

# UTC HE8051 NPN EPITAXIAL SILICON TRANSISTOR

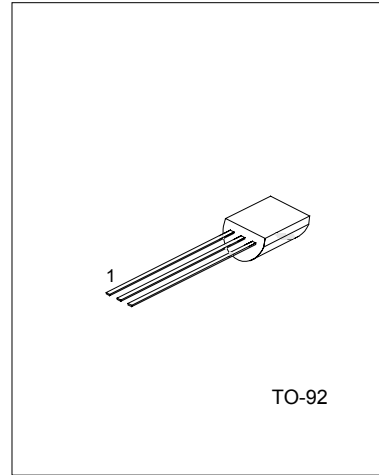
## LOW VOLTAGE HIGH CURRENT SMALL SIGNAL NPN TRANSISTOR

### DESCRIPTION

The UTC HE8051 is a low voltage high current small signal NPN transistor, designed for Class B push-pull 2W audio amplifier for portable radio and general purpose applications.

### FEATURES

- \*Collector current up to 1.5A
- \*Collector-Emitter voltage up to 25 V
- \*complimentary to UTC HE8551



1:EMITTER 2:BASE 3:COLLECTOR

### ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	40	V
Collector-Emitter Voltage	V <sub>CEO</sub>	25	V
Emitter-Base Voltage	V <sub>EB0</sub>	6	V
Collector Dissipation(Ta=25°C)	P <sub>c</sub>	1	W
Collector Current	I <sub>c</sub>	1.5	A
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ +150	°C

### ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V <sub>CB0</sub>	I <sub>c</sub> =100μA, I <sub>E</sub> =0	40			V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	I <sub>c</sub> =2mA, I <sub>B</sub> =0	25			V
Emitter-Base Breakdown Voltage	V <sub>EB0</sub>	I <sub>E</sub> =100μA, I <sub>c</sub> =0	6			V
Collector Cut-Off Current	I <sub>CB0</sub>	V <sub>CB</sub> =35V, I <sub>E</sub> =0			100	nA
Emitter Cut-Off Current	I <sub>EB0</sub>	V <sub>EB</sub> =6V, I <sub>c</sub> =0			100	nA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =1V, I <sub>c</sub> =5mA	45	135		
	h <sub>FE2</sub>	V <sub>CE</sub> =1V, I <sub>c</sub> =100mA	85	160	500	
	h <sub>FE3</sub>	V <sub>CE</sub> =1V, I <sub>c</sub> =800mA	40	110		
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =800mA, I <sub>B</sub> =80mA			0.5	V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> =800mA, I <sub>B</sub> =80mA			1.2	V
Base-Emitter Saturation Voltage	V <sub>BE</sub>	V <sub>CE</sub> =1V, I <sub>c</sub> =10mA			1.0	V
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>c</sub> =50mA	100			MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0 f=1MHz		9.0		pF

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## CLASSIFICATION OF $h_{FE2}$

RANK	C	D	E
RANGE	120-200	160-300	250-500

## TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Static characteristics

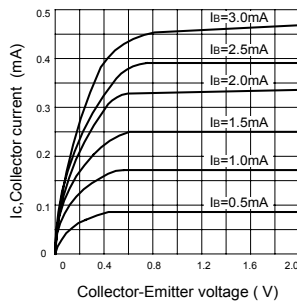


Fig.2 DC current Gain

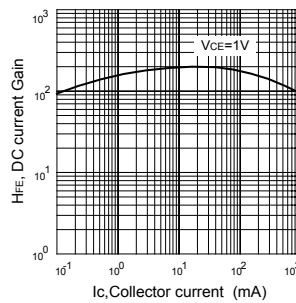


Fig.3 Base-Emitter on Voltage

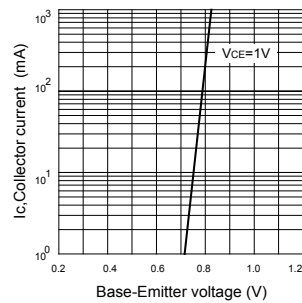


Fig.4 Saturation voltage

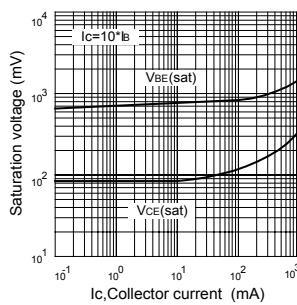


Fig.5 Current gain-bandwidth product

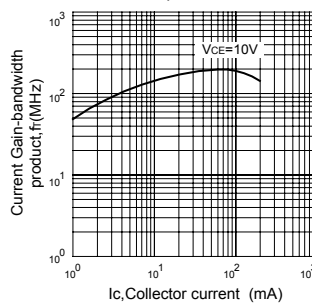
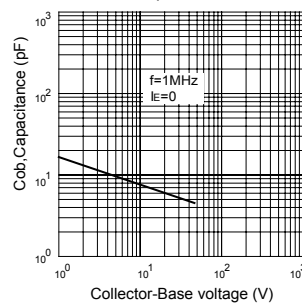


Fig.6 Collector output Capacitance



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