



## HE8050

## NPN SILICON TRANSISTOR

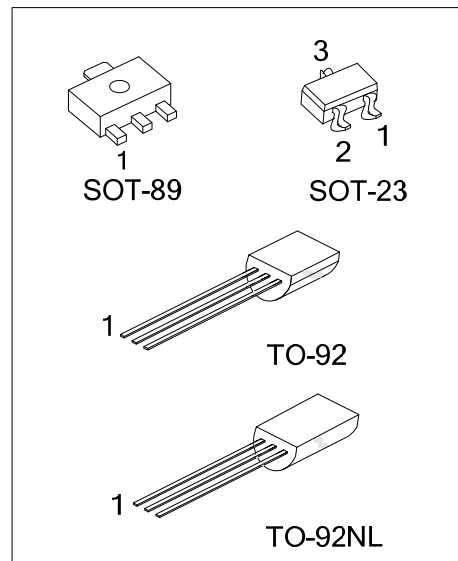
LOW VOLTAGE HIGH  
CURRENT SMALL SIGNAL  
NPN TRANSISTOR

### 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 25 V
- \*Complimentary to UTC HE8550

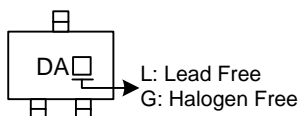


### ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free Plating	Halogen Free		1	2	3	
HE8050-x-AB3-R	HE8050L-x-AB3-R	HE8050G-x-AB3-R	SOT-89	B	C	E	Tape Reel
HE8050-x-AE3-R	HE8050L-x-AE3-R	HE8050G-x-AE3-R	SOT-23	E	B	C	Tape Reel
HE8050-x-T92-B	HE8050L-x-T92-B	HE8050G-x-T92-B	TO-92	E	C	B	Tape Box
HE8050-x-T92-K	HE8050L-x-T92-K	HE8050G-x-T92-K	TO-92	E	C	B	Bulk
HE8050-x-T9N-B	HE8050L-x-T9N-B	HE8050G-x-T9N-B	TO-92NL	E	C	B	Tape Box
HE8050-x-T9N-K	HE8050L-x-T9N-K	HE8050G-x-T9N-K	TO-92NL	E	C	B	Bulk

<p>HE8050L-x-AE3-R</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AB3: SOT-89, AE3: SOT-23, T92: TO-92, T9N: TO-92NL</p> <p>(3) x: refer to Classification of <math>h_{FE2}</math></p> <p>(4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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### MARKING (For SOT-23 Package)



# HE8050

## NPN SILICON TRANSISTOR

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	40	V
Collector-Emitter Voltage		$V_{CEO}$	25	V
Emitter-Base Voltage		$V_{EBO}$	6	V
Collector Dissipation	SOT-23	$P_c$	350	mW
	SOT-89		500	mW
	TO-92/TO-92NL		1	W
Collector Current		$I_C$	1.5	A
Junction Temperature		$T_J$	+150	°C
Storage Temperature		$T_{STG}$	-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.

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

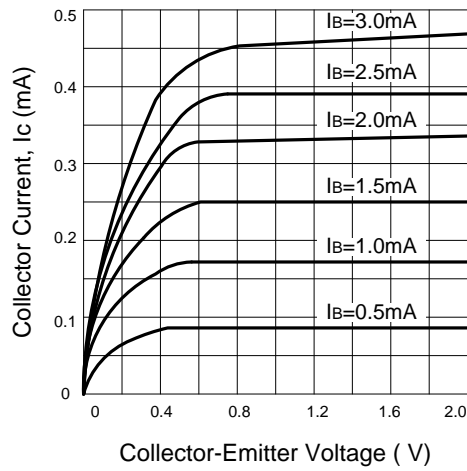
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=100\mu A, I_E=0$	40			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=2mA, I_B=0$	25			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu A, I_C=0$	6			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=35V, I_E=0$			100	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=6V, I_C=0$			100	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=1V, I_C=5mA$	45	135		
	$h_{FE2}$	$V_{CE}=1V, I_C=100mA$	85	160	500	
	$h_{FE3}$	$V_{CE}=1V, I_C=800mA$	40	110		
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=800mA, I_B=80mA$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=800mA, I_B=80mA$			1.2	V
Base-Emitter Saturation Voltage	$V_{BE}$	$V_{CE}=1V, I_C=10mA$			1.0	V
Current Gain Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=50mA$	100			MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0$ $f=1MHz$		9.0		pF

### ■ CLASSIFICATION of $h_{FE2}$

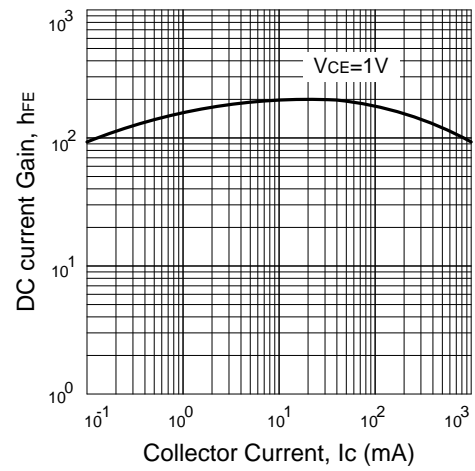
RANK	C	D	E
RANGE	120-200	160-300	250-500

## ■ TYPICAL CHARACTERISTICS

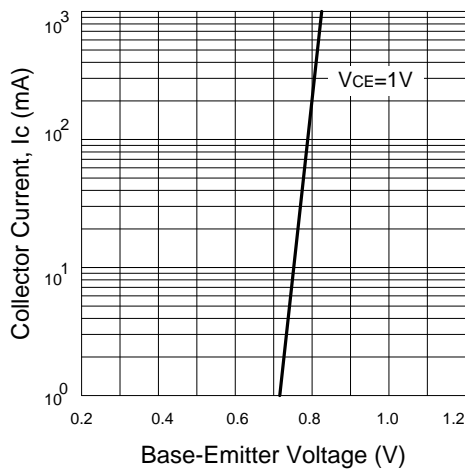
### Static Characteristics



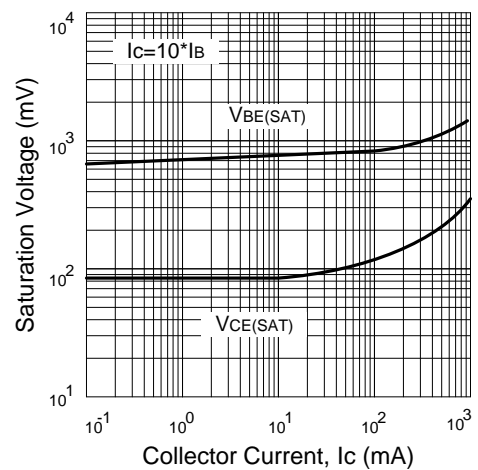
### DC Current Gain



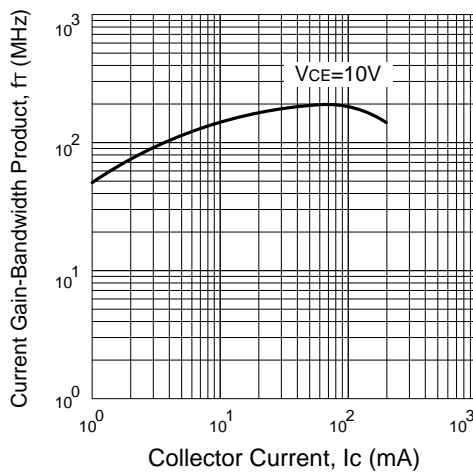
### Base-Emitter on Voltage



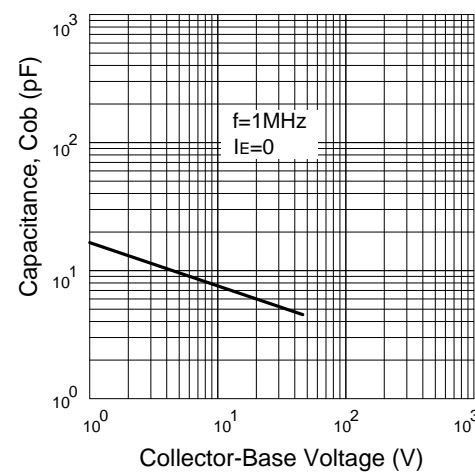
### Saturation Voltage



### Current Gain-Bandwidth Product



### Collector Output Capacitance



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