

# UTC BCP68 NPN EPITAXIAL SILICON TRANSISTOR

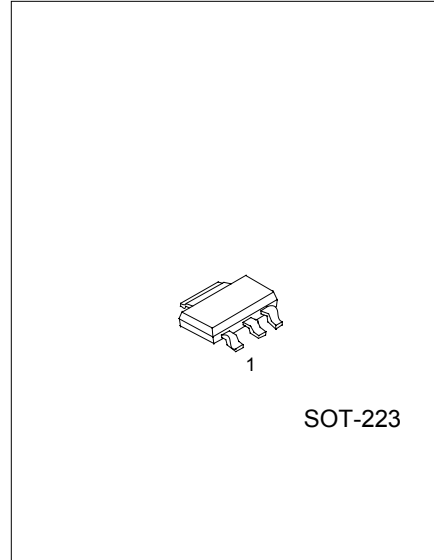
## NPN MEDIUM POWER TRANSISTOR

### FEATURES

- \* High current (max. 1 A)
- \* Low voltage (max. 20 V)
- \* Complementary to UTC BCP69

### APPLICATIONS

- \* General purpose switching and amplification under high current conditions.



1: BASE 2: COLLECTOR 3: EMITTER

### ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage (Open Emitter)	$V_{CBO}$	32	V
Collector-Emitter Voltage(Open Base)	$V_{CEO}$	20	V
Emitter-Base Voltage(Open Collector)	$V_{EBO}$	5	V
Collector Current (DC)	$I_C$	1	A
Peak Collector Current	$I_{CM}$	2	A
Peak Base Current	$I_{BM}$	200	mA
Total Power Dissipation, Ta ≤ 25°C	$P_{tot}$	1.37	W
Operating Ambient Temperature	Ta	-65 ~ +150	°C
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-65 ~ +150	°C

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Thermal Resistance From Junction To Ambient	$R_{th(j-a)}$	Note 1	91	K/W
Thermal Resistance From Junction To Soldering Point	$R_{th(j-s)}$		10	K/W

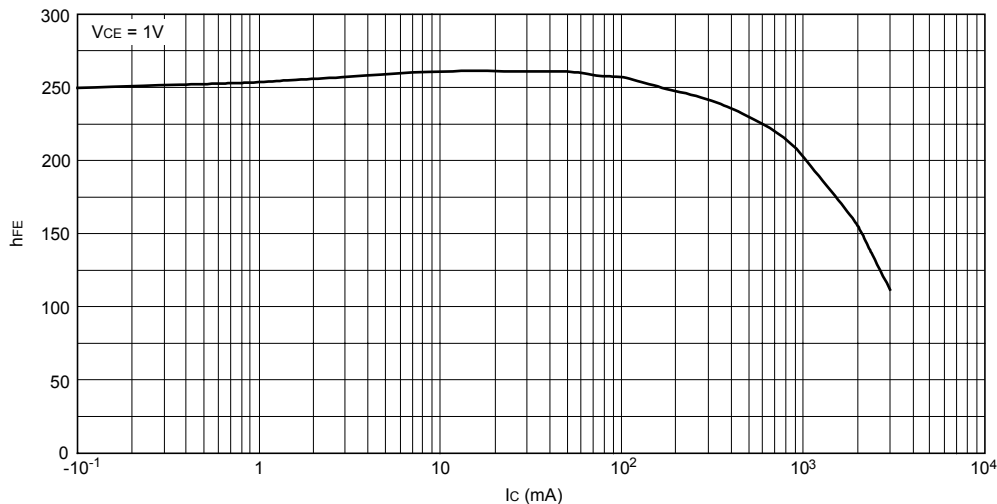
Note 1: Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>.  
For other mounting conditions, see "Thermal considerations for SOT223 in the General Part of associated Handbook".

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## ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	$I_{CBO}$	$I_E = 0, V_{CB} = 25\text{V}$			100	nA
		$I_E = 0, V_{CB} = 25\text{V}, T_j = 150^\circ\text{C}$			10	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$I_C = 0, V_{EB} = 5\text{V}$			100	nA
DC Current Gain	$h_{FE}$	$I_C = 5\text{mA}, V_{CE} = 10\text{V}$	50			
		$I_C = 500\text{mA}, V_{CE} = 1\text{V}$	85		375	
		$I_C = 1\text{A}, V_{CE} = 1\text{V}$	60			
DC Current Gain (BCP68-25)		$I_C = 500\text{mA}, V_{CE} = 1\text{V}$	160		375	
Collector-Emitter Saturation Voltage	$V_{CEsat}$	$I_C = 1\text{A}, I_B = 100\text{mA}$			500	mV
Base-Emitter Voltage	$V_{BE}$	$I_C = 5\text{mA}, V_{CE} = 10\text{V}$		620		mV
		$I_C = 1\text{A}, V_{CE} = 1\text{V}$			1	V
Collector Capacitance	$C_C$	$I_E = I_C = 0, V_{CB} = 5\text{V}, f = 1\text{MHz}$		38		pF
Transition Frequency	$f_T$	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$	40			MHz
DC current gain ratio of the complementary pairs	$\frac{h_{FE1}}{h_{FE2}}$	$ I_C  = 0.5\text{A},  V_{CE}  = 1\text{V}$			1.6	

DC current gain (typical values)



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