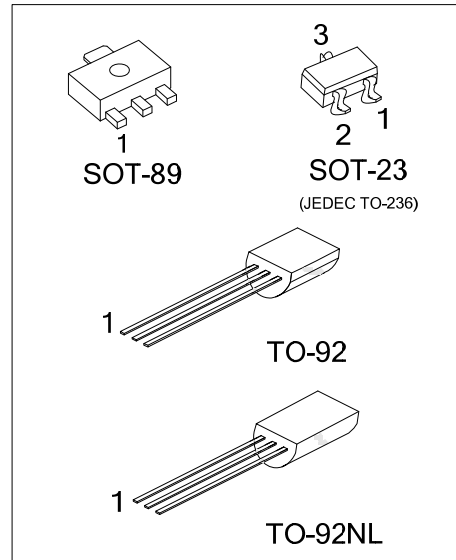




# HE8050

## NPN SILICON TRANSISTOR

LOW VOLTAGE HIGH  
CURRENT SMALL SIGNAL  
NPN TRANSISTOR



■ DESCRIPTION

The UTC **HE8050** 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 25V
- \*Complimentary to UTC HE8550

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	HE8050G-x-AB3-R	SOT-89	B	C	E	Tape Reel
-	HE8050G-x-AE3-R	SOT-23	E	B	C	Tape Reel
HE8050L-x-T92-B	HE8050G-x-T92-B	TO-92	E	C	B	Tape Box
HE8050L-x-T92-K	HE8050G-x-T92-K	TO-92	E	C	B	Bulk
HE8050L-x-T9N-B	HE8050G-x-T9N-B	TO-92NL	E	C	B	Tape Box
HE8050L-x-T9N-K	HE8050G-x-T9N-K	TO-92NL	E	C	B	Bulk

Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>HE8050G-x-AB3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AB3: SOT-89, AE3: SOT-23, T92: TO-92, T9N: TO-92NL (3) x: refer to Classification of <math>h_{FE2}</math> (4) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING

SOT-89	SOT-23
TO-92	TO-92NL

■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V <sub>CBO</sub>	40	V
Collector-Emitter Voltage		V <sub>CEO</sub>	25	V
Emitter-Base Voltage		V <sub>EBO</sub>	6	V
Collector Dissipation	SOT-23	P <sub>C</sub>	350	mW
	SOT-89		500	mW
	TO-92/TO-92NL		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

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOT-23	θ <sub>JC</sub>	110	°C/W
	SOT-89		40	
	TO-92		80	
	TO-92NL		78	

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C, unless otherwise specified.)

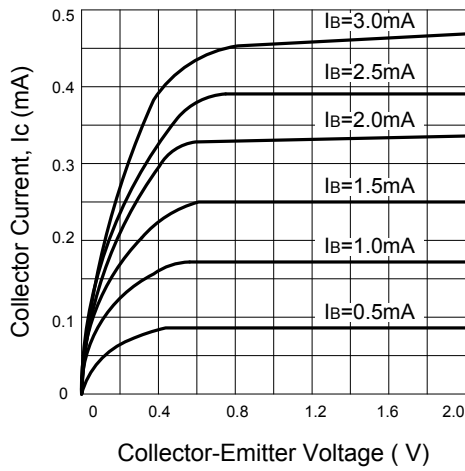
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	40			V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =2mA, I <sub>B</sub> =0	25			V
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	6			V
Collector Cut-Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =35V, I <sub>E</sub> =0			100	nA
Emitter Cut-Off Current	I <sub>EBO</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

■ CLASSIFICATION of h<sub>FE2</sub>

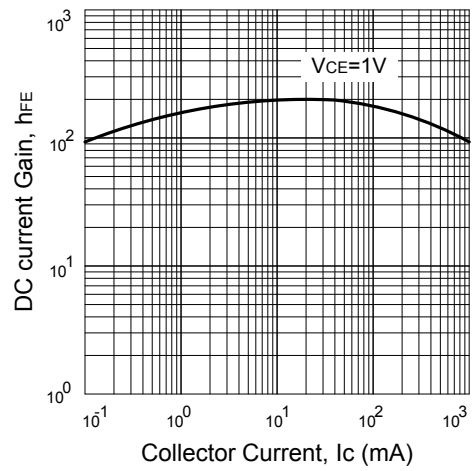
RANK	C	D	E
RANGE	120-200	160-300	250-500

## TYPICAL CHARACTERISTICS

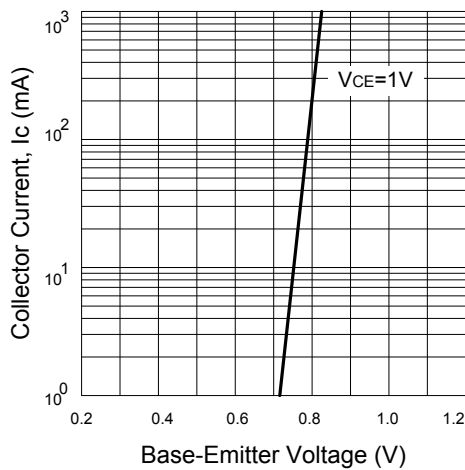
### Static Characteristics



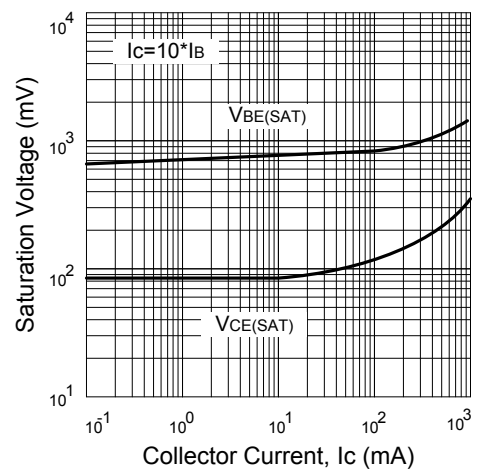
### DC Current Gain



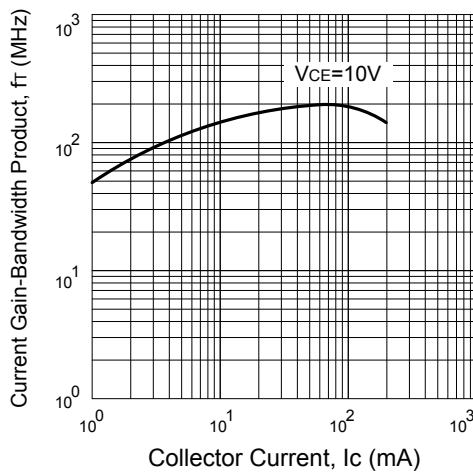
### Base-Emitter on Voltage



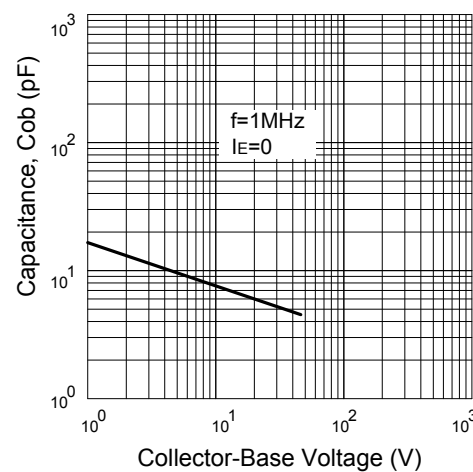
### Saturation Voltage



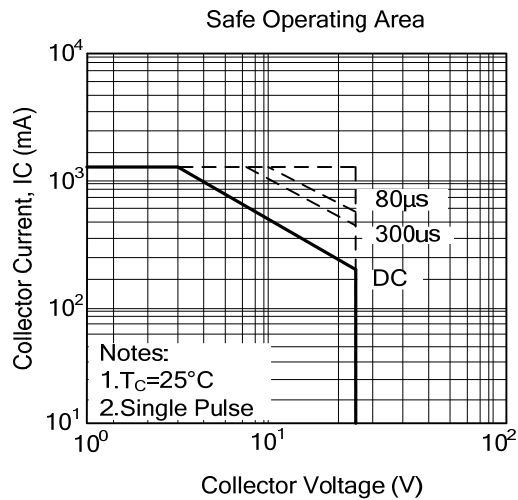
### Current Gain-Bandwidth Product



### Collector Output Capacitance



### ■ TYPICAL CHARACTERISTICS(Cont.)



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