



Gestempelt mit: BCW 60 A BCW 60 B BCW 60 C BCW 60 D BCX 70 G BCX 70 H BCX 70 J BCX 70 K
 Marked with: AA AB AC AD AG AH AJ AK
 Gestempelt mit: BCW 60 RA BCW 60 RB BCW 60 RC BCW 60 RD BCX 70 RG BCX 70 RH BCX 70 RJ BCX 70 RK
 Marked with: ZA ZB ZC ZD ZG ZH ZJ ZK

BCW 60/BCW 60 R
BCX 70/BCX 70 R

Silizium-NPN-Epitaxial-Planar-NF-Transistor Silicon NPN Epitaxial Planar AF Transistor

Anwendungen: Vorstufen und Schalter in Dick- und Dünnschichtschaltungen

Applications: Pre-stages and switches in thick and thin film circuits

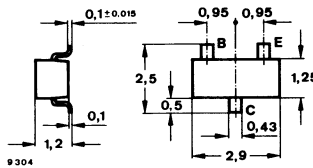
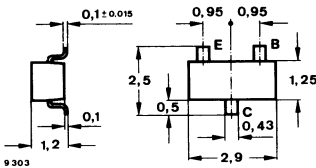
Besondere Merkmale:

- In Gruppen sortiert
- Komplementär zu BCW 61 und BCX 71

Features:

- In groups selected
- Complementary to BCW 61 and BCX 71

Abmessungen in mm
Dimensions in mm



Normgehäuse
 Case
 23 A 3 DIN 41869
 (SOT 23)
 Gewicht · Weight
 max. 0,02 g

BCW 60
BCX 70

BCW 60 R
BCX 70 R

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Emitter-Sperrspannung
 Collector-emitter voltage

	BCW 60 BCW 60 R	BCX 70 BCX 70 R	
U_{CEO}	32	45	V
U_{CES}	32	45	V

Emitter-Basis-Sperrspannung
 Emitter-base voltage

U_{EBO}	5		V
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Kollektorstrom
 Collector current

I_C	200		mA
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Basisstrom
 Base current

I_B	50		mA
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Gesamtverlustleistung
 Total power dissipation

$t_{amb} \leq 45^\circ\text{C}, R_{thJA} \leq 700 \text{ K/W}$

P_{tot}	150		mW
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Sperrschichttemperatur
 Junction temperature

t_j	150		°C
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Lagerungstemperaturbereich
 Storage temperature range

t_{stg}	-55...+125		°C
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BCW 60 · BCW 60 R BCX 70 · BCX 70 R

Wärmewiderstände Thermal resistances

Min. Typ. Max.

Sperrschicht-Umgebung
Junction ambient

auf Glassubstrat 7×7×1 mm
on glass substrat R_{thJA} 700 K/W

auf Keramik 30×12×1 mm
on ceramic R_{thJA} 450 K/W

Kenngrößen Characteristics

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

Kollektorreststrom
Collector cut-off current

$U_{CE} = 32\text{ V}$ **BCW 60/BCW 60 R** I_{CES} 20 nA
 $U_{CE} = 45\text{ V}$ **BCX 70/BCX 70 R** I_{CES} 20 nA

$t_{amb} = 150^\circ\text{C}$,

$U_{CE} = 32\text{ V}$ **BCW 60/BCW 60 R** I_{CES} 20 μA
 $U_{CE} = 45\text{ V}$ **BCX 70/BCX 70 R** I_{CES} 20 μA

Emitterreststrom
Emitter cut-off current

$U_{EB} = 4\text{ V}$ I_{EBO} 20 nA

Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage

$I_C = 2\text{ mA}$ **BCW 60/BCW 60 R** $U_{(BR)CEO}$ 32 V
BCX 70/BCX 70 R $U_{(BR)CEO}$ 45 V

Emitter-Basis-Durchbruchspannung
Emitter-base breakdown voltage

$I_E = 1\text{ }\mu\text{A}$ $U_{(BR)EBO}$ 5 V

Kollektor-Sättigungsspannung
Collector saturation voltage

$I_C = 10\text{ mA}$, $I_B = 0,25\text{ mA}$ U_{CEsat} 120 350 mV
 $I_C = 50\text{ mA}$, $I_B = 1,25\text{ mA}$ U_{CEsat} 200 550 mV

Basis-Sättigungsspannung
Base saturation voltage

$I_C = 10\text{ mA}$, $I_B = 0,25\text{ mA}$ U_{BEsat} 0,7 0,85 V
 $I_C = 50\text{ mA}$, $I_B = 1,25\text{ mA}$ U_{BEsat} 0,83 1,05 V

Basis-Emitter-Spannung
Base-emitter voltage

$U_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$ U_{BE} 550 750 mV

BCW 60 · BCW 60 R BCX 70 · BCX 70 R

Kollektor-Basis-Gleichstromverhältnis
DC forward current transfer ratio

$U_{CE} = 5\text{ V}, I_C = 2\text{ mA}$

BCW 60 BCX 70
BCW 60 R BCX 70 R

Gruppe/Group:	A · G	h_{FE}	120	220
	B · H	h_{FE}	180	310
	C · J	h_{FE}	250	460
	D · K	h_{FE}	380	630

$U_{CE} = 5\text{ V}, I_C = 10\mu\text{A}$

Gruppe/Group:	A · G	h_{FE}	-
	B · H	h_{FE}	20
	C · J	h_{FE}	40
	D · K	h_{FE}	100

Transitfrequenz

Gain bandwidth product

$U_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$

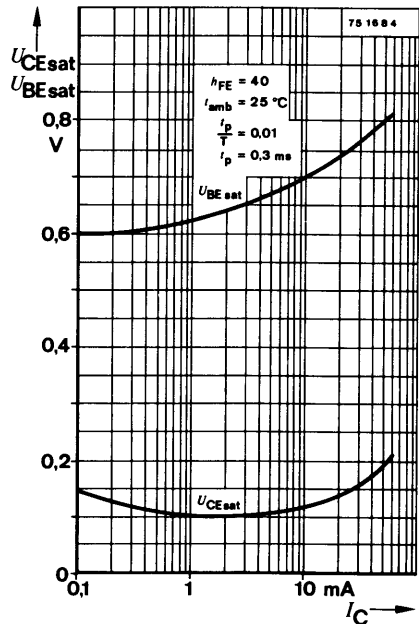
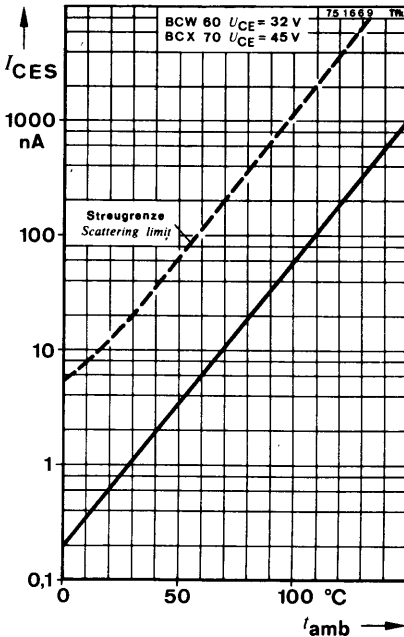
f_T	125	250	MHz
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Rauschmaß

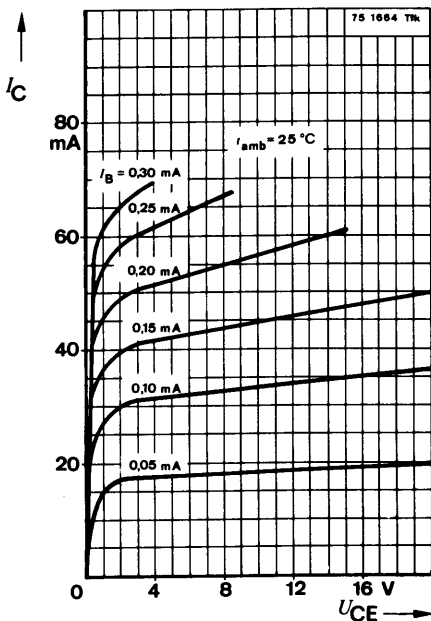
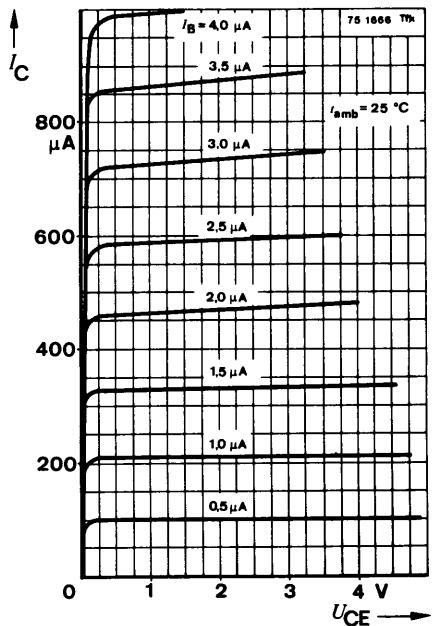
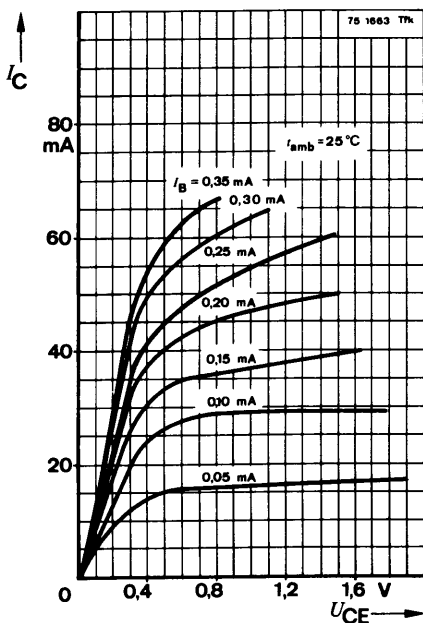
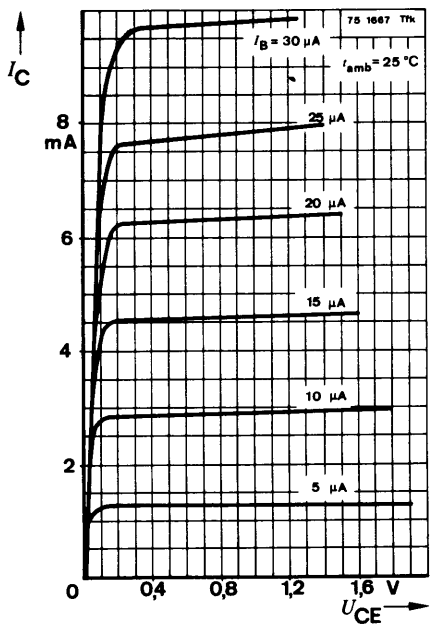
Noise figure

$U_{CE} = 5\text{ V}, I_C = 200\mu\text{A}, R_G = 2\text{ k}\Omega,$
 $f = 1\text{ kHz}, \Delta f = 200\text{ Hz}$

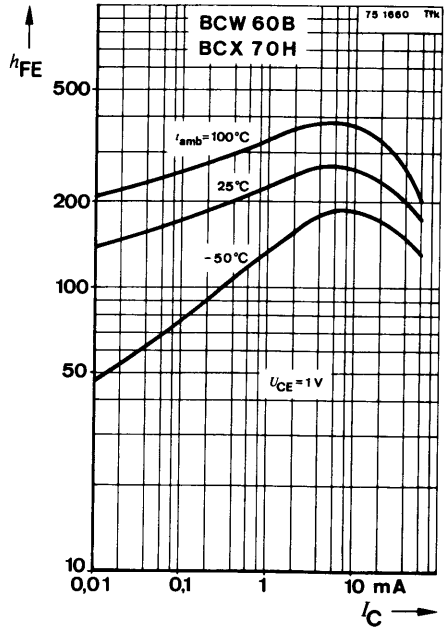
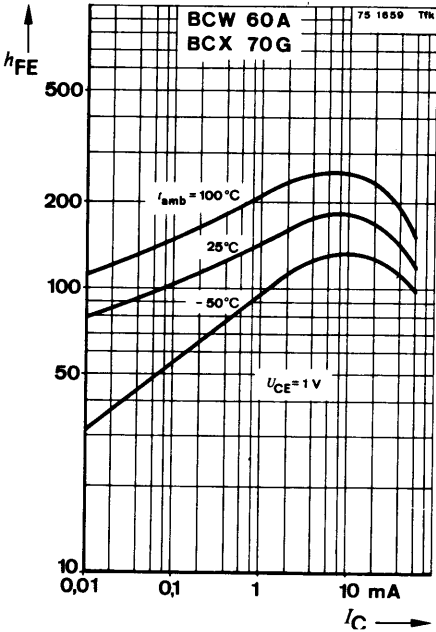
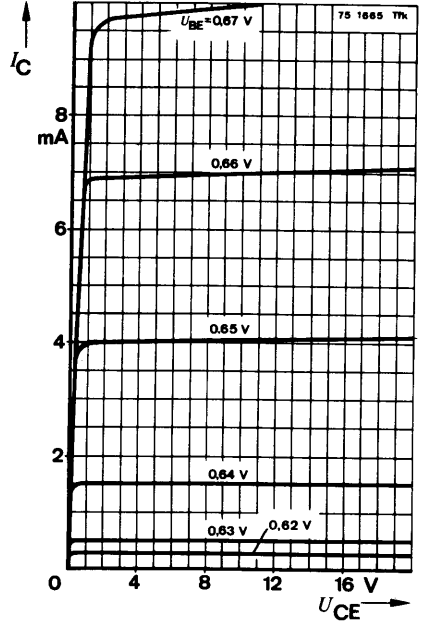
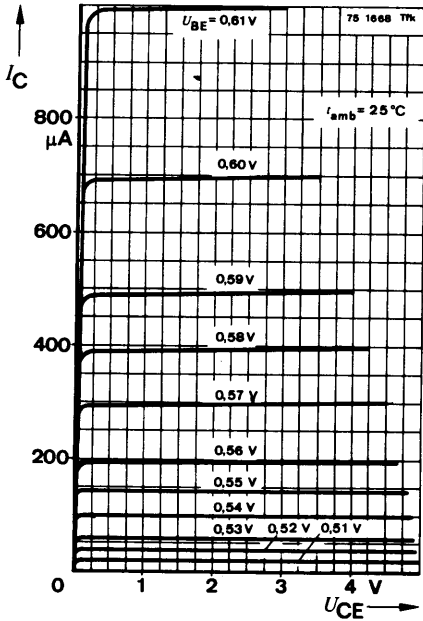
F	2	6	dB
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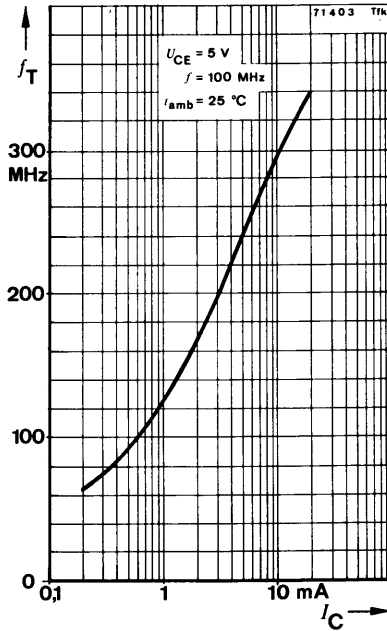
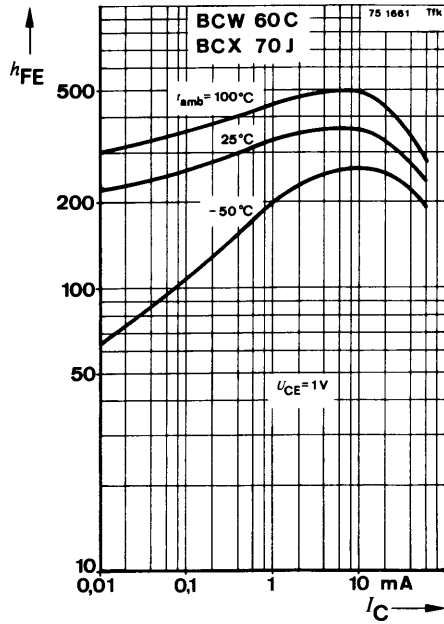
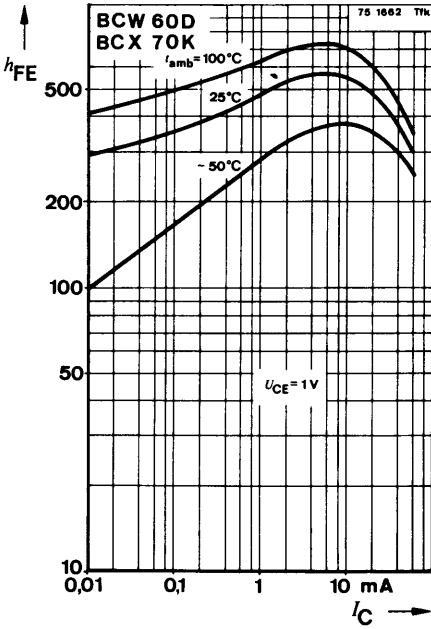
BCW 60 · BCW 60 R
BCX 70 · BCX 70 R



BCW 60 · BCW 60 R
BCX 70 · BCX 70 R



BCW 60 · BCW 60 R
BCX 70 · BCX 70 R





Gestempelt mit: BCW 61 A BCW 61 B BCW 61 C BCW 61 D BCX 71 G BCX 71 H BCX 71 J BCX 71 K
 Marked with: BA BB BC BD BG BH BJ BK
 Gestempelt mit: BCW 61 RA BCW 61 RB BCW 61 RC BCW 61 RD BCX 71 RG BCX 71 RH BCX 71 RJ BCX 71 RK
 Marked with: YA YB YC YD YG YH YJ YK

BCW 61 · BCW 61 R
 BCX 71 · BCX 71 R

Silizium-PNP-Epitaxial-Planar-NF-Transistor Silicon PNP Epitaxial Planar AF Transistor

Anwendungen: Vorstufen und Schalter in Dick- und Dünnschichtschaltungen

Applications: Pre-stages and switches in thick and thin film circuits

Besondere Merkmale:

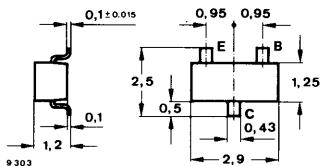
- In Gruppen sortiert
- Komplementär zu BCW 60 und BCX 70

Features:

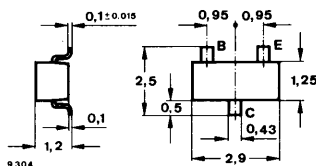
- In groups selected
- Complementary to BCW 60 and BCX 70

Abmessungen in mm

Dimensions in mm



BCW 61
 BCX 71



BCW 61 R
 BCX 71 R

Normgehäuse
 Case
 23 A 3 DIN 41 869 / 8
 (SOT 23)
 Gewicht · Weight
 max. 0,02 g

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Emitter-Sperrspannung
 Collector-emitter voltage

	BCW 61 BCW 61 R	BCX 71 BCX 71 R	
$-U_{CEO}$	32	45	V
$-U_{CES}$	32	45	V

Emitter-Basis-Sperrspannung
 Emitter-base voltage

$-U_{EBO}$	5		V
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Kollektorstrom
 Collector current

$-I_C$	200		mA
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Basisstrom
 Base current

$-I_B$	50		mA
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Gesamtverlustleistung
 Total power dissipation

$t_{amb} \leq 45^\circ\text{C}, R_{thJA} \leq 700 \text{ K/W}$

P_{tot}	150		mW
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Sperrschichttemperatur
 Junction temperature

t_j	150		$^\circ\text{C}$
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Lagerungstemperaturbereich
 Storage temperature range

t_{stg}	-55...+125		$^\circ\text{C}$
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BCW 61 · BCW 61 R BCX 71 · BCX 71 R

Wärmewiderstände Thermal resistances

Min. Typ. Max.

Sperrschicht-Umgebung
Junction ambient

auf Glassubstrat 7×7×1 mm
on glass substrat

R_{thJA}

700 K/W

auf Keramik 30×12×1 mm
on ceramic

R_{thJA}

450 K/W

Kenngößen Characteristics

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

Kollektorreststrom
Collector cut-off current

$-U_{CE} = 32\text{ V}$ BCW 61/BCW 61 R $-I_{CES}$

20 nA

$-U_{CE} = 45\text{ V}$ BCX 71/BCX 71 R $-I_{CES}$

20 nA

$t_{amb} = 150^\circ\text{C}$,

$-U_{CE} = 32\text{ V}$ BCW 61/BCW 61 R $-I_{CES}$

20 μA

$-U_{CE} = 45\text{ V}$ BCX 71/BCX 71 R $-I_{CES}$

20 μA

Emittorreststrom
Emitter cut-off current

$-U_{EB} = 4\text{ V}$

$-I_{EBO}$

20 nA

Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage

$-I_C = 2\text{ mA}$ BCW 61 · BCW 61 R $-U_{(BR)CEO}$

32

V

BCX 71 · BCX 71 R $-U_{(BR)CEO}$

45

V

Emittor-Basis-Durchbruchspannung
Emitter-base breakdown voltage

$-I_E = 1\text{ }\mu\text{A}$

$-U_{(BR)EBO}$

5

V

Kollektor-Sättigungsspannung
Collector saturation voltage

$-I_C = 10\text{ mA}$, $-I_B = 0,25\text{ mA}$

$-U_{CESat}$

120

350

mV

$-I_C = 50\text{ mA}$, $-I_B = 1,25\text{ mA}$

$-U_{CESat}$

200

550

mV

Basis-Sättigungsspannung
Base saturation voltage

$-I_C = 10\text{ mA}$, $-I_B = 0,25\text{ mA}$

$-U_{BESat}$

0,7

0,85

V

$-I_C = 50\text{ mA}$, $-I_B = 1,25\text{ mA}$

$-U_{BESat}$

0,83

1,05

V

Basis-Emittor-Spannung
Base-emitter voltage

$-U_{CE} = 5\text{ V}$, $-I_C = 2\text{ mA}$

$-U_{BE}$

550

750

mV

Kollektor-Basis-Gleichstromverhältnis
DC forward current transfer ratio

$-U_{CE} = 5V, -I_C = 2mA$

	BCW 61	BCX 71	Min.	Typ.	Max.
	BCW 61 R	BCX 71 R			
Gruppe/Group:	A · G	h_{FE}	120		220
	B · H	h_{FE}	180		310
	C · J	h_{FE}	250		460
	D · K	h_{FE}	380		630

$-U_{CE} = 5V, -I_C = 10\mu A$

Gruppe/Group:	A · G	h_{FE}	Min.	Typ.	Max.
	B · H	h_{FE}		30	
	C · J	h_{FE}		40	
	D · K	h_{FE}		100	

Transitfrequenz

Gain bandwidth product

$-U_{CE} = 5V, -I_C = 1mA, f = 100MHz$

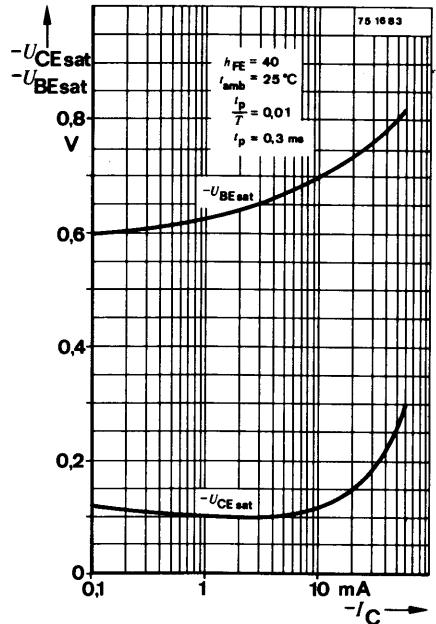
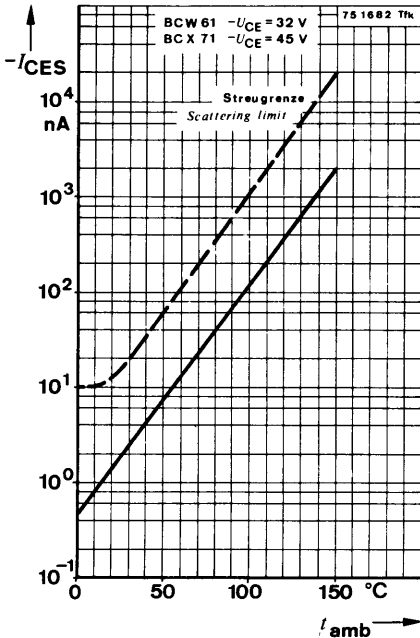
f_T 150 MHz

Rauschmaß

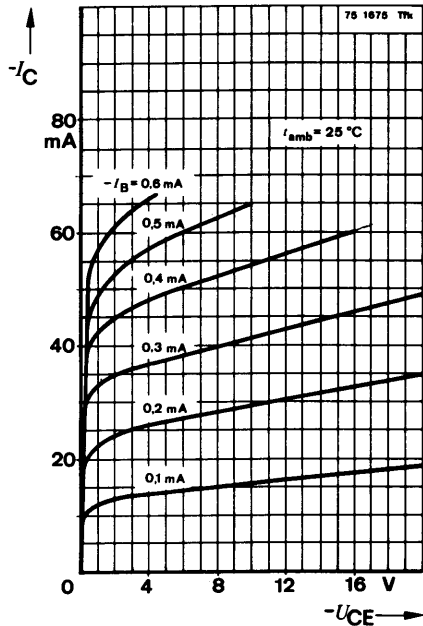
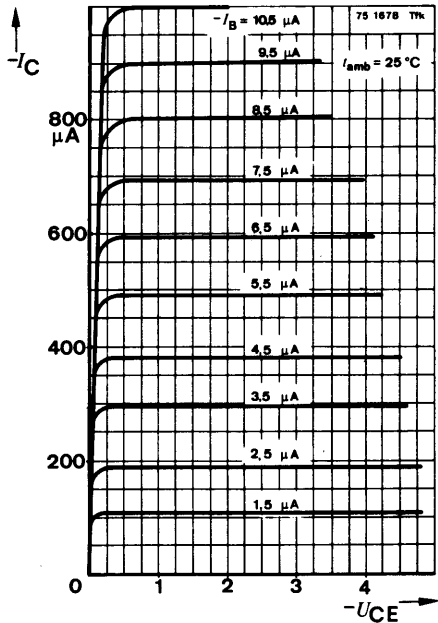
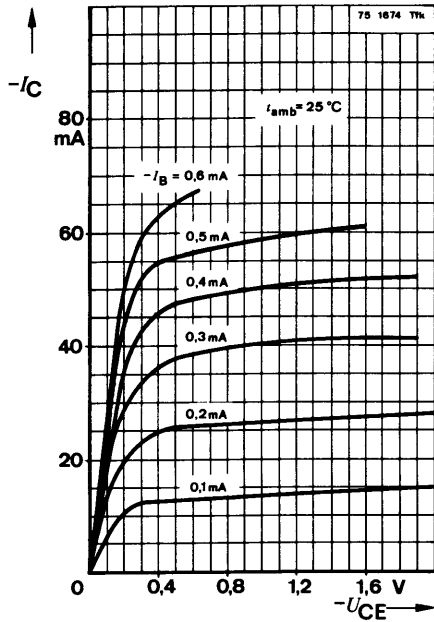
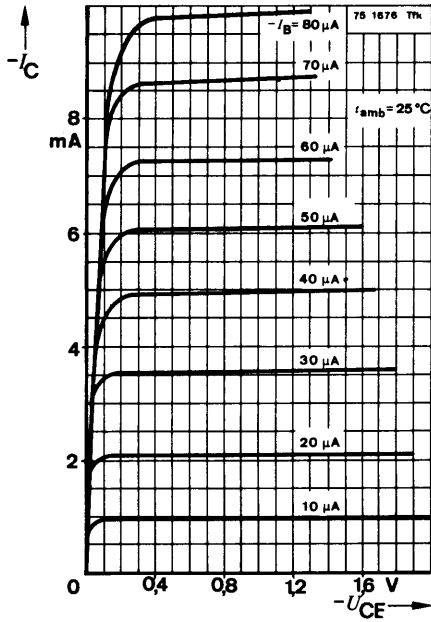
Noise figure

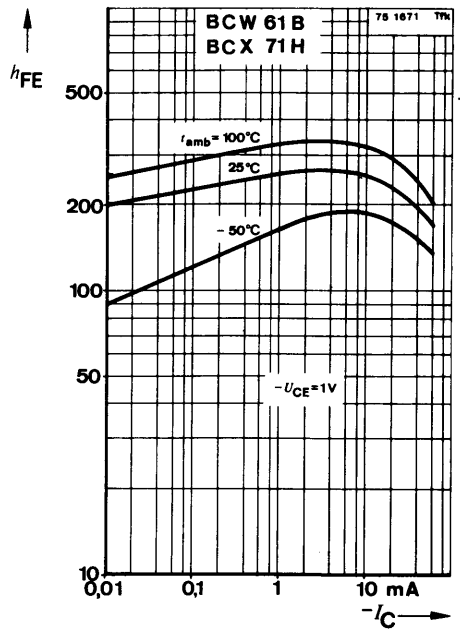
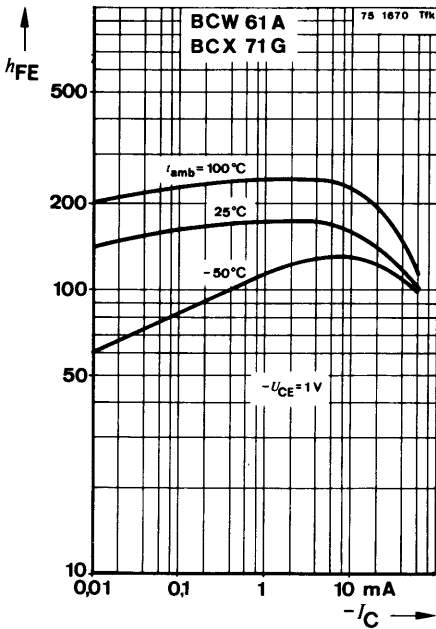
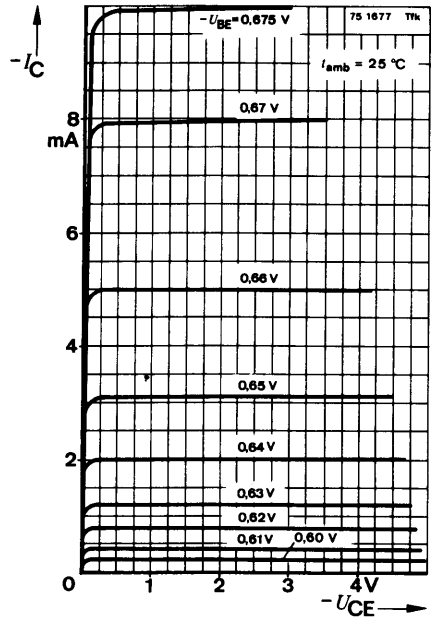
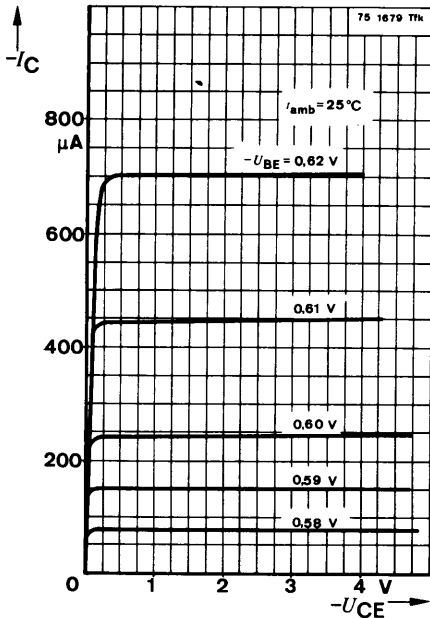
$-U_{CE} = 5V, -I_C = 200\mu A, R_G = 2k\Omega,$
 $f = 1kHz, \Delta f = 200Hz$

F 2 6 dB

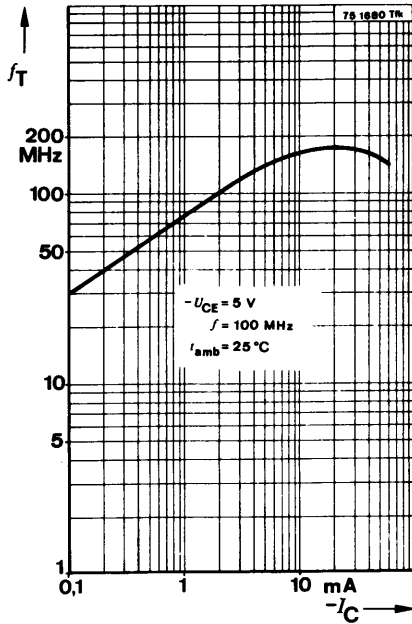
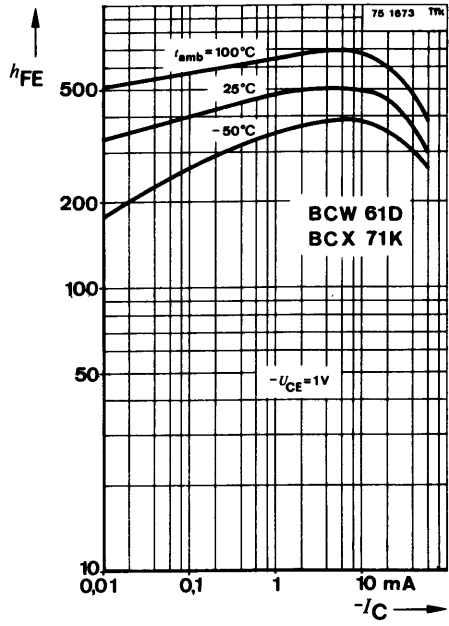
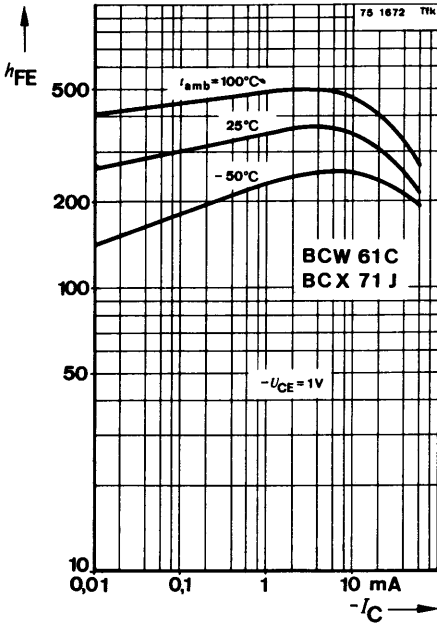


BCW 61 · BCW 61 R
BCX 71/BCX 71 R





BCW 61 · BCW 61 R
BCX 71 · BCX 71 R



Silizium-NPN-Epitaxial-Planar-NF-Transistor
Silicon NPN Epitaxial Planar AF Transistor

Anwendungen: Treiber und Schalter in Dick- und Dünnschichtschaltungen

Applications: Driver and switches in thick and thin film circuits

Besondere Merkmale:

- In Gruppen sortiert
- Komplementär zu BCW 67 und BCW 68

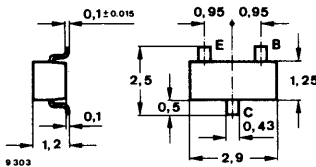
Features:

- In groups selected
- Complementary to BCW 67 and BCW 68

Vorläufige technische Daten · Preliminary specifications

Abmessungen in mm

Dimensions in mm



Normgehäuse
 Case
 23 A 3 DIN 41 869
 (SOT 23)
 Gewicht · Weight
 max. 0,02 g

Absolute Grenzwerte

Absolute maximum ratings

		BCW 65	BCW 66	
Kollektor-Emitter-Sperrspannung Collector-emitter voltage	U_{CEO}	32	45	V
	U_{CES}	60	75	V
Emitter-Basis-Sperrspannung Emitter-base voltage	U_{EBO}		5	V
Kollektorstrom Collector current	I_C	800		mA
Kollektorspitzenstrom Collector peak current	I_{CM}	1000		mA
Basisstrom Base current	I_B	100		mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 45^\circ\text{C}, R_{thJA} \leq 360 \text{ K/W}$	P_{tot}	300		mW
Sperrschichttemperatur Junction temperature	t_j	150		°C
Lagerungstemperaturbereich Storage temperature range	t_{stg}	-55 ... +150		°C

BCW 65 · BCW 66

Min. Typ. Max.

Wärmewiderstand Thermal resistance

Sperrschicht-Umgebung
Junction ambient

auf Keramik 30 x 12 x 1 mm
on ceramic

R_{thJA}

360 K/W

Kenngrößen Characteristics

$t_{amb} = 25\text{ °C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom
Collector cut-off current

$U_{CE} = 32\text{ V}$ **BCW 65** I_{CES} 20 nA

$U_{CE} = 45\text{ V}$ **BCW 66** I_{CES} 20 nA

$t_{amb} = 150\text{ °C}$, $U_{CE} = 32\text{ V}$ **BCW 65** I_{CES} 20 μA

$U_{CE} = 45\text{ V}$ **BCW 66** I_{CES} 20 μA

Emitterreststrom
Emitter cut-off current

$U_{EB} = 4\text{ V}$ I_{EBO} 20 nA

Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage

$I_C = 10\text{ mA}$ **BCW 65** $U_{(BR)CEO}$ 32 V

BCW 66 $U_{(BR)CEO}$ 45 V

$I_C = 10\text{ }\mu\text{A}$ **BCW 65** $U_{(BR)CES}$ 60 V

BCW 66 $U_{(BR)CES}$ 75 V

Emitter-Basis-Durchbruchspannung
Emitter-base breakdown voltage

$I_E = 10\text{ }\mu\text{A}$ $U_{(BR)EBO}$ 5 V

Kollektor-Sättigungsspannung
Collector saturation voltage

$I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$ U_{CEsat} 300 mV

$I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ U_{CEsat} 700 mV

Basis-Sättigungsspannung
Base saturation voltage

$I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$ U_{BEsat} 1 V

$I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ U_{BEsat} 2 V

		Min.	Typ.	Max.
Kollektor-Basis-Gleichstromverhältnis				
<i>DC forward current transfer ratio</i>				
$U_{CE} = 1 \text{ V}, I_C = 10 \text{ mA}$	BCW 65			
	BCW 66			
	Gruppe/Group:	A · G	h_{FE}	75
		B · H	h_{FE}	120
		C · J	h_{FE}	180
$U_{CE} = 1 \text{ V}, I_C = 100 \text{ mA}$	Gruppe/Group:	A · G	h_{FE}	100
		B · H	h_{FE}	160
		C · J	h_{FE}	250
$U_{CE} = 2 \text{ V}, I_C = 500 \text{ mA}$	Gruppe/Group:	A · G	h_{FE}	35
		B · H	h_{FE}	60
		C · J	h_{FE}	100
Transitfrequenz				
<i>Gain bandwidth product</i>				
$U_{CE} = 10 \text{ V}, I_C = 20 \text{ mA}, f = 100 \text{ MHz}$		f_T	100	MHz
Kollektor-Basis-Kapazität				
<i>Collector-base capacitance</i>				
$U_{CB} = 10 \text{ V}, f = 470 \text{ kHz}$		C_{CBO}	8	12 pF
Rauschmaß				
<i>Noise figure</i>				
$U_{CE} = 5 \text{ V}, I_C = 200 \text{ } \mu\text{A}, R_G = 2 \text{ k}\Omega,$ $f = 30 \text{ Hz} \dots 2,5 \text{ kHz}$		F	2	10 dB

Schaltzeiten

Switching characteristics

$$I_C = 150 \text{ mA}, I_{B1} = -I_{B2} 15 \text{ mA}, R_L = 150 \text{ } \Omega, t_{amb} = 25 \text{ } ^\circ\text{C}$$

Einschaltzeit <i>Turn-on time</i>	t_{on}	100	ns
Ausschaltzeit <i>Turn-off time</i>	t_{off}	400	ns

Silizium-PNP-Epitaxial-Planar-NF-Transistor Silicon PNP Epitaxial Planar AF Transistor

Anwendungen: Treiber und Schalter in Dick- und Dünnschichtschaltungen

Applications: Driver and switches in thick and thin film circuits

Besondere Merkmale:

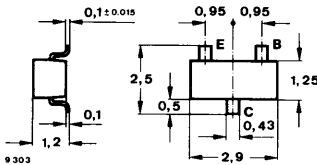
- In Gruppen sortiert
- Komplementär zu BWC 65 und BCW 66

Features:

- In group selected
- Complementary to BWC 65 and BCW 66

Vorläufige technische Daten · Preliminary specifications

Abmessungen in mm
Dimensions in mm



Normgehäuse
 Case
 23 A 3 DIN 41 869/8
 (SOT 23)
 Gewicht · Weight
 max. 0,02 g

Absolute Grenzwerte

Absolute maximum ratings

		BCW 67	BCW 68	
Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$-U_{CEO}$	32	45	V
	$-U_{CES}$	45	60	V
Emitter-Basis-Sperrspannung Emitter-base voltage	$-U_{EBO}$		5	V
Kollektorstrom Collector current	$-I_C$	800		mA
Kollektorspitzenstrom Collector peak current	$-I_{CM}$	1000		mA
Basisstrom Base current	$-I_B$	100		mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 45^\circ\text{C}, R_{thJA} \leq 360 \text{ K/W}$	P_{tot}	300		mW
Sperrschichttemperatur Junction temperature	t_j	150		°C
Lagerungstemperaturbereich Storage temperature range	t_{stg}	3	-55 ... +150	°C

BCW 67 · BCW 68

		Min.	Typ.	Max.
Wärmewiderstand Thermal resistance				
Sperrschicht-Umgebung <i>Junction ambient</i>				
auf Keramik 30 x 12 x 1 mm <i>on ceramic</i>	R_{thJA}		360	K/W
Kenngrößen Characteristics				
$t_{amb} = 25\text{ °C}$, falls nicht anders angegeben <i>unless otherwise specified</i>				
Kollektorreststrom <i>Collector cut-off current</i>				
$-U_{CE} = 32\text{ V}$ BCW 67	$-I_{CES}$		20	nA
$-U_{CE} = 45\text{ V}$ BCW 68	$-I_{CES}$		20	nA
$t_{amb} = 150\text{ °C}$, $-U_{CE} = 32\text{ V}$ BCW 67	$-I_{CES}$		20	μA
$-U_{CE} = 45\text{ V}$ BCW 68	$-I_{CES}$		20	μA
Emitterreststrom <i>Emitter cut-off current</i>				
$-U_{EB} = 4\text{ V}$	$-I_{EBO}$		20	nA
Kollektor-Emitter-Durchbruchspannung <i>Collector-emitter breakdown voltage</i>				
$-I_C = 10\text{ mA}$ BCW 67	$-U_{(BR)CEO}$	32		V
BCW 68	$-U_{(BR)CEO}$	45		V
$-I_C = 10\text{ }\mu\text{A}$ BCW 67	$-U_{(BR)CES}$	45		V
BCW 68	$-U_{(BR)CES}$	60		V
Emitter-Basis-Durchbruchspannung <i>Emitter-base breakdown voltage</i>				
$-I_E = 10\text{ }\mu\text{A}$	$-U_{(BR)EBO}$	5		V
Kollektor-Sättigungsspannung <i>Collector saturation voltage</i>				
$-I_C = 100\text{ mA}$, $-I_B = 10\text{ mA}$	$-U_{CEsat}$		300	mV
$-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-U_{CEsat}$		800	mV
Basis-Sättigungsspannung <i>Base saturation voltage</i>				
$-I_C = 100\text{ mA}$, $-I_B = 10\text{ mA}$	$-U_{BEsat}$	1		V
$-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-U_{BEsat}$		2	V

		Min.	Typ.	Max.
Kollektor-Basis-Gleichstromverhältnis				
<i>DC forward current transfer ratio</i>				
$-U_{CE} = 1 \text{ V}, -I_C = 10 \text{ mA}$	BCW 67			
	BCW 68			
Gruppe/Group:	A · G	h_{FE}	75	
	B · H	h_{FE}	120	
	C · J	h_{FE}	180	
$-U_{CE} = 1 \text{ V}, -I_C = 100 \text{ mA}$				
Gruppe/Group:	A · G	h_{FE}	100	250
	B · H	h_{FE}	160	400
	C · J	h_{FE}	250	630
$-U_{CE} = 2 \text{ V}, -I_C = 500 \text{ mA}$				
Gruppe/Group:	A · G	h_{FE}	35	
	B · H	h_{FE}	60	
	C · J	h_{FE}	100	
Transitfrequenz				
<i>Gain bandwidth product</i>				
$-U_{CE} = 10 \text{ V}, -I_C = 20 \text{ mA}, f = 100 \text{ MHz}$		f_T	100	MHz
Kollektor-Basis-Kapazität				
<i>Collector-base capacitance</i>				
$-U_{CB} = 10 \text{ V}, f = 470 \text{ kHz}$		C_{CBO}	12	18 pF
Rauschmaß				
<i>Noise figure</i>				
$-U_{CE} = 5 \text{ V}, -I_C = 200 \mu\text{A}, R_G = 2 \text{ k}\Omega,$ $f = 30 \text{ Hz} \dots 2,5 \text{ kHz}$		F	2	10 dB

Schaltzeiten

Switching characteristics

$-I_C = 150 \text{ mA}, -I_{B1} = +I_{B2} = 15 \text{ mA}, R_L = 150 \Omega, t_{amb} = 25 \text{ }^\circ\text{C}$				
Einschaltzeit <i>Turn-on time</i>		t_{on}	100	ns
Ausschaltzeit <i>Turn-off time</i>		t_{off}	400	ns

Silizium-NPN-Epitaxial-Planar-Transistor Silicon NPN epitaxial planar transistor

Anwendungen: N \bar{F} (audio) Vor- und Treiberstufen in Hybridschaltungen

Applications: Audio pre- and driver stages in hybrid circuits

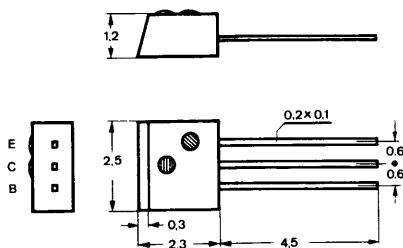
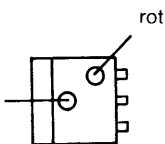
Komplementär zu: BCW 99
Complementary to:

Vorläufige technische Daten · Tentative data

Abmessungen · Dimensions

Maße in mm

Gruppe A: ohne
Gruppe B: braun
Gruppe C: blau
Gruppe D: gelb



Kunststoffgehäuse
Plastic case
Gewicht · Weight
max. 0,02 g

Absolute Grenzwerte · Absolute maximum ratings

Kollektor-Basis-Sperrspannung	U_{CBO}	45	V
Kollektor-Emitter-Sperrspannung	U_{CEO}	45	V
Emitter-Basis-Sperrspannung	U_{EBO}	7	V
Kollektorstrom	I_C	100	mA
Basisstrom	I_B	20	mA
Gesamtverlustleistung $t_{amb} \leq 45^\circ C$	P_{tot}	50	mW
Sperrschichttemperatur	t_j	125	$^\circ C$
Lagerungstemperatur	t_{stg}	-55...+125	$^\circ C$

Min. Typ. Max.

Wärmewiderstand · Thermal resistance

Sperrschicht-Umgebung R_{thJA} 1600 °C/W

Statische Kenngrößen · DC characteristics

Umgebungstemperatur $t_{amb} = 25^\circ C$, falls nicht anders angegeben

Kollektorreststrom

$U_{CE} = 35 V$ $I_{CES}^*)$ 20 μA

$U_{CE} = 35 V, t_{amb} = 125^\circ C$ $I_{CES}^{**})$ 20 μA

Emitterreststrom

$U_{EB} = 4 V$ I_{EBO} 20 nA

Kollektor-Basis-Durchbruchspannung

$I_C = 10 \mu A$ $U_{(BR)CBO}^*)$ 45 V

Kollektor-Emitter-Durchbruchspannung

$I_C = 2 mA$ $U_{(BR)CEO}^*)^1)$ 45 V

Emitter-Basis-Durchbruchspannung

$I_E = 1 \mu A$ $U_{(BR)EBO}^*)$ 7 V

Kollektor-Sättigungsspannung

$I_C = 10 mA, I_B = 0,25 mA$ $U_{CEsat}^1)$ 0,35 V

$I_C = 50 mA, I_B = 1,25 mA$ $U_{CEsat}^*)^1)$ 0,55 V

Basis-Sättigungsspannung

$I_C = 10 mA, I_B = 0,25 mA$ $U_{BEsat}^1)$ 0,6 0,85 V

$I_C = 50 mA, I_B = 1,25 mA$ $U_{BEsat}^*)^1)$ 1,0 V

Basis-Emitterspannung

$U_{CE} = 5 V, I_C = 2 mA$ U_{BE} 0,55 0,6 0,7 V

Kollektor-Basis-Gleichstromverhältnis

$U_{CE} = 5 V, I_C = 10 \mu A$ **Gruppe A** h_{FE} 78

Gruppe B 20 145

Gruppe C 40 220

Gruppe D 100 300

$U_{CE} = 5 V, I_C = 2 mA$ **Gruppe A** $h_{FE}^*)^1)$ 120 170 220

Gruppe B 190 250 310

Gruppe C 250 350 460

Gruppe D 380 500 630

*) AQL = 0,65%

¹⁾ $\frac{t_p}{T} = 0,01, t_p = 0,3 ms$

**) AQL = 2,5%

Dynamische Kenngrößen · AC characteristics

Min. Typ. Max.

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

Transitfrequenz

$U_{CE} = 5 V, I_C = 10 mA, f = 100 MHz$

f_T

125

MHz

Kollektor-Basis-Kapazität

$U_{CB} = 10 V, f = 1 MHz$

C_{CBO}

6

pF

Emitter-Basis-Kapazität

$U_{EB} = 0,5 V, f = 1 MHz$

C_{EBO}

15

pF

Rauschmaß

$U_{CE} = 5 V, I_C = 200 \mu A, R_G = 2 k\Omega$

F

6

dB

$f = 1 kHz, \Delta f = 200 Hz$

Vierpol Kenngrößen · Two port characteristics

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

Emitterschaltung

$U_{CE} = 5 V, I_C = 2 mA, f = 1 kHz$

Kurzschluß-Eingangswiderstand

Gruppe A h_{ie}

2,7

k Ω

Gruppe B h_{ie}

3,6

k Ω

Gruppe C h_{ie}

4,5

k Ω

Gruppe D h_{ie}

7,5

k Ω

Leerlauf-Spannungsrückwirkung

Gruppe A h_{re}

1,5

10^{-4}

Gruppe B h_{re}

2

10^{-4}

Gruppe C h_{re}

2

10^{-4}

Gruppe D h_{re}

3

10^{-4}

Kurzschluß-Stromverstärkung

Gruppe A h_{fe}

200

Gruppe B h_{fe}

260

Gruppe C h_{fe}

330

Gruppe D h_{fe}

520

Leerlauf-Ausgangsleitwert

Gruppe A h_{oe}

18

30

μS

Gruppe B h_{oe}

24

50

μS

Gruppe C h_{oe}

30

60

μS

Gruppe D h_{oe}

50

100

μS

BCW 98

Min. Typ. Max.

Schaltzeiten · Switching times

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

Einschaltzeit

$$\left. \begin{array}{l} I_C = 10 \text{ mA}, I_{B1} = 1 \text{ mA} \\ I_C = 100 \text{ mA}, I_{B1} = 10 \text{ mA} \end{array} \right\}$$

$t_{on}^{2)}$

150 ns

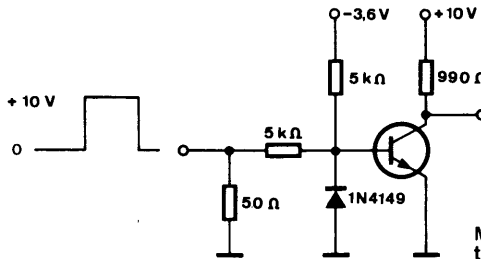
Ausschaltzeit

$$\left. \begin{array}{l} I_C = 10 \text{ mA}, I_{B1} = -I_{B2} = 1 \text{ mA} \\ I_C = 100 \text{ mA}, I_{B1} = -I_{B2} = 10 \text{ mA} \end{array} \right\}$$

$t_{off}^{2)}$

850 ns

$R_G = 50 \Omega$
 $t_f = t_r < 2 \text{ ns}$
 $\frac{t_p}{T} \leq 0,01$
 $t_p = 1 \mu\text{s}$

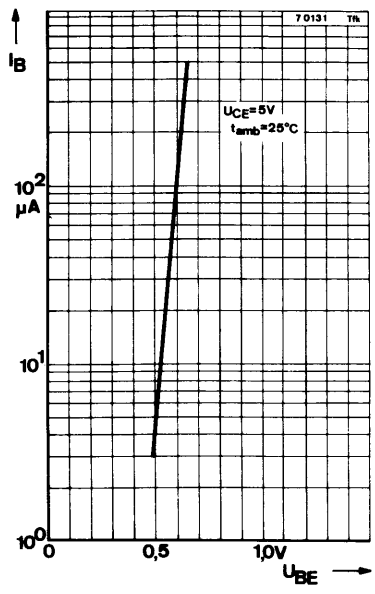
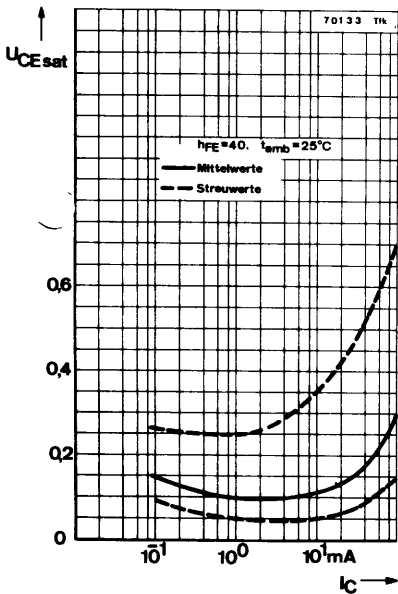
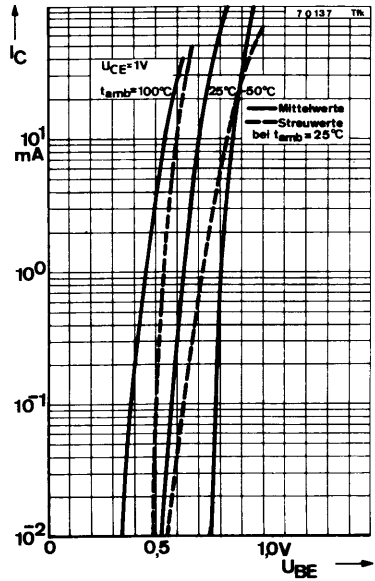
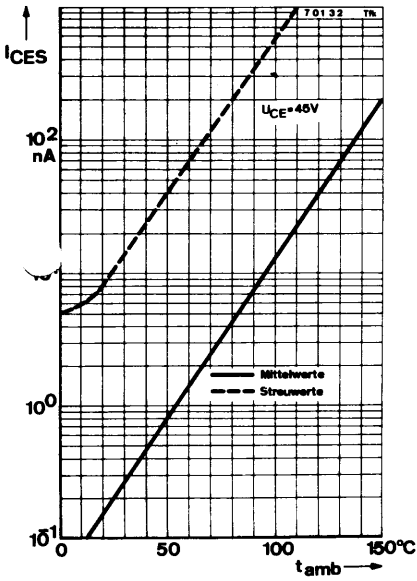


Anzeigegerät:
 $R_L \leq 100 \text{ k}\Omega$
 $t_r \leq 15 \text{ ns}$

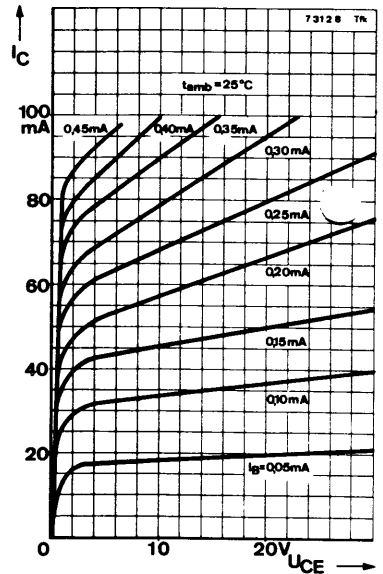
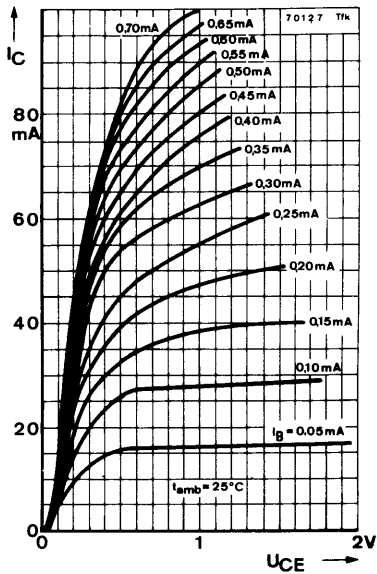
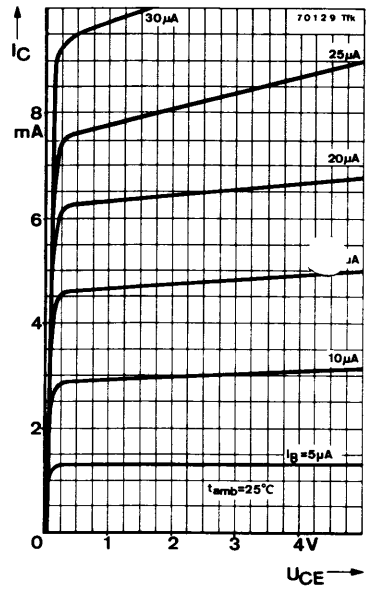
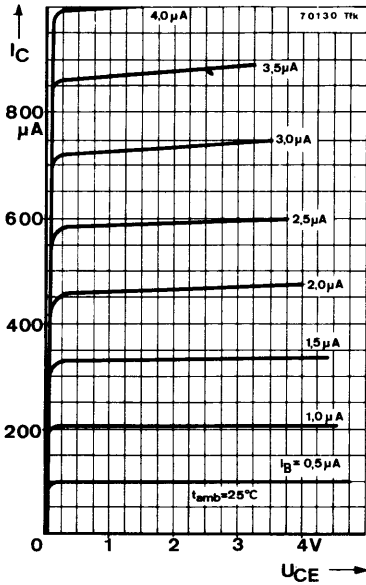
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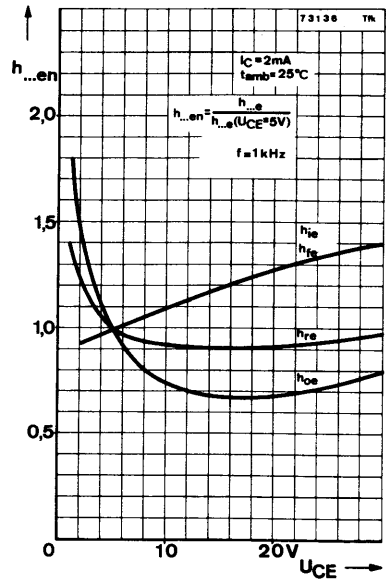
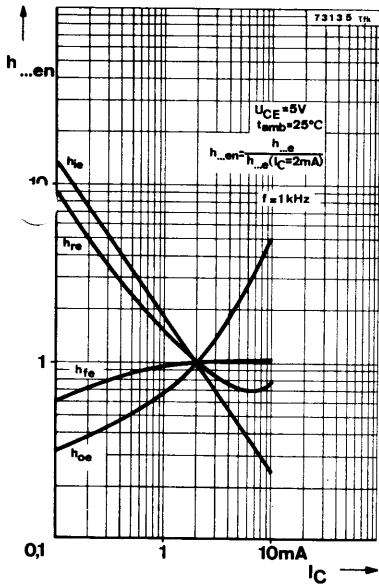
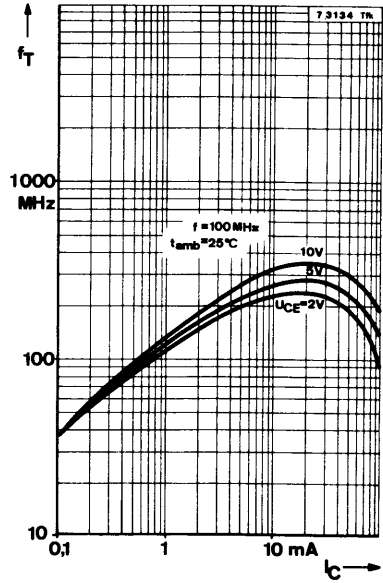
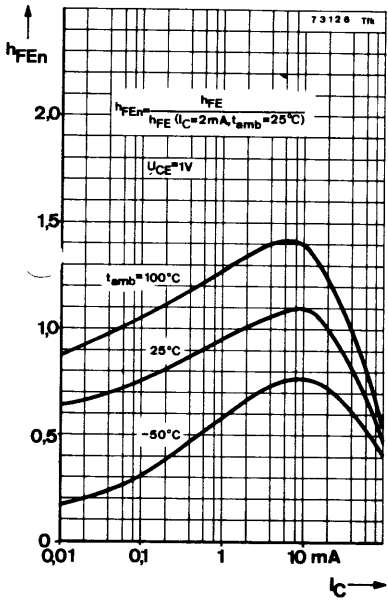
Meßschaltung für:
 t_{off}, t_{on} bei $I_C = 10 \text{ mA}$

²⁾ siehe Meßschaltung



BCW 98





Silizium-PNP-Epitaxial-Planar-Transistor Silicon PNP epitaxial planar transistor

Anwendungen: Audio Vor- und Treiberstufen in Hybridschaltungen

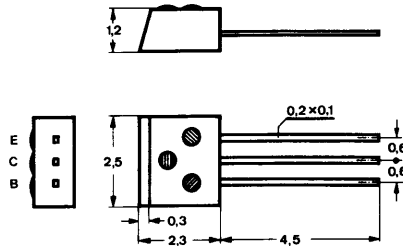
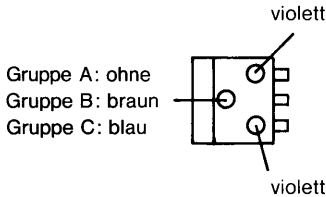
Applications: Audio pre- and driver stages in hybrid circuits

Komplementär zu: BCW 98
Complementary to:

Vorläufige technische Daten · Tentative data

Abmessungen · Dimensions

Maße in mm



Kunststoffgehäuse
Plastic case
Gewicht · Weight
max. 0,02 g

Absolute Grenzwerte · Absolute maximum ratings

Kollektor-Basis-Sperrspannung	$-U_{CB0}$	45	V
Kollektor-Emitter-Sperrspannung	$-U_{CE0}$	45	V
Emitter-Basis-Sperrspannung	$-U_{EB0}$	5	V
Kollektorstrom	$-I_C$	100	mA
Basisstrom	$-I_B$	20	mA
Gesamtverlustleistung $t_{amb} \leq 45^\circ C$	P_{tot}	50	mW
Sperrschichttemperatur	t_j	125	$^\circ C$
Lagerungstemperatur	t_{stg}	-55...+125	$^\circ C$

Min. Typ. Max.

Wärmewiderstand · Thermal resistance

Sperrschicht-Umgebung R_{thJA} 1600 °C/W

Statische Kenngrößen · DC characteristics

Umgebungstemperatur $t_{amb} = 25^\circ C$, falls nicht anders angegeben

Kollektorreststrom

$-U_{CE} = 35 V$ $-I_{CES}^*)$ 20 μA

$-U_{CE} = 35 V, t_{amb} = 125^\circ C$ $-I_{CES}^{**})$ 20 μA

Emitterreststrom

$-U_{EB} = 4 V$ $-I_{EBO}$ 20 nA

Kollektor-Basis-Durchbruchspannung

$-I_C = 10 \mu A$ $-U_{(BR)CEO}^*)$ 45 V

Kollektor-Emitter-Durchbruchspannung

$-I_C = 2 mA$ $-U_{(BR)CEO}^*)^1)$ 45 V

Emitter-Basis-Durchbruchspannung

$-I_E = 1 \mu A$ $-U_{(BR)EBO}^*)$ 5 V

Kollektor-Sättigungsspannung

$-I_C = 10 mA, -I_B = 0,25 mA$ $-U_{CEsat}^1)$ 0,25 V

$-I_C = 50 mA, -I_B = 1,25 mA$ $-U_{CEsat}^*)^1)$ 0,55 V

Basis-Sättigungsspannung

$-I_C = 10 mA, -I_B = 0,25 mA$ $-U_{BEsat}^1)$ 0,6 0,85 V

$-I_C = 50 mA, -I_B = 1,25 mA$ $-U_{BEsat}^*)^1)$ 1,0 V

Basis-Emitterspannung

$-U_{CE} = 5 V, -I_C = 2 mA$ $-U_{BE}^1)$ 0,55 0,7 V

Kollektor-Basis-Gleichstromverhältnis

$-U_{CE} = 5 V, -I_C = 10 \mu A$ **Gruppe A** h_{FE} 140

Gruppe B h_{FE} 30 200

Gruppe C h_{FE} 40 270

$-U_{CE} = 5 V, -I_C = 2 mA$ **Gruppe A** $h_{FE}^*)^1)$ 120 170 220

Gruppe B $h_{FE}^*)^1)$ 180 250 310

Gruppe C $h_{FE}^*)^1)$ 250 350 460

*) AQL = 0,65%

1) $\frac{t_p}{T} = 0,01, t_p = 0,3 ms$

***) AQL = 2,5%

Min. Typ. Max.

Dynamische Kenngrößen · AC characteristics

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

Transitfrequenz

$-U_{CE} = 5\text{ V}, -I_C = 10\text{ mA}, f = 100\text{ MHz}$ f_T 200 MHz

Kollektor-Basis-Kapazität

$-U_{CB} = 10\text{ V}, f = 1\text{ MHz}$ C_{CBO} 7 pF

Emitter-Basis-Kapazität

$-U_{EB} = 0,5\text{ V}, f = 1\text{ MHz}$ C_{EBO} 15 pF

Rauschmaß

$-U_{CE} = 5\text{ V}, -I_C = 200\text{ }\mu\text{A},$ F 6 dB

$R_G = 2\text{ k}\Omega$

$f = 1\text{ kHz}, \Delta f = 200\text{ Hz}$

Vierpol Kenngrößen · Two port characteristics

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

Emitterschaltung

$-U_{CE} = 5\text{ V}, -I_C = 2\text{ mA}, f = 1\text{ kHz}$

Kurzschluß-Eingangswiderstand

Gruppe A h_{ie} 2,7 k Ω

Gruppe B h_{ie} 3,6 k Ω

Gruppe C h_{ie} 4,5 k Ω

Leerlauf-Spannungsrückwirkung

Gruppe A h_{re} 1,5 10^{-4}

Gruppe B h_{re} 2 10^{-4}

Gruppe C h_{re} 2 10^{-4}

Kurzschluß-Stromverstärkung

Gruppe A h_{fe} 200

Gruppe B h_{fe} 260

Gruppe C h_{fe} 330

Leerlauf-Ausgangsleitwert

Gruppe A h_{oe} 18 30 μS

Gruppe B h_{oe} 24 50 μS

Gruppe C h_{oe} 30 60 μS

Min. Typ. Max.

Schaltzeiten · Switching times

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

Einschaltzeit

$$\left. \begin{array}{l} -I_C = 10 \text{ mA}, -I_{B1} = 1 \text{ mA} \\ -I_C = 100 \text{ mA}, -I_{B1} = 10 \text{ mA} \end{array} \right\}$$

$t_{on}^{2)}$

150 ns

Ausschaltzeit

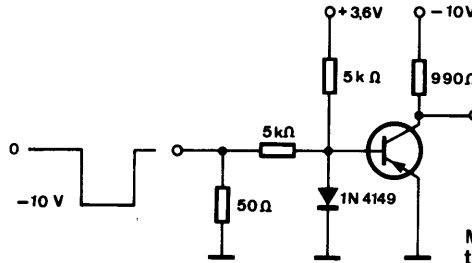
$$\left. \begin{array}{l} -I_C = 10 \text{ mA}, -I_{B1} = I_{B2} = 1 \text{ mA} \\ -I_C = 100 \text{ mA}, -I_{B1} = I_{B2} = 10 \text{ mA} \end{array} \right\}$$

$t_{off}^{2)}$

800 ns

$R_G = 50$
 $t_f = t_r < 2 \text{ ns}$
 $\frac{t_p}{T} \leq 0,01$
 $t_p = 1 \mu\text{s}$

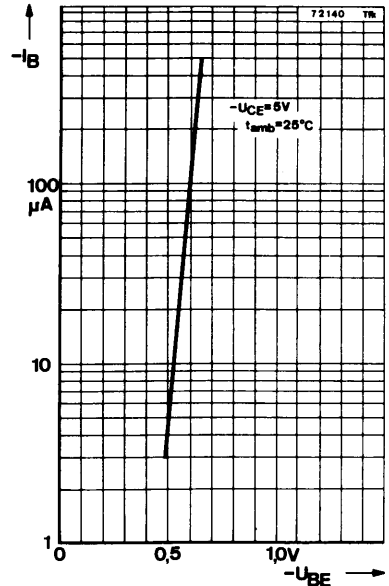
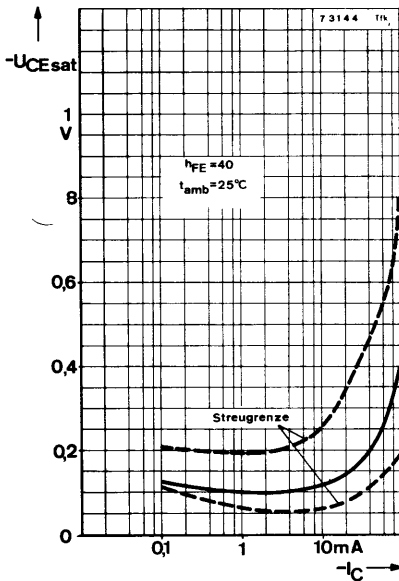
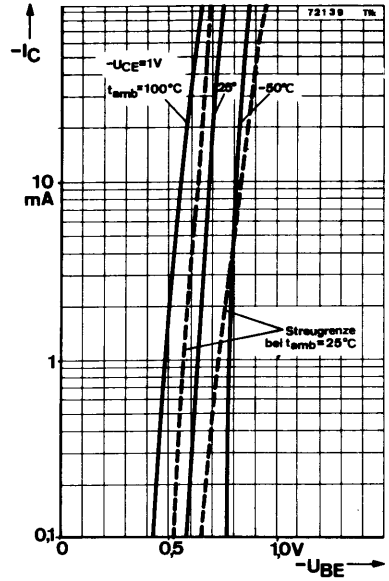
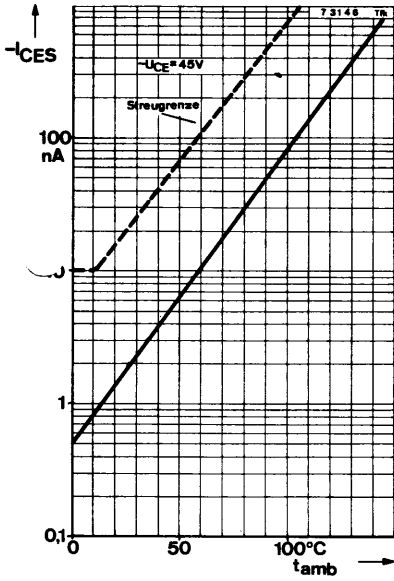
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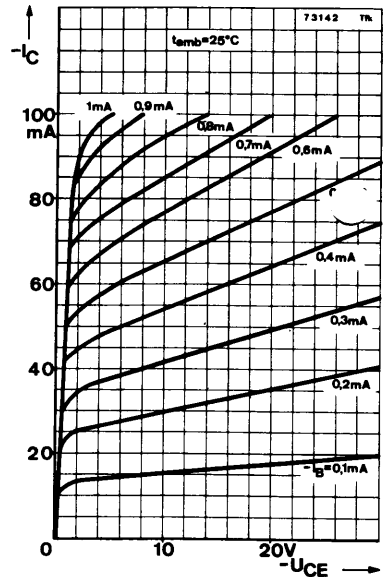
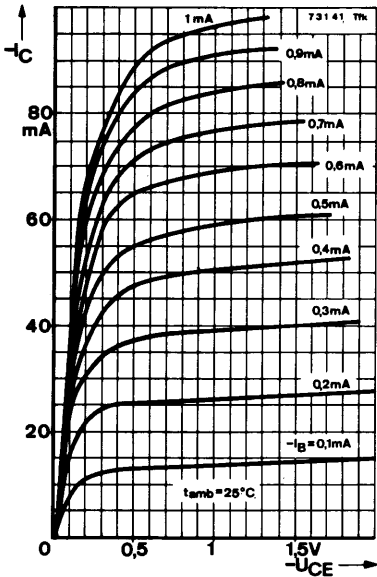
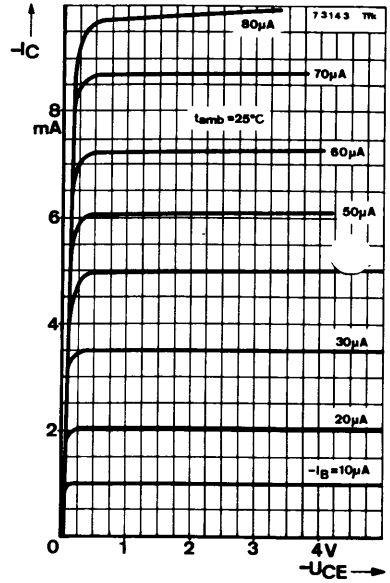
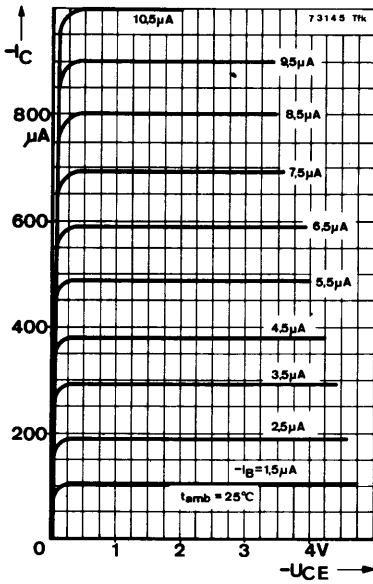
Anzeigerät:
 $R_L \geq 100 \text{ k}\Omega$
 $t_r \geq 15 \text{ ns}$

Meßschaltung für:
 t_{off}, t_{on} bei $-I_C = 10 \text{ mA}$

²⁾ siehe Meßschaltung



BCW 99



AEG-TELEFUNKEN

