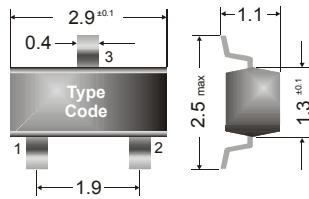


NPN

Surface mount Si-Epitaxial Planar Transistors

Si-Epitaxial Planar Transistoren für die Oberflächenmontage

NPN



Dimensions / Maße in mm
1 = B 2 = E 3 = C

Power dissipation – Verlustleistung 250 mW

Plastic case SOT-23
Kunststoffgehäuse (TO-236)

Weight approx. – Gewicht ca. 0.01 g

Plastic material has UL classification 94V-0
Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled
Standard Lieferform gegurtet auf Rolle

Maximum ratings ($T_A = 25^\circ\text{C}$)

Grenzwerte ($T_A = 25^\circ\text{C}$)

			BCW 60
Collector-Emitter-voltage	B open	V_{CE0}	32 V
Collector-Base-voltage	E open	V_{CB0}	32 V
Emitter-Base-voltage	C open	V_{EB0}	5 V
Power dissipation – Verlustleistung		P_{tot}	250 mW ¹⁾
Collector current – Kollektorstrom (DC)		I_C	100 mA
Peak Collector current – Kollektor-Spitzenstrom		I_{CM}	200 mA
Peak Base current – Basis-Spitzenstrom		I_{BM}	200 mA
Junction temperature – Sperrschichttemperatur		T_j	150 °C
Storage temperature – Lagerungstemperatur		T_S	- 65...+ 150 °C

Characteristics ($T_j = 25^\circ\text{C}$)

Kennwerte ($T_j = 25^\circ\text{C}$)

		Min.	Typ.	Max.
Collector-Base cutoff current – Kollektorreststrom				
$I_E = 0, V_{CB} = 32 \text{ V}$	I_{CB0}	–	–	20 nA
$I_E = 0, V_{CB} = 32 \text{ V}, T_j = 150^\circ\text{C}$	I_{CB0}	–	–	20 μA
Emitter-Base cutoff current – Emitterreststrom				
$I_C = 0, V_{EB} = 4 \text{ V}$	I_{EB0}	–	–	20 nA
Collector saturation volt. – Kollektor-Sättigungsspg. ²⁾				
$I_C = 10 \text{ mA}, I_B = 0.25 \text{ mA}$	V_{CEsat}	50 mV		350 mV
$I_C = 50 \text{ mA}, I_B = 1.25 \text{ mA}$	V_{CEsat}	100 mV		550 mV

¹⁾ Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Löt-pad) an jedem Anschluß

²⁾ Tested with pulses $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$ – Gemessen mit Impulsen $t_p = 300 \mu\text{s}$, Schaltverhältnis $\leq 2\%$

Characteristics ($T_j = 25^\circ\text{C}$)Kennwerte ($T_j = 25^\circ\text{C}$)

		Min.	Typ.	Max.
Base saturation voltage – Basis-Sättigungsspannung ¹⁾				
$I_C = 10\text{ mA}, I_B = 0.25\text{ mA}$	V_{BEsat}	600 mV	–	850 mV
$I_C = 50\text{ mA}, I_B = 1.25\text{ mA}$	V_{BEsat}	700 mV	–	1050 mV
DC current gain – Kollektor-Basis-Stromverhältnis ¹⁾				
$V_{CE} = 5\text{ V}, I_C = 10\text{ }\mu\text{A}$	BCW 60B	h_{FE}	20	–
	BCW 60C	h_{FE}	40	–
	BCW 60D	h_{FE}	100	–
$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	BCW 60B	h_{FE}	180	–
	BCW 60C	h_{FE}	250	–
	BCW 60D	h_{FE}	380	–
$V_{CE} = 1\text{ V}, I_C = 50\text{ mA}$	BCW 60B	h_{FE}	70	–
	BCW 60C	h_{FE}	90	–
	BCW 60D	h_{FE}	100	–
Base-Emitter voltage – Basis-Emitter-Spannung ¹⁾				
$V_{CE} = 5\text{ V}, I_C = 10\text{ }\mu\text{A}$	V_{BEon}	–	520 mV	–
$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	V_{BEon}	550 mV	650 mV	700 mV
$V_{CE} = 1\text{ V}, I_C = 50\text{ mA}$	V_{BEon}	–	780 mV	–
Gain-Bandwidth Product – Transitfrequenz				
$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	f_T	100 MHz	250 MHz	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität				
$V_{CB} = 10\text{ V}, I_E = i_e = 0, f = 1\text{ MHz}$	C_{CB0}	–	1.7 pF	–
Emitter-Base Capacitance – Emitter-Basis-Kapazität				
$V_{EB} = 0.5\text{ V}, I_C = i_c = 0, f = 1\text{ MHz}$	C_{EB0}	–	11 pF	–
Noise figure – Rauschzahl				
$V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}, R_G = 2\text{ k}\Omega,$ $f = 1\text{ kHz}, \Delta f = 200\text{ Hz}$	F	–	2 dB	6 dB
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	420 K/W ²⁾	
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren		BCW 61 series		
Marking – Stempelung		BCW 60B = AB	BCW 60C = AC	BCW 60D = AD

¹⁾ Tested with pulses $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ – Gemessen mit Impulsen $t_p = 300\text{ }\mu\text{s}$, Schaltverhältnis $\leq 2\%$

²⁾ Mounted on P.C. board with 3 mm^2 copper pad at each terminal
Montage auf Leiterplatte mit 3 mm^2 Kupferbelag (Lötpad) an jedem Anschluß