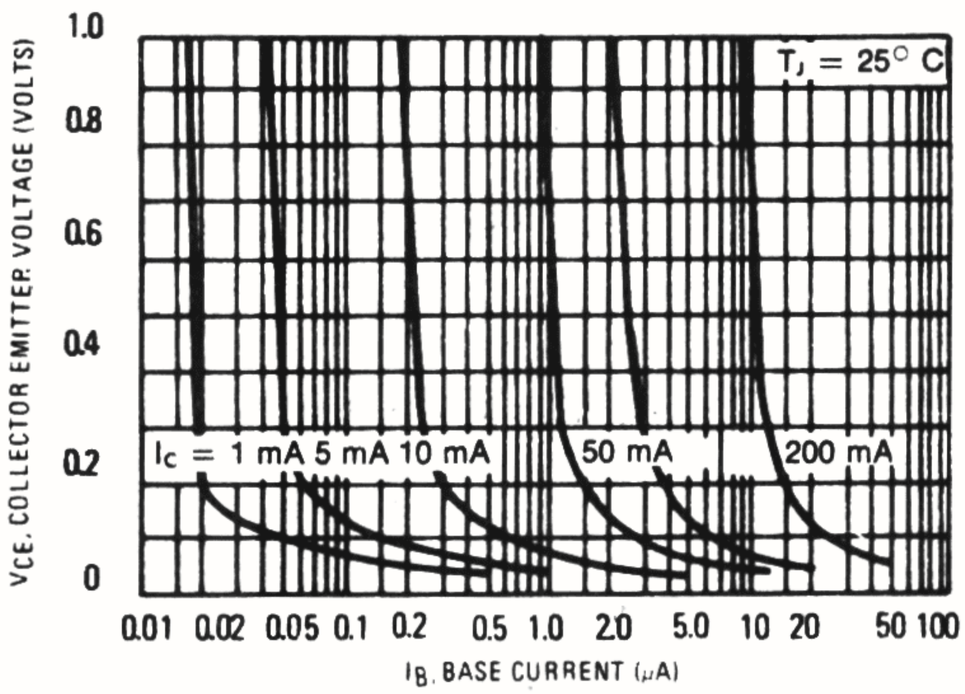


FIGURE 3 – COLLECTOR SATURATION REGION

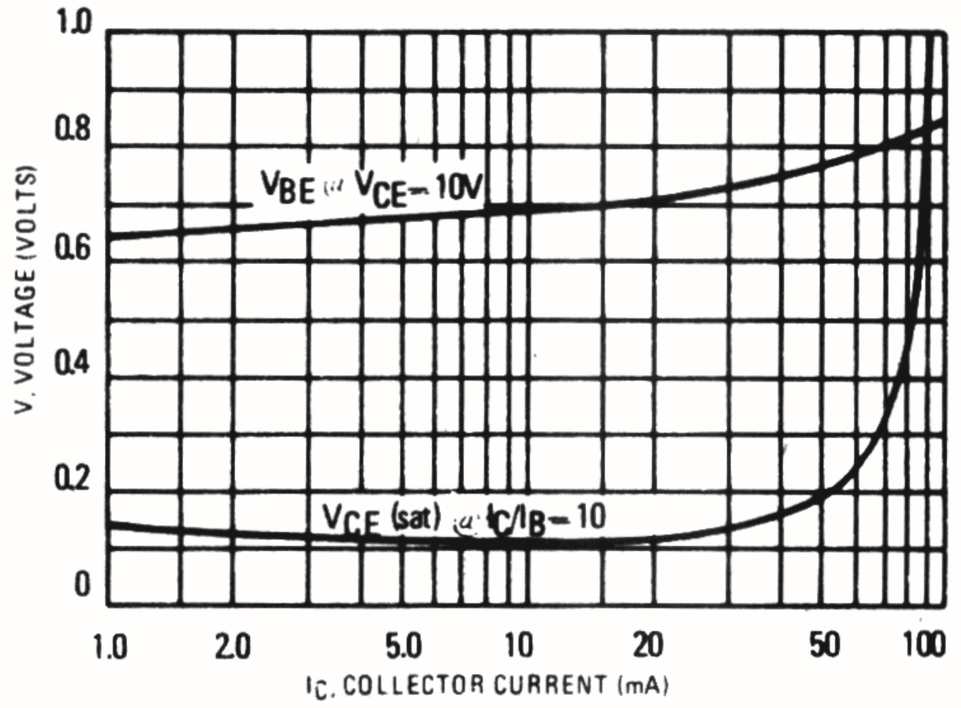


FIGURE 4 – "ON" VOLTAGES

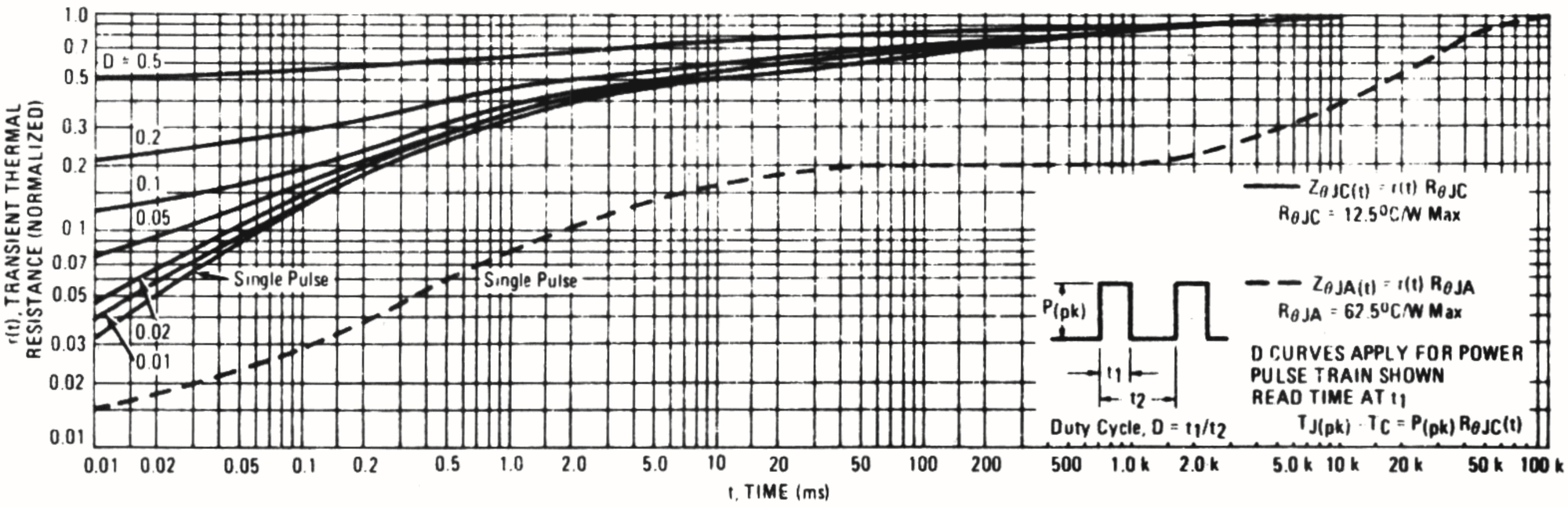


FIGURE 5 – THERMAL RESPONSE

MOTOROLA

TYPICAL CHARACTERISTICS (continued)

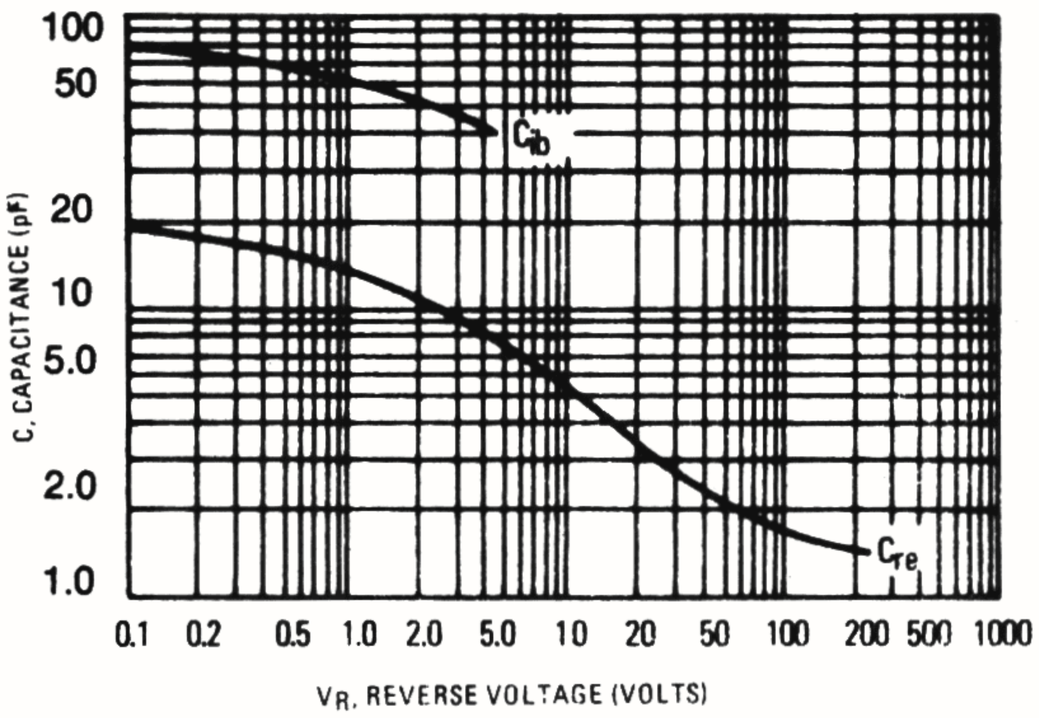


FIGURE 6 – CAPACITANCE

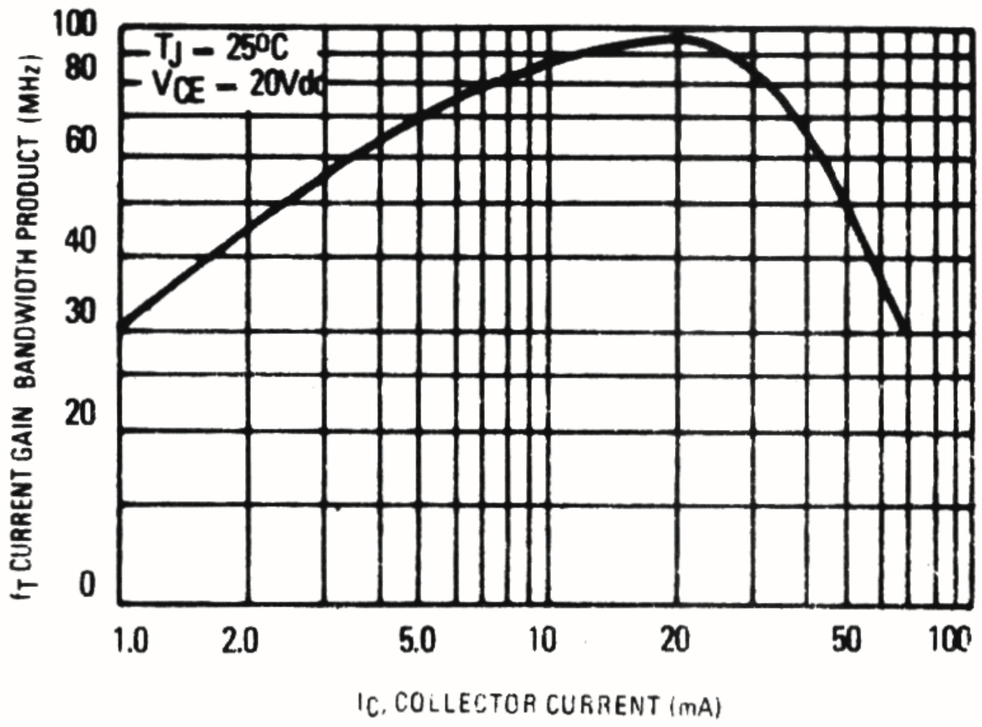


FIGURE 7 – CURRENT-GAIN – BANDWIDTH PRODUCT