



HE8050

NPN SILICON TRANSISTOR

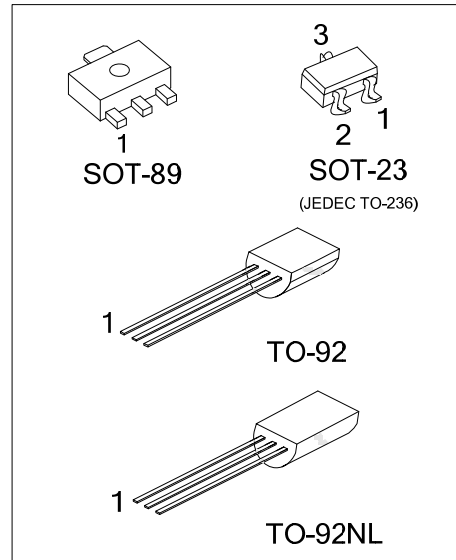
LOW VOLTAGE HIGH
CURRENT SMALL SIGNAL
NPN TRANSISTOR

■ 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> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Rank (4) Green Package 	<ul style="list-style-type: none"> (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 h_{FE2} (4) L: Lead Free, G: Halogen Free and Lead Free
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■ MARKING

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

■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

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	$^\circ\text{C}$
Storage Temperature		T_{STG}	-65 ~ +150	$^\circ\text{C}$

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_{JC}	110	$^\circ\text{C/W}$
	SOT-89		40	
	TO-92		80	
	TO-92NL		78	

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

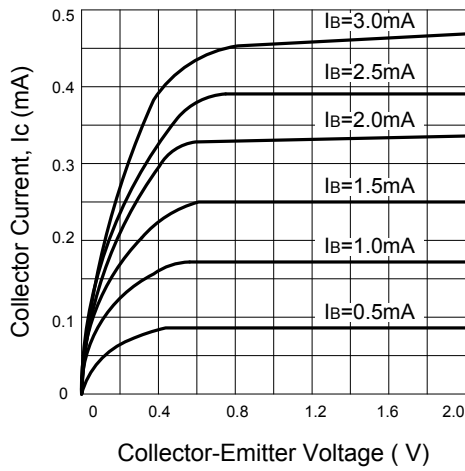
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=100\mu\text{A}, I_E=0$	40			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=2\text{mA}, I_B=0$	25			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=100\mu\text{A}, I_C=0$	6			V
Collector Cut-Off Current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

■ CLASSIFICATION of h_{FE2}

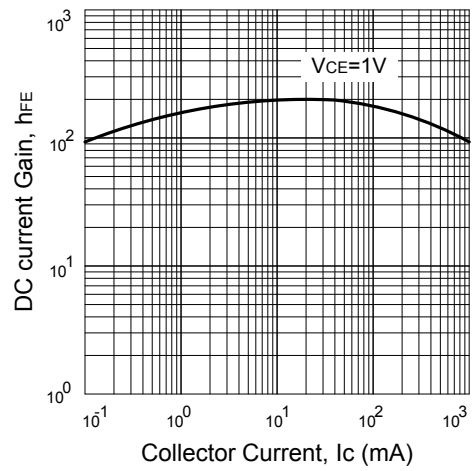
RANK	C	D	E
RANGE	120-200	160-300	250-500

■ TYPICAL CHARACTERISTICS

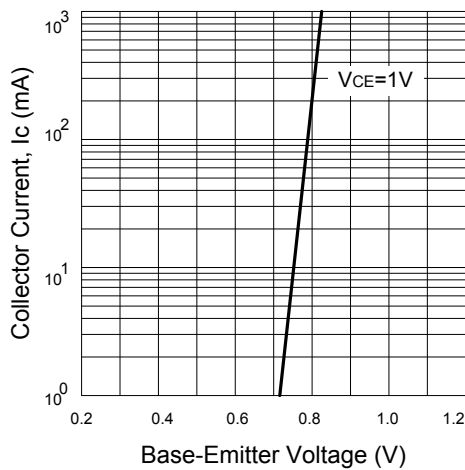
Static Characteristics



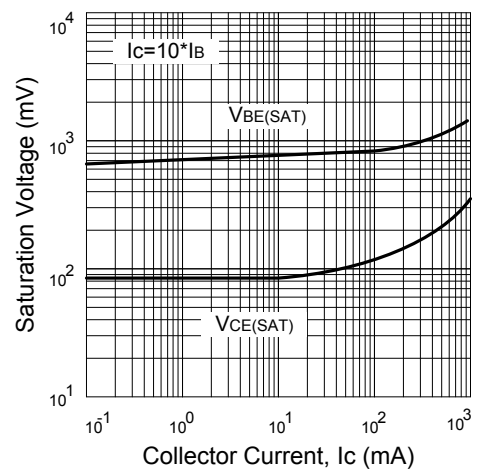
DC Current Gain



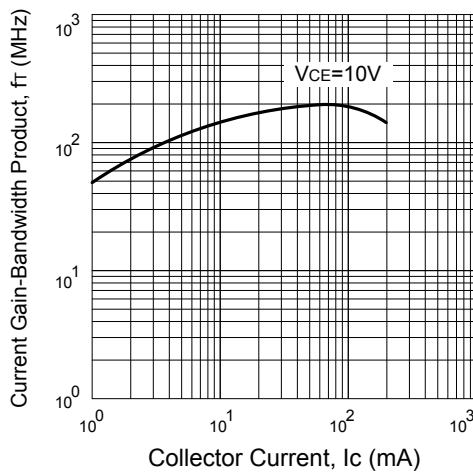
Base-Emitter on Voltage



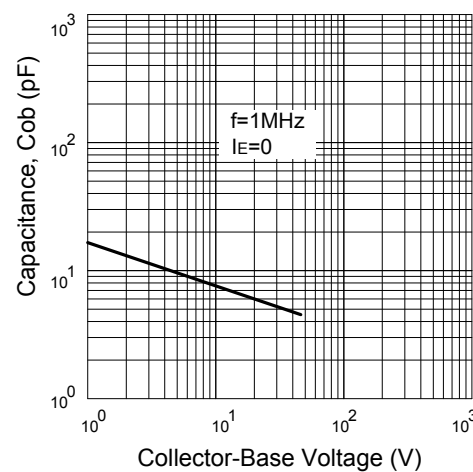
Saturation Voltage



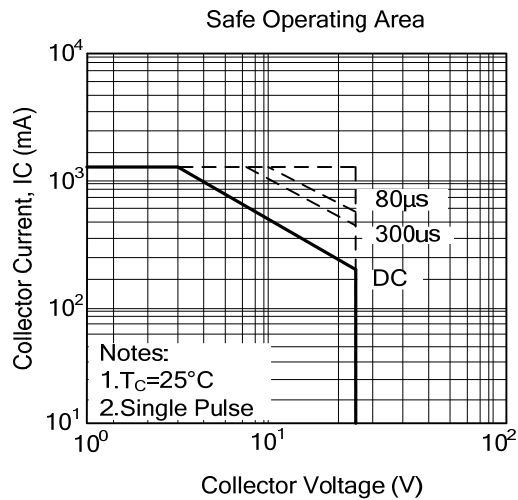
Current Gain-Bandwidth Product



Collector Output Capacitance



■ TYPICAL CHARACTERISTICS(Cont.)



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