SILICON PLANAR EPITAXIAL TRANSISTOR

N-P-N transistor intended for large signal h.f. and v.h.f. amplifier applications.

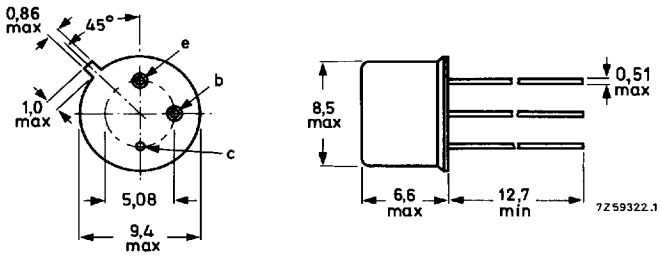
QUICK REFERENCE DATA

Collector-base voltage (open emitter)	V_{CBO}	max.	80 V
Collector-emitter voltage (open base)	V_{CEO}	max.	35 V
Collector current (d.c.)	I_C	max.	1,0 A
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	0,8 W
Junction temperature	T_j	max.	200 °C
D.C. current gain I_C = 150 mA; V_{CE} = 10 V	h_{FE}	40 to 120	
Transition frequency at f = 20 MHz I_C = 50 mA; V_{CE} = 10 V	f_T	>	60 MHz

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-39; collector connected to case.



Maximum lead diameter is guaranteed only for 12,7 mm.

RATINGS

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

Collector-base voltage (open emitter)	V_{CBO}	max.	80 V
Collector-emitter voltage (open base)	V_{CEO}	max.	35 V
Emitter-base voltage (open collector)	V_{EBO}	max.	7,0 V
Collector current (d.c.)	I_C	max.	1,0 A
Total power dissipation			
up to T_{case} = 25 °C	P_{tot}	max.	5,0 W
up to T_{case} = 100 °C	P_{tot}	max.	2,8 W
up to T_{amb} = 25 °C	P_{tot}	max.	0,8 W
Storage temperature range	T_{stg}		−65 to +150 °C
Junction temperature	T_j	max.	200 °C

THERMAL RESISTANCE

From junction to case	$R_{th\ j\text{-}c}$	=	35 K/W
From junction to ambient in free air	$R_{th\ j\text{-}a}$	=	219 K/W

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

Collector cut-off current			
I_E = 0; V_{CB} = 60 V	I_{CBO}	<	10 nA
I_E = 0; V_{CB} = 60 V; T_{amb} = 150 °C	I_{CBO}	<	10 μA
Emitter cut-off current			
I_C = 0; V_{EB} = 5,0 V	I_{EBO}	<	10 nA
Collector-emitter sustaining voltage*			
I_C = 30 mA; I_B = 0	$V_{CEOsust}$	>	35 V
Saturation voltages*			
I_C = 150 mA; I_B = 15 mA	V_{CEsat}	<	0,2 V
I_C = 1 A; I_B = 100 mA**	V_{CEsat}	<	1,0 V
	V_{BEsat}	<	1,6 V
D.C. current gain*			
I_C = 10 mA; V_{CE} = 10 V	h_{FE}	>	30
I_C = 150 mA; V_{CE} = 10 V	h_{FE}		40 to 120
I_C = 1,0 A; V_{CE} = 10 V	h_{FE}	>	15
Feedback time constant			
I_C = 10 mA; V_{CB} = 10 V; f = 4,0 MHz	$r_{bb'} C_{b'c}$	<	800 ps
Collector capacitance at f = 500 kHz			
$I_E = I_e$ = 0; V_{CB} = 10 V	C_c	<	12 pF
Emitter capacitance at f = 500 kHz			
$I_C = I_c$ = 0; V_{EB} = 0,5 V	C_e	<	80 pF
Transition frequency at f = 20 MHz			
I_C = 50 mA; V_{CE} = 10 V	f_T	>	60 MHz

* Measured under pulse conditions to avoid excessive dissipation: t_p = 300 μs; $\delta \leqslant 0{,}01$.
** Measured with a lead length of 1 cm.