

N-P-N GERMANIUM MEDIUM POWER TRANSISTORS

AC187
AC187/01

The AC187 is an n-p-n alloy junction medium power audio transistor in a TO-1 metal envelope. Primarily intended for use together with the p-n-p transistor AC188 as a matched pair AC187/AC188 in complementary class B output stages with output power up to 3W.

The AC187/01 is electrically equivalent to the AC187, constructed integrally with a heat conducting block.

The AC187/01 is also available as a matched pair with the AC188/01.

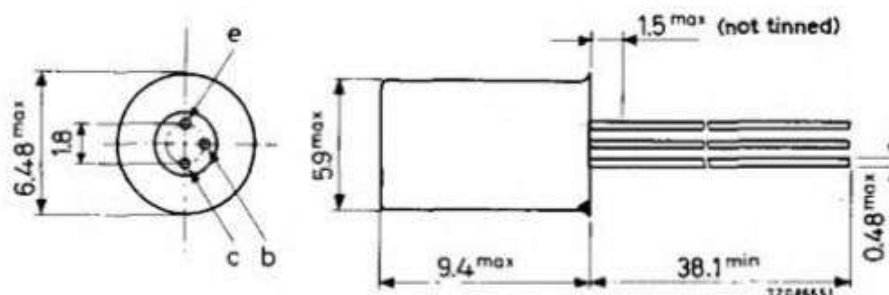
QUICK REFERENCE DATA

V_{CBO} max.	25	V
V_{CEO} max.	15	V
I_{CM} max.	2.0	A
P_{tot} max. ($T_{amb} \leq 35^{\circ}C$)	1.0	W
T_j max.	90	$^{\circ}C$
h_{FE} ($I_C = 300mA$, $V_{CE} = 1V$)	100-500	
f_{hfe} typ. ($I_C = 10mA$, $V_{CE} = 2V$)	20	kHz

OUTLINE AND DIMENSIONS (see also page 2)

Conforming to BS3934 SO-21/SB3-10
J. E. D. E. C. TO-1

AC187



All dimensions in mm

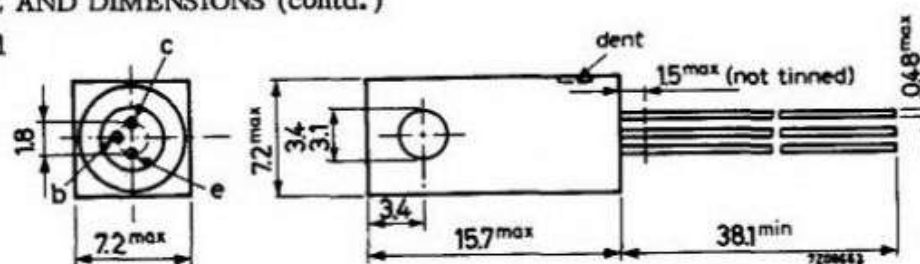
The coloured dot indicates the collector

Accessories available: 56226, 56227

Mullard

OUTLINE AND DIMENSIONS (contd.)

AC187/01



All dimensions in mm
The dent indicates the collector

RATINGS

Limiting values of operation according to the absolute maximum system.

Electrical

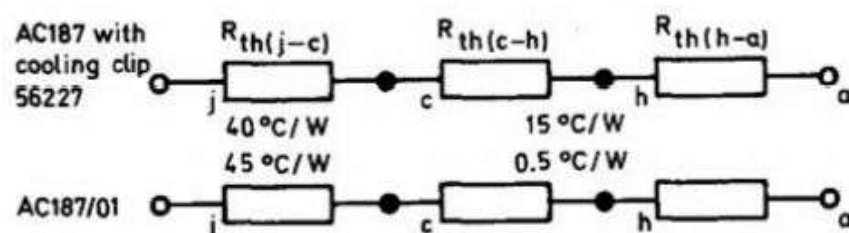
V_{CBO} max.	25	V
V_{CEO} max.	15	V
V_{CER} max. ($I_C \leq 600\text{mA}$, $R_{BE} \leq 1\Omega$)	18	V
V_{EBO} max.	10	V
I_C max. (d. c. or averaged over any 50ms period)	1.0	A
I_{CM} max. (peak)	2.0	A
P_{tot} max. ($T_{amb} \leq 35^\circ\text{C}$, see also graph on page 5)	1.0	W

Temperature

T_{stg}	-55 to +75	$^\circ\text{C}$
T_j max.	90	$^\circ\text{C}$

THERMAL CHARACTERISTICS

$R_{th(j-a)}$	Thermal resistance from junction to ambient in free air	AC187	AC187/01	
	without cooling clip	290	180	$^\circ\text{C/W}$
	with cooling clip 56227	140	-	$^\circ\text{C/W}$
	with cooling clip 56227 on 1.5mm blackened aluminium heatsink of 12.5cm^2	80	70.5	$^\circ\text{C/W}$
	with cooling clip 56227 on infinite heatsink	55	-	$^\circ\text{C/W}$
$R_{th(j-c)}$	Thermal resistance from junction to case	40	45	$^\circ\text{C/W}$

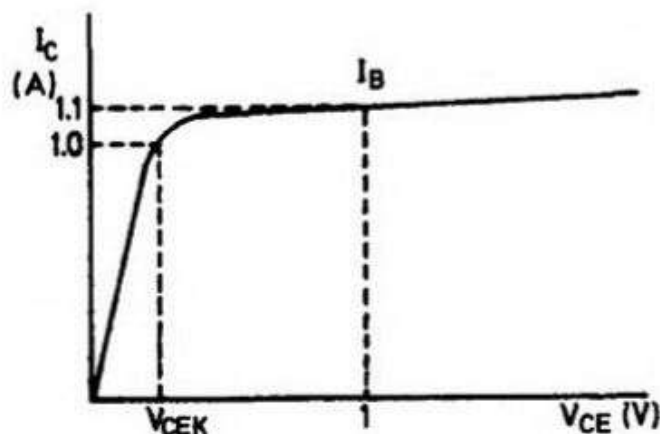


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ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$ unless otherwise stated)

	Collector cut-off current	Min.	Typ.	Max.	
I_{CBO}	$I_E = 0, V_{CB} = 25\text{V}$	-	15	100	μA
I_{CBO}	$I_E = 0, V_{CB} = 25\text{V}, T_j = 90^\circ\text{C}$	-	-	2.5	mA
I_{CEX}	$-V_{BE} = 1.0\text{V}, V_{CE} = 25\text{V}$	-	-	100	μA
I_{EBO}	Emitter cut-off current				
	$I_C = 0, V_{EB} = 10\text{V}$	-	15	100	μA
	$I_C = 0, V_{EB} = 10\text{V}, T_j = 90^\circ\text{C}$	-	1.2	2.5	mA
V_{BE}	Base-emitter voltage				
	$I_C = 5.0\text{mA}, V_{CE} = 10\text{V}$	95	-	135	mV
	$I_C = 300\text{mA}, V_{CE} = 1.0\text{V}$	-	-	550	mV
$V_{EB(fl)}$	Emitter-base floating voltage				
	$I_E = 0, V_{CB} = 25\text{V}, T_j = 90^\circ\text{C}$	-	-	400	mV
V_{CEK}	Collector knee voltage				
	$I_C = 1.0\text{A}, I_B = \text{the value for which } I_C = 1.1\text{A at } V_{CE} = 1.0\text{V}$	-	-	800	mV

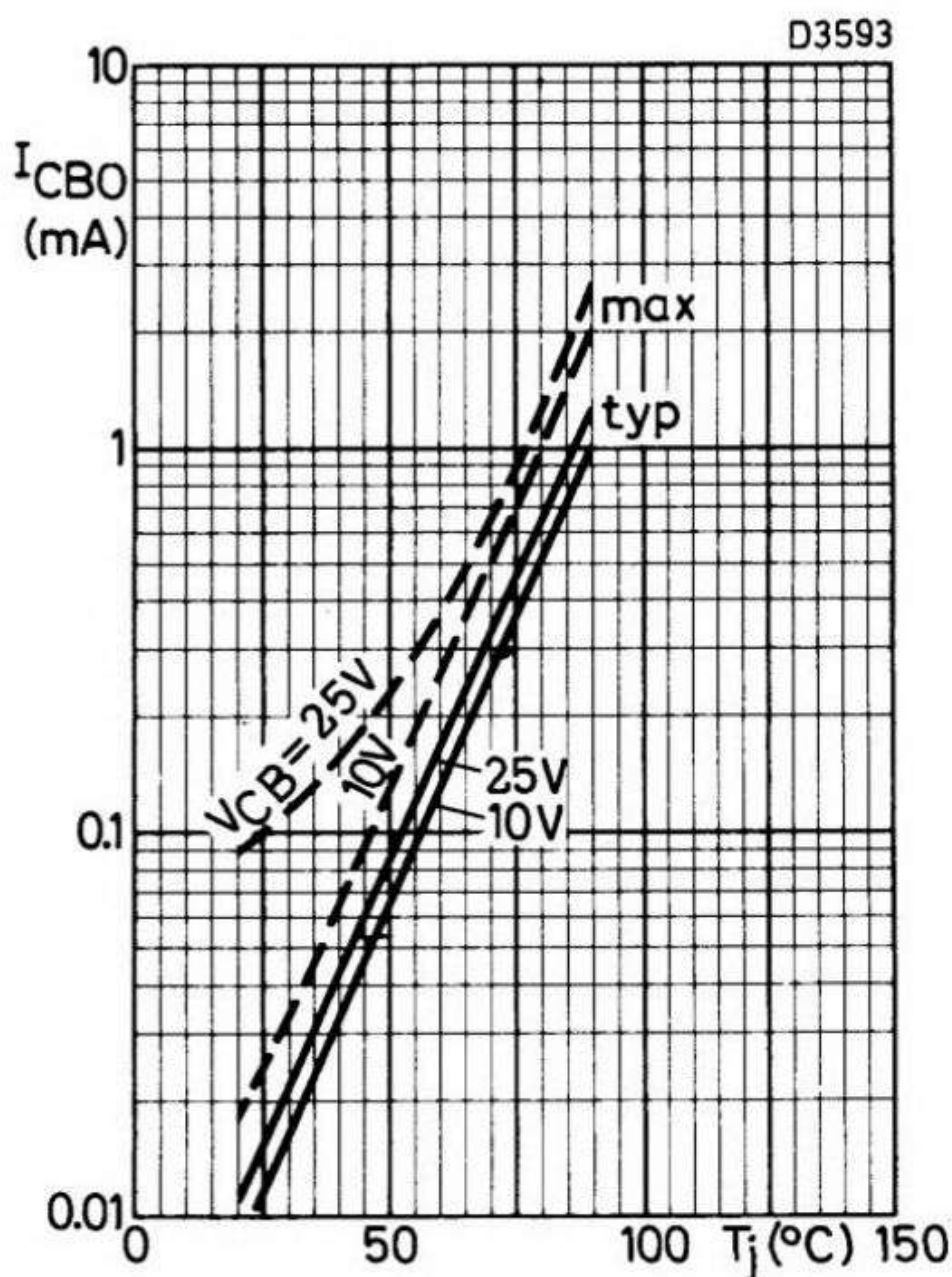


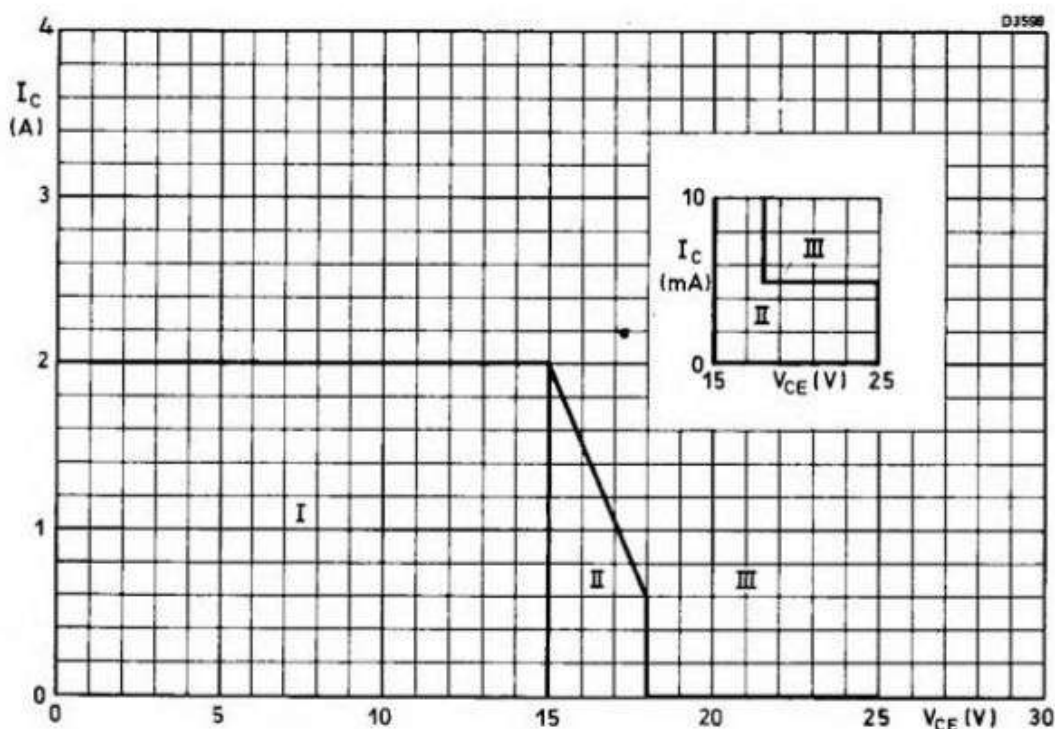
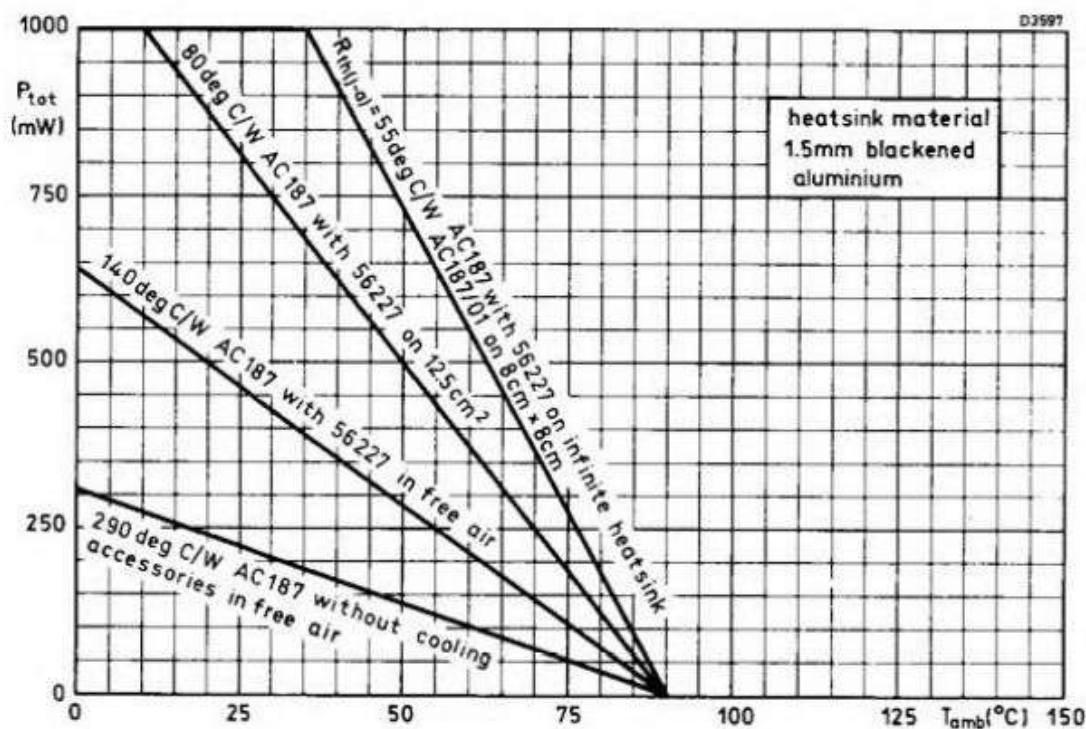
h_{FE}	Static forward current transfer ratio			
	$I_C = 5.0\text{mA}, V_{CE} = 10\text{V}$	70	-	-
	$I_C = 300\text{mA}, V_{CE} = 1.0\text{V}$	100	200	500
	$I_C = 1.0\text{A}, V_{CE} = 1.0\text{V}$	50	-	-

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ELECTRICAL CHARACTERISTICS (contd.)

		Min.	Typ.	Max.	
f_T	Transition frequency $I_C = 10\text{mA}, V_{CE} = 2.0\text{V}$	1.0	5.0	-	MHz
f_{hfe}	Cut-off frequency $I_C = 10\text{mA}, V_{CE} = 2.0\text{V}$	-	20	-	kHz
C_{Tc}	Collector capacitance $I_E = I_e = 0, V_{CB} = 5.0\text{V}, f = 450\text{kHz}$	-	150	180	pF
$\frac{h_{FE1}}{h_{FE2}}$	D.C. current gain ratio of matched pairs AC187/AC188, AC187/01/AC188/01 $ I_C = 500\text{mA}, V_{CE} = 1.0\text{V}$	-	-	1.25	





- I = Region of permissible operation under all base-emitter conditions
 II = Additional region of operation when the transistor is cut-off
 III = Outside regions I and II, the transistor can withstand transient energies of 1.0mWs, provided it is cut-off with $V_{EB(f)} > 0.6V$

