SILICON PLANAR EPITAXIAL TRANSISTOR

N-P-N transistor in TO-39 metal package, with collector connected to the case. It is primarily intended for use in high frequency and very high frequency oscillators and amplifiers as well as for output stages of servo amplifiers.

QUICK REFERENCE DATA

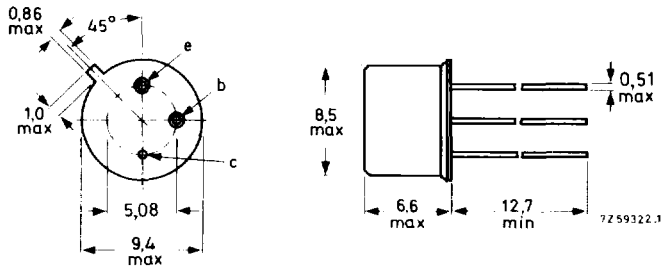
Collector-base voltage (open emitter)	V_{CBO}	max.	80	V
Collector-emitter voltage (open base)	V_{CEO}	max.	35	V
Collector current (d.c.)	I_C	max.	1	A
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	800	mW
Junction temperature	T_j	max.	200	°C
D.C. current gain at T_j = 25 °C I_C = 150 mA; V_{CE} = 10 V	h_{FE}	40 to 120		
Transition frequency at f = 100 MHz I_C = 50 mA; V_{CE} = 10 V	f_T	>	60	MHz
Collector-emitter saturation voltage I_C = 1 A; I_B = 100 mA	V_{CEsat}	<	1	V

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 V
Collector current (d.c.)	I_C	max.	1 A
Collector current (peak value)	I_{CM}	max.	1 A
Emitter current (d.c.)	$-I_E$	max.	1 A
Emitter current (peak value)	$-I_{EM}$	max.	1 A
Total power dissipation up to T_{amb} = 40 °C	P_{tot}	max.	4 W
Total power dissipation without cooling fin 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 ambient in free air	$R_{th\ j\text{-}a}$	=	0,22 K/mW
From junction to case	$R_{th\ j\text{-}c}$	=	0,035 K/mW

CHARACTERISTICS

T_j = 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_j = 150 °C	I_{CBO}	<	10 μA
Emitter cut off current			
I_C = 0; V_{EB} = 5 V	I_{EBO}	<	10 nA
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
Sustaining voltage			
I_C = 30 mA; I_B = 0 **	$V_{CEOsust}$	>	35 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 A; V_{CE} = 10 V	h_{FE}	>	15
Feedback time constant			
I_C = 10 mA; V_{CB} = 10 V; f = 4 MHz	r_b, C_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 = 100 MHz			
I_C = 50 mA; V_{CE} = 10 V	f_T	>	60 MHz

* Measured with a lead length of 1 cm.

** Measured under pulsed conditions to avoid excessive dissipation.
Pulse duration = 300 μs; duty cycle δ < 0,01.