

**NPN Silicon RF Transistors**

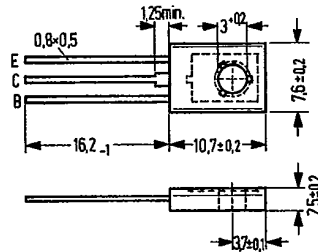
**BF 457  
BF 458  
BF 459**

SIEMENS AKTIENGESELLSCHAFT 25C 04495 D

**for video and AF output stages**

BF 457, BF 458 and BF 459 are epitaxial NPN silicon planar transistors in TO 126 plastic package (12 A 3 DIN 41 869). The collector is conductively connected to the metallic mounting area of the transistor. The transistors are especially designed for use in video output stages of TV receivers, for AF output stages of high operating voltage, and as driver transistors in horizontal deflection circuits.

Type	Ordering code
BF 457	Q62702-F315
BF 458	Q62702-F316
BF 459	Q62702-F317
Mica washer	Q62902-B62
Spring washer	Q62902-B63
A 3 DIN 137	



Approx. weight 0.5 g Dimensions in mm

Maximum ratings		BF 457	BF 458	BF 459	
Collector-base voltage	$V_{CBO}$	160	270	300	V
Collector-emitter voltage	$V_{CEO}$	160	250	300	V
Emitter-base voltage	$V_{EBO}$	5	5	5	V
Collector current	$I_C$	100	100	100	mA
Base current	$I_B$	50	50	50	mA
Collector peak current	$I_{CM}$	300	300	300	mA
Junction temperature	$T_j$	150	150	150	°C
Storage temperature range	$T_{stg}$	-55 to +150			°C
Total power dissipation ( $T_{amb} \leq 25^\circ\text{C}$ )	$P_{tot}$	1.2	1.2	1.2	W
( $T_{case} \leq 45^\circ\text{C}$ )	$P_{tot}$	10	10	10	W

Thermal resistance					
Junction to ambient air	$R_{thJA}$	$\leq 104$	$\leq 104$	$\leq 104$	K/W
Junction to case	$R_{thJC}^{1)}$	$\leq 10$	$\leq 10$	$\leq 10$	K/W

1) Starting torque for the M3 screw used for mounting = max. 0.8 Nm. Thermal resistance of a 50  $\mu$  mica washer, ungreased 8 K/W; greased 4 K/W. A washer or corrugated spring washer A 3 DIN 137 should be placed below the screw head.

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Static characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )

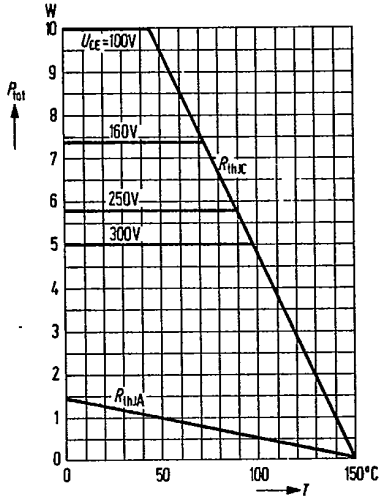
	BF 457	BF 458	BF 459	
Collector-base breakdown voltage ( $I_C = 100 \mu\text{A}$ )	$V_{(BR)CBO} > 160$	$> 250$	$> 300$	V
Collector-emitter breakdown voltage ( $I_C = 10 \text{ mA}$ )	$V_{(BR)CEO} > 160$	$> 250$	$> 300$	V
Emitter-base breakdown voltage ( $I_E = 100 \mu\text{A}$ )	$V_{(BR)EBO} > 5$	$> 5$	$> 5$	V
Collector cutoff current ( $V_{CB} = 100 \text{ V}$ )	$I_{CBO} < 50$	-	-	nA
( $V_{CB} = 200 \text{ V}$ )	$I_{CBO} -$	$< 50$	-	nA
( $V_{CB} = 250 \text{ V}$ )	$I_{CBO} -$	-	$< 50$	nA
Emitter cutoff current ( $V_{EB} = 3 \text{ V}$ )	$I_{EBO} < 50$	$< 50$	$< 50$	nA
Collector-emitter saturation voltage ( $I_C = 30 \text{ mA}$ ; $I_B = 6 \text{ mA}$ )	$V_{CEsat} < 1$	$< 1$	$< 1$	V
DC current gain ( $I_C = 30 \text{ mA}$ ; $V_{CE} = 10 \text{ V}$ )	$h_{FE} > 25$	$> 25$	$> 25$	-

Dynamic characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )

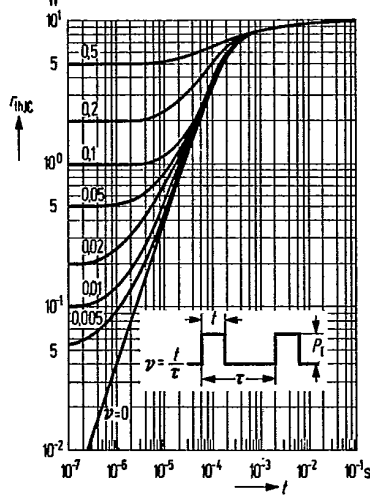
Transition frequency ( $V_{CE} = 10 \text{ V}$ ; $I_C = 15 \text{ mA}$ ; $f = 20 \text{ MHz}$ )	$f_T$	90	90	90	MHz
Reverse transfer capacitance ( $V_{CE} = 30 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $I_C = 1 \text{ mA}$ )	$-C_{12e}$	4.2	4.2	4.2	pF
Output capacitance ( $V_{CB} = 30 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $I_E = 0$ )	$C_{22e}$	5.5	5.5	5.5	pF

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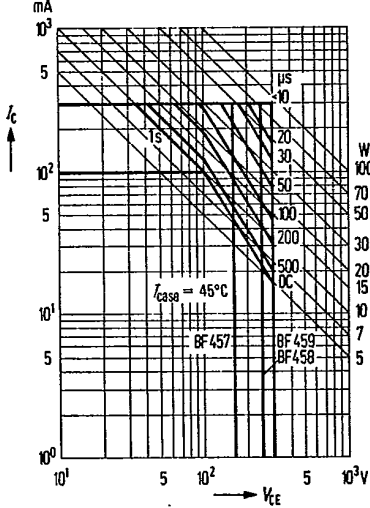
Total perm. power dissipation  
 versus temperature  
 $P_{tot} = f(T)$



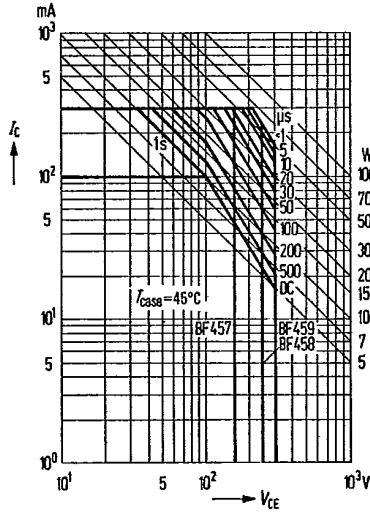
Permissible pulse load  
 $r_{thJC} = f(t); v = \text{parameter}$



Permissible operating range  
 $I_C = f(V_{CE}); (T_{case} = 45^\circ\text{C}); v = 0.01$

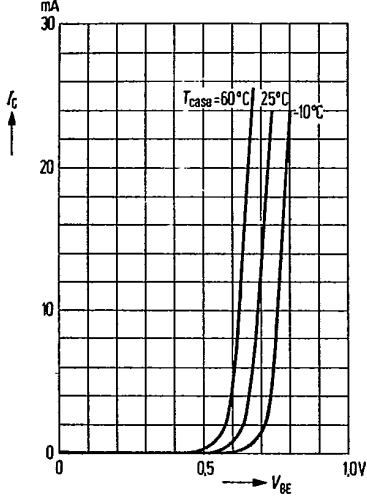


Permissible operating range  
 $I_C = f(V_{CE}); (T_{case} = 45^\circ\text{C}); v = 0.1$

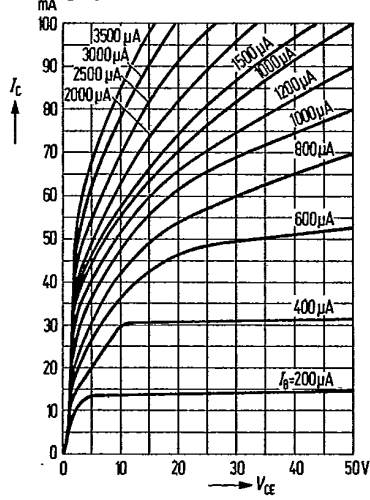


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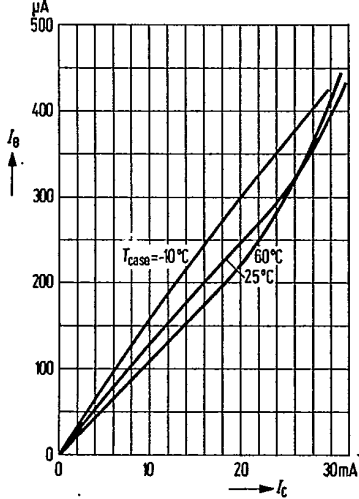
Collector current  $I_C = f(V_{BE})$   
 $V_{CE} = 10\text{ V}; T_{case} = \text{parameter}$



Output characteristics  $I_C = f(V_{CE})$   
 $I_B = \text{parameter}$



Base current  $I_B = f(I_C)$   
 $V_{CE} = 10\text{ V}; T_{case} = \text{parameter}$



Transition frequency  $f_T = f(I_C)$   
 $V_{CE} = 10\text{ V}; f = 20\text{ MHz}$

