

## SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N transistors

**Marking**

BCV71 = K7

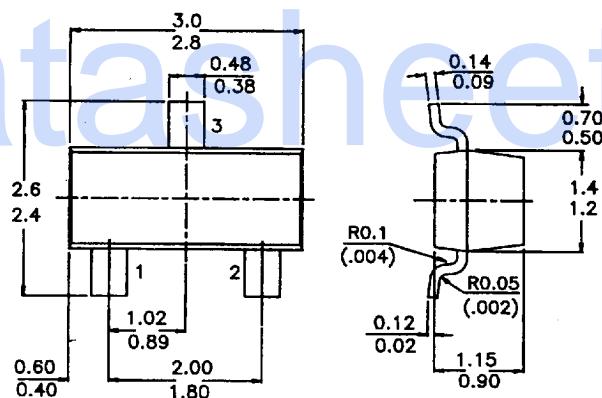
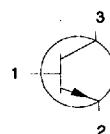
BCV72 = K8

**PACKAGE OUTLINE DETAILS  
ALL DIMENSIONS IN mm****Pin configuration**

1 = BASE

2 = Emitter

3 = Collector

**ABSOLUTE MAXIMUM RATINGS**D.C. current gain at  $T_j = 25^\circ\text{C}$  $I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$ 

	<b>BCV71</b>	<b>BCV72</b>
$h_{FE}$	> 110	200
< 220	450	
$V_{CB0}$	max.	80
$V_{CE0}$	max.	60
$I_{CM}$	max.	200
$P_{tot}$	max.	250
$T_j$	max.	150
Transition frequency at $f = 35 \text{ MHz}$		
$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$	$f_T$	typ.
Noise figure at $R_S = 2 \text{ k}\Omega$		300
$I_C = 200 \mu\text{A}; V_{CE} = 5 \text{ V};$	$F$	
$f = 1 \text{ kHz}; B = 200 \text{ Hz}$	<	10
		dB

Collector-base voltage (open emitter)

Collector-emitter voltage (open base)

Collector current (peak value)

Total power dissipation up to  $T_{amb} = 25^\circ\text{C}$ 

Junction temperature

Transition frequency at  $f = 35 \text{ MHz}$  $I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$ Noise figure at  $R_S = 2 \text{ k}\Omega$  $I_C = 200 \mu\text{A}; V_{CE} = 5 \text{ V};$  $f = 1 \text{ kHz}; B = 200 \text{ Hz}$ 

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**RATINGS (at  $T_A = 25^\circ\text{C}$  unless otherwise specified)****Limiting values**

Collector-base voltage (open emitter)	$V_{CB0}$	max.	80 V
Collector-emitter voltage (open base)	$V_{CE0}$	max.	60 V
$I_C = 2 \text{ mA}$	$V_{EB0}$	max.	5 V
Emitter-base voltage (open collector)	$I_C$	max.	100 mA
Collector current (d.c.)	$I_{CM}$	max.	200 mA
Collector current (peak value)	$P_{tot}$	max.	250 mW
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$			
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

**THERMAL RESISTANCE**

From junction to ambient

$$R_{th j-a} = 500 \text{ K/W}$$

**CHARACTERISTICS** $T_j = 25^\circ\text{C}$  unless otherwise specified**Collector cut-off current**

$$I_E = 0; V_{CB} = 20 \text{ V}$$

$$I_{CB0} < 100 \text{ nA}$$

$$I_E = 0; V_{CB} = 20 \text{ V}; T_j = 100^\circ\text{C}$$

$$I_{CB0} < 10 \mu\text{A}$$

**Base emitter voltage**

$$I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$$

$$V_{BE} \text{ typ. } 550 \text{ to } 700 \text{ mV}$$

**Saturation voltages**

$$I_C = 10 \text{ mA}; I_B = 0,5 \text{ mA}$$

$$V_{CEsat} \text{ typ. } 120 \text{ mV}$$

$$V_{BEsat} \text{ typ. } 250 \text{ mV}$$

$$V_{CEsat} \text{ typ. } 750 \text{ mV}$$

$$I_C = 50 \text{ mA}; I_B = 2,5 \text{ mA}$$

$$V_{CEsat} \text{ typ. } 210 \text{ mV}$$

$$V_{BEsat} \text{ typ. } 850 \text{ mV}$$

**D.C. current gain**

$$I_C = 10 \mu\text{A}; V_{CE} = 5 \text{ V}$$

		<b>BCV71</b>	<b>BCV72</b>
$I_C = 10 \mu\text{A}; V_{CE} = 5 \text{ V}$	$h_{FE}$	typ. 90	150
$I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$	> 110	200
		< 220	450

**Collector capacitance at  $f = 1 \text{ MHz}$** 

$$I_E = I_e = 0; V_{CB} = 10 \text{ V}$$

$$C_c \text{ typ. } 2,5 \text{ pF}$$

**Transition frequency at  $f = 35 \text{ MHz}$** 

$$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$$

$$f_T \text{ typ. } 300 \text{ MHz}$$

**Noise figure at  $R_S = 2 \text{ k}\Omega$** 

$$I_C = 200 \mu\text{A}; V_{CE} = 5 \text{ V}$$

$$F \text{ typ. } 10 \text{ dB}$$

$$f = 1 \text{ kHz}; B = 200 \text{ Hz}$$