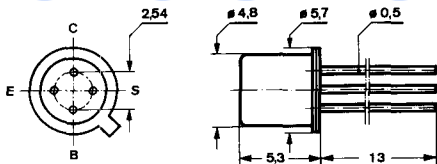


Silizium-NPN-Epitaxial-Planar-HF-Transistor
Silicon NPN Epitaxial Planar RF Transistor

Anwendungen: Allgemein bis 100 MHz

Applications: General up to 100 MHz

Abmessungen in mm
Dimensions in mm



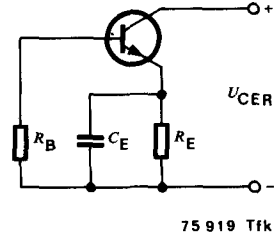
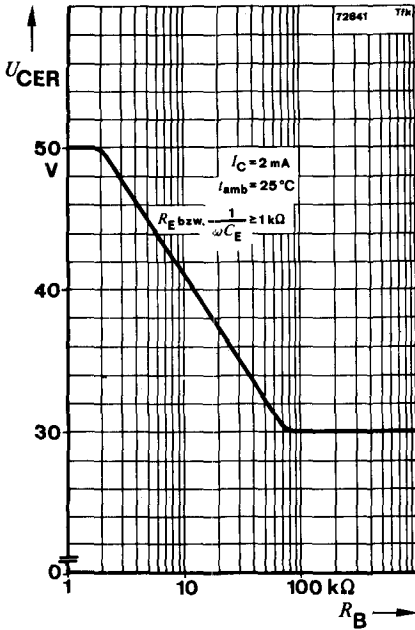
Anschluß „S“
mit Gehäuse verbunden
Terminal „S“
connected with case

Normgehäuse
Case
18 A 4 DIN 41 876
JEDEC TO 72
Gewicht · Weight
max. 0,5 g

Absolute Grenzdaten
Absolute maximum ratings

Kollektor-Basis-Sperrspannung Collector-base voltage	U_{CBO}	50	V
Kollektor-Emitter-Sperrspannung Collector-emitter voltage $R_B \leq 1 \text{ k}\Omega, R_E \geq 1 \text{ k}\Omega$	U_{CEO} U_{CER}	30 50	V V
Emitter-Basis-Sperrspannung Emitter-base voltage	U_{EBO}	5	V
Kollektorstrom Collector current	I_C	30	mA
Basisstrom Base current	I_B	1	mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 45^\circ\text{C}$	P_{tot}	145	mW
Sperrschichttemperatur Junction temperature	t_j	175	$^\circ\text{C}$
Lagerungstemperaturbereich Storage temperature range	t_{stg}	-55 ... +175	$^\circ\text{C}$

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Warmewiderstand Thermal resistance

Sperrschicht-Umgebung
Junction ambient

	Min.	Typ.	Max.
R_{thJA}			900 °C/W

Statische Kenngrößen DC characteristics

$I_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom
Collector cut-off current

$U_{CB} = 20\text{ V}$, $I_{amb} = 175^\circ\text{C}$

I_{CBO}	0,5	μA
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Kollektor-Basis-Durchbruchspannung
Collector-base breakdown voltage

$I_C = 10\ \mu\text{A}$

$U_{(BR)CBO}$	50	V
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Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage

$I_C = 2\text{ mA}$

$U_{(BR)CEO}$	30	V
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) $\frac{t_p}{T} = 0,01$, $t_p = 0,3\text{ ms}$

		Min.	Typ.	Max.	
Emitter-Basis-Durchbruchspannung Emitter-base breakdown voltage $I_E = 10 \mu\text{A}$	$U_{(\text{BR})\text{EBO}}$	5			V
Basis-Emitter-Spannung Base-emitter voltage $U_{\text{CE}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}$ $U_{\text{CE}} = 2 \text{ V}, I_{\text{C}} = 20 \text{ mA}$	U_{BE} U_{BE}^{\prime}	650	700	740	mV V
Kollektor-Basis-Gleichstromverhältnis DC forward current transfer ratio $U_{\text{CE}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}$ $U_{\text{CE}} = 2 \text{ V}, I_{\text{C}} = 20 \text{ mA}$	h_{FE} h_{FE}^{\prime}	48		167	

Dynamische Kenngrößen

AC characteristics

$$t_{\text{amb}} = 25^\circ\text{C}$$

Transitfrequenz

Gain bandwidth product

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, f = 100 \text{ MHz}$$

f_{T}

230

MHz

Rückwirkungskapazität

Feedback capacitance

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, f = 0,45 \text{ MHz}$$

$C_{\text{üre}}$

0,65

0,8

pF

Rauschmaß

Noise figure

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, R_{\text{G}} = 300 \text{ k}\Omega,$$

$$f = 200 \text{ kHz}$$

F

1,5

dB

$$f = 1 \text{ MHz}$$

F

1,2

dB

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, R_{\text{G}} = 50 \Omega,$$

$$f = 1 \text{ MHz}$$

F

3,5

dB

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, R_{\text{G}} = 100 \Omega,$$

$$f = 100 \text{ MHz}$$

F

4

dB

Mischrauschmaß

Noise figure for mixer

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, R_{\text{G}} = 1 \text{ k}\Omega,$$

$$f = 0,2 \text{ MHz}$$

F_{C}

3,5

dB

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, R_{\text{G}} = 500 \Omega,$$

$$f = 1 \text{ MHz}$$

F_{C}

2,5

dB

¹⁾ $\frac{t_{\text{p}}}{T} = 0,01, t_{\text{p}} = 0,3 \text{ ms}$

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Vierpol Kenngrößen Two port characteristics

$$f_{\text{amb}} = 25^\circ\text{C}$$

Emitterschaltung Common emitter configuration

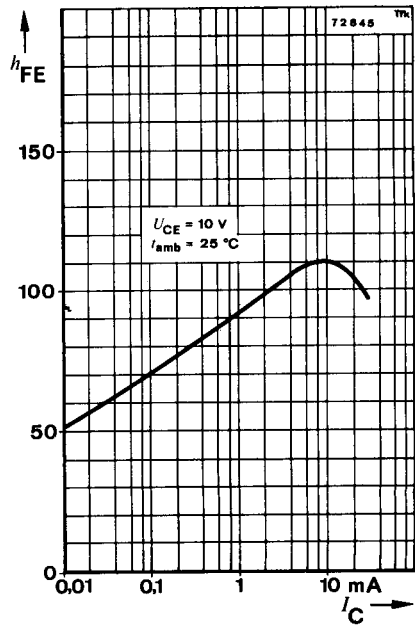
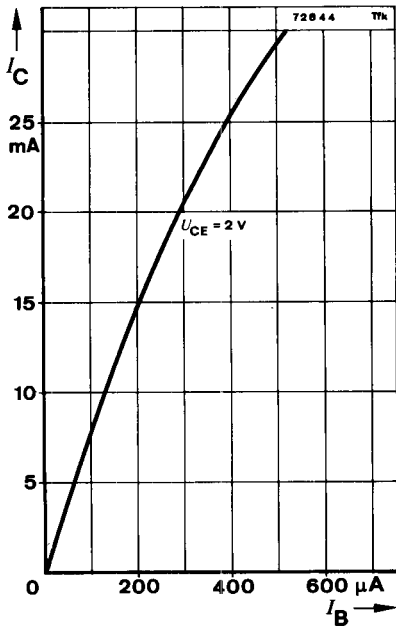
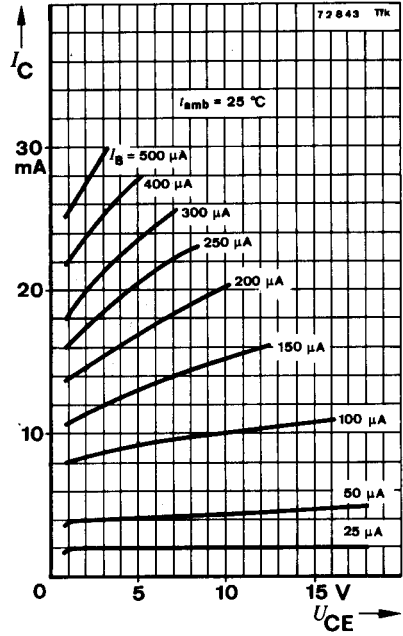
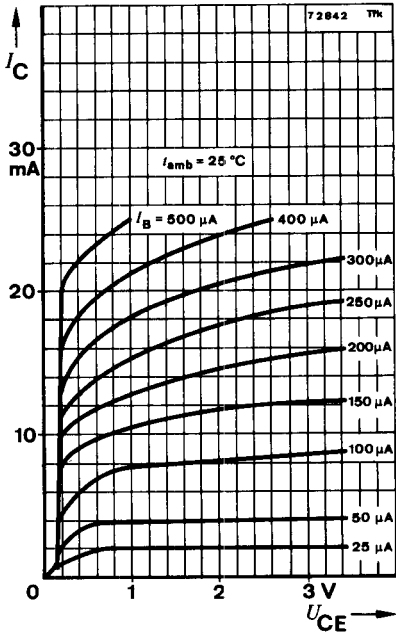
$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, f = 0,45 \text{ MHz}$$

		Min.	Typ.	Max.
Kurzschluß-Eingangsadmittanz Short circuit input admittance	g_{ie} C_{ie}		0,4 25	mS pF
Kurzschluß-Rückwärtssteilheit Short circuit reverse transfer admittance	$ y_{re} $ $-\varphi_{re}$		1,8 90°	μS
Kurzschluß-Vorwärtssteilheit Short circuit forward transfer admittance	$ y_{fe} $ φ_{fe}		35 $\approx 0^\circ$	mS
Kurzschluß-Ausgangsadmittanz Short circuit output admittance	g_{oe} C_{oe}		4 1,5	μS pF

Basisschaltung Common base configuration

$$U_{\text{CB}} = 10 \text{ V}, I_{\text{C}} = 1 \text{ mA}, f = 100 \text{ MHz}$$

Kurzschluß-Eingangsadmittanz Short circuit input admittance	g_{ib} $-b_{ib}$		33 3,8	mS pF
Kurzschluß-Rückwärtssteilheit Short circuit reverse transfer admittance	$ y_{rb} $ $-\varphi_{rb}$		220 87°	μS
Kurzschluß-Vorwärtssteilheit Short circuit forward transfer admittance	$ y_{fb} $ φ_{fb}		33 150°	mS
Kurzschluß-Ausgangsadmittanz Short circuit output admittance	g_{ob} C_{ob}		14 1,5	μS pF



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