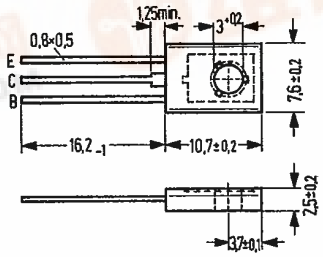
NPN Silicon RF Transistors

BF 457
BF 458
BF 459

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 A 3 DIN 137	Q62902-B63



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 ($T_{amb} \leq 25$ °C)	P_{tot}	1.2	1.2	1.2	W
($T_{case} \leq 45$ °C)	P_{tot}	10	10	10	W
Thermal resistance					
Junction to ambient air	R_{thJA} [1]	≤104	≤104	≤104	K/W
Junction to case	R_{thJC}	≤10	≤10	≤10	K/W

1) Starting torque for the M3 screw used for mounting = max. 0.8 Nm. Thermal resistance of a 50 µ 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 °C)		**BF 457**	**BF 458**	**BF 459**	
Collector-base breakdown voltage (I_C = 100 µA)	$V_{(BR)CBO}$	>160	>250	>300	V
Collector-emitter breakdown voltage (I_C = 10 mA)	$V_{(BR)CEO}$	>160	>250	>300	V
Emitter-base breakdown voltage (I_E = 100 µA)	$V_{(BR)EBO}$	>5	>5	>5	V
Collector cutoff current (V_{CB} = 100 V)	I_{CBO}	<50	–	–	nA
(V_{CB} = 200 V)	I_{CBO}	–	<50	–	nA
(V_{CB} = 250 V)	I_{CBO}	–	–	<50	nA
Emitter cutoff current (V_{EB} = 3 V)	I_{EBO}	<50	<50	<50	nA
Collector-emitter saturation voltage (I_C = 30 mA; I_B = 6 mA)	V_{CEsat}	<1	<1	<1	V
DC current gain (I_C = 30 mA; V_{CE} = 10 V)	h_{FE}	>25	>25	>25	–
Dynamic characteristics (T_{amb} = 25 °C)					
Transition frequency (V_{CE} = 10 V; I_C = 15 mA; f = 20 MHz)	f_T	90	90	90	MHz
Reverse transfer capacitance (V_{CE} = 30 V; f = 1 MHz; I_C = 1 mA)	$-C_{12e}$	4.2	4.2	4.2	pF
Output capacitance (V_{CB} = 30 V; f = 1 MHz; I_E = 0)	C_{22e}	5.5	5.5	5.5	pF

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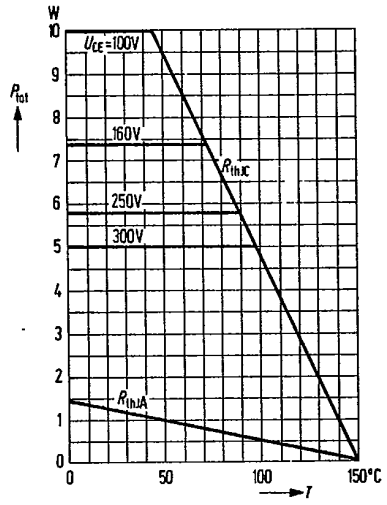
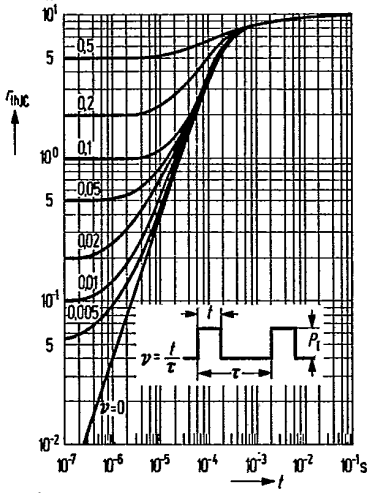
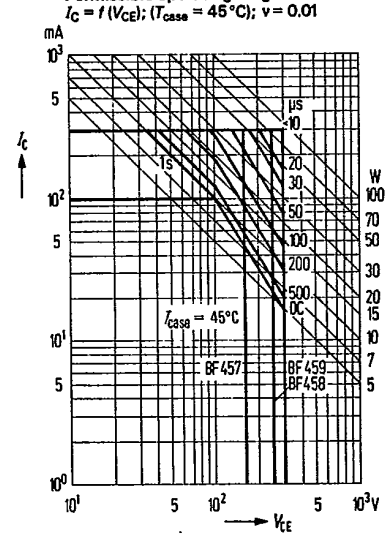
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$



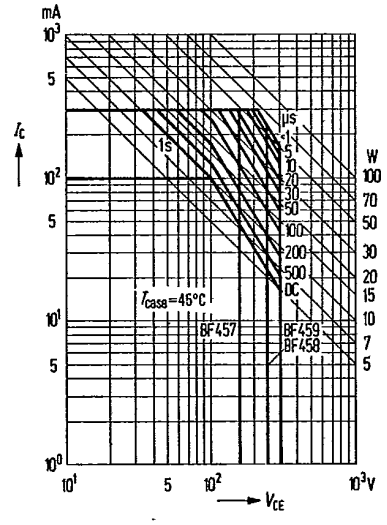
Permissible pulse load
$\frac{K}{W}$ $r_{thJC} = f(t)$; v = parameter



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



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



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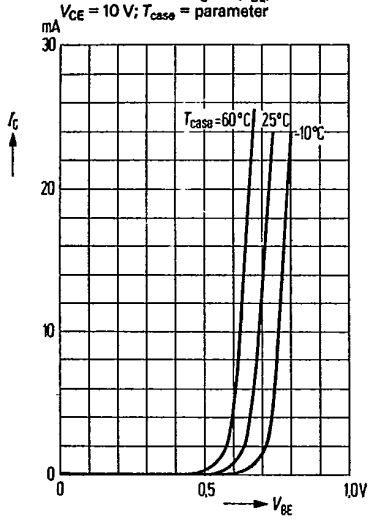
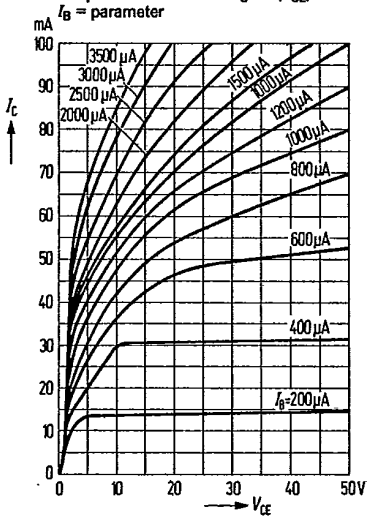
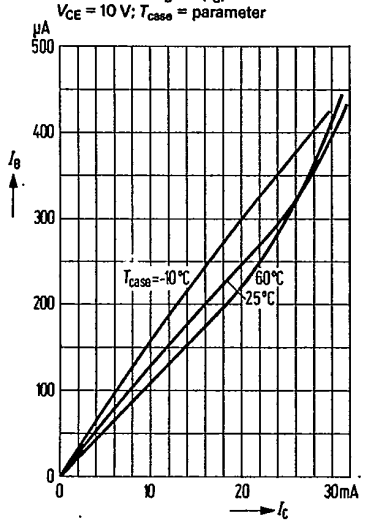
Collector current $I_C = f(V_{BE})$
V_{CE} = 10 V; T_{case} = parameter



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



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



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