

A.F. SILICON PLANAR EPITAXIAL TRANSISTORS

General purpose P-N-P transistors in TO-18 metal package with the collector connected to the case.

Complementary types for the BC107, BC108 and BC109.

QUICK REFERENCE DATA

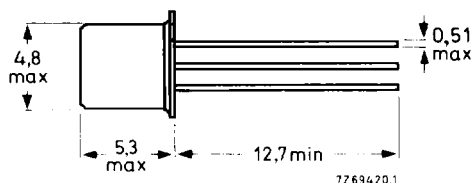
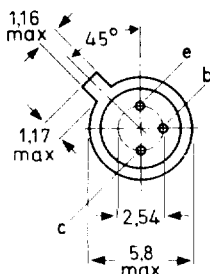
			BC177	BC178	BC179	
Collector-emitter voltage ($V_{BE} = 0V$)	$-V_{CES}$	max.	50	30	25	V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	45	25	20	V
Collector current (peak value)	$-I_{CM}$	max.	200	200	200	mA
Total power dissipation up to $T_{amb} = 25^{\circ}C$	P_{tot}	max.	300	300	300	mW
Junction temperature	T_j	max.	175	175	175	$^{\circ}C$
DC current gain at $T_j = 25^{\circ}C$ $-I_C = 2\text{ mA}; -V_{CE} = 5\text{ V}; f = 1\text{ kHz}$	h_{FE}	$>$ $<$	125 500	125 500	125 500	
Transition frequency at $f = 100\text{ MHz}$ $-I_C = 10\text{ mA}; -V_{CE} = 5\text{ V}$	f_T	$>$	100	100	100	MHz
Noise figure at $R_S = 2\text{ k}\Omega$ $-I_C = 200\text{ }\mu\text{A}; -V_{CE} = 5\text{ V}$ $f = 30\text{ Hz to }15\text{ kHz}$	F	typ. $<$	— —	— —	1,2 4,0	dB
$f = 1\text{ kHz}; B = 200\text{ Hz}$	F	$<$	10	10	4,0	dB

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-18.

Collector
connected
to case



7269420.1

Accessories: 56246 (distance disc).

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BC177	BC178	BC179
Collector-base voltage (open emitter)	$-V_{CBO}$	max.	50	30	25 V
Collector-emitter voltage ($V_{BE} = 0V$)	$-V_{CES}$	max.	50	30	25 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	45	25	20 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5	5	5 V
Collector current (d.c.)	$-I_C$	max.	100		mA
Collector current (peak value)	$-I_{CM}$	max.	200		mA
Emitter current (peak value)	I_{EM}	max.	200		mA
Total power dissipation up to $T_{amb} = 25^\circ C$	P_{tot}	max.	300		mW
Storage temperature range	T_{stg}		-65 to + 150		$^\circ C$
Junction temperature	T_j	max.	175		$^\circ C$

THERMAL RESISTANCE

From junction to ambient in free air	R_{thj-a}	=	0,5	K/mW
From junction to case	R_{thj-c}	=	0,2	K/mW

CHARACTERISTICS $T_j = 25^\circ C$ unless otherwise specified

Collector cut-off current				
$I_E = 0; -V_{CB} = 20 V$	$-I_{CBO}$	typ.	1	nA
		<	100	nA
$T_j = 150^\circ C$	$-I_{CBO}$	<	10	μA
Base-emitter voltage*				
$-I_C = 2 mA; -V_{CE} = 5 V$	$-V_{BE}$	typ.	650	mV
			600 to 750	mV
Saturation voltages				
$-I_C = 10 mA; -I_B = 0,5 mA$	$-V_{CEsat}$	typ.	75	mV
		<	300	mV
	$-V_{BEsat}$	typ.	700	mV
$-I_C = 100 mA; -I_B = 5 mA$	$-V_{CEsat}$	typ.	250	mV
	$-V_{BEsat}$	typ.	850	mV
Collector capacitance at $f = 1 MHz$				
$I_E = I_e = 0; -V_{CB} = 10 V$	C_C	typ.	4,0	pF
		<	6,0	pF
Transition frequency at $f = 35 MHz$				
$-I_C = 10 mA; -V_{CE} = 5 V$	f_T	>	100	MHz

* $-V_{BE}$ decreases by about 2 mV/K with increasing temperature.

Noise figure at $R_S = 2\text{ k}\Omega$
 $-I_C = 200\text{ }\mu\text{A}; -V_{CE} = 5\text{ V}$
 $f = 30\text{ Hz to }15\text{ kHz}$

 $f = 1\text{ kHz}; B = 200\text{ Hz}$

		BC177	BC178	BC179
F	typ.			1,2 dB
	<			4 dB
F	typ.	2	2	1 dB
	<	10	10	4 dB

D.C. current gain
 $-I_C = 2\text{ mA}; -V_{CE} = 5\text{ V}$

		BC177 BC178	BC177A BC178A BC179A	BC177B BC178B BC179B
h_{FE}	typ.	140	180	290
	>	125	125	240
	<	500	260	500