



HE8050

NPN SILICON TRANSISTOR

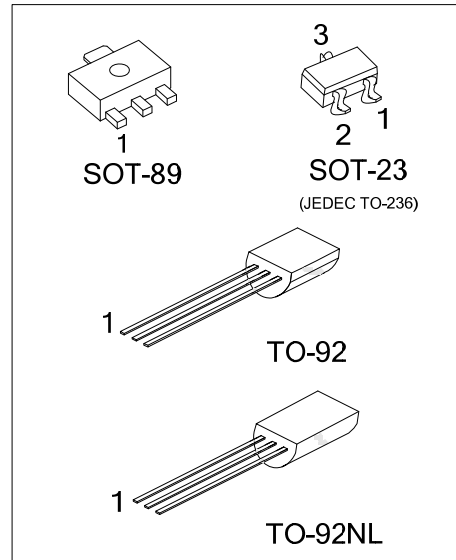
LOW VOLTAGE HIGH
CURRENT SMALL SIGNAL
NPN TRANSISTOR

■ 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	
HE8050L-x-AB3-R	HE8050G-x-AB3-R	SOT-89	B	C	E	Tape Reel
HE8050L-x-AE3-R	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 h_{FE2} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-89	SOT-23
<p>□□□□ → Data Code HE8050□ → L: Lead Free G: Halogen Free</p>	<p>□ → L: Lead Free DA□ → G: Halogen Free</p>
TO-92	TO-92NL
<p>UTC HE8050□ → L: Lead Free G: Halogen Free □□□ → Data Code</p>	<p>L: Lead Free G: Halogen Free Data Code ← UTC HE8050□ □□□□</p>

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■ ABSOLUTE MAXIMUM RATINGS (T_A = 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		1	W
	TO-92NL			
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.

■ THERMAL DATA

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

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

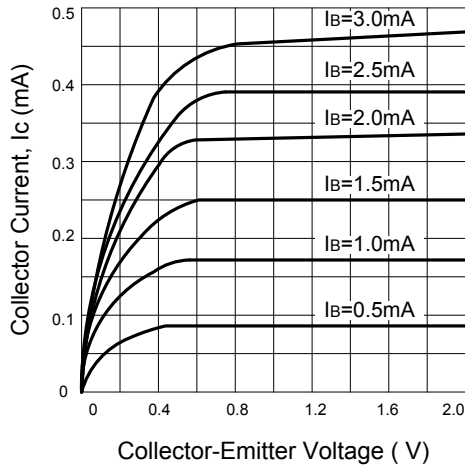
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV _{CBO}	I _C =100μA, I _E =0	40			V
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =2mA, I _B =0	25			V
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E =100μA, I _C =0	6			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =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}

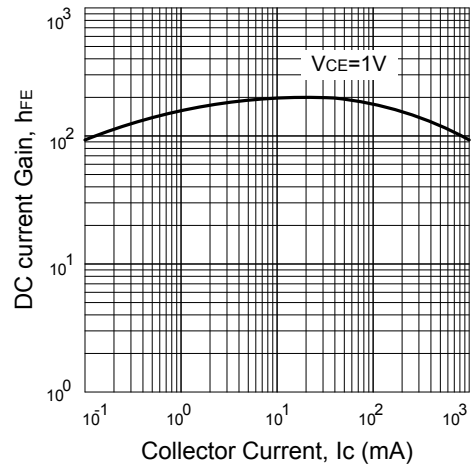
RANK	C	D	E
RANGE	120-200	160-300	250-500

TYPICAL CHARACTERISTICS

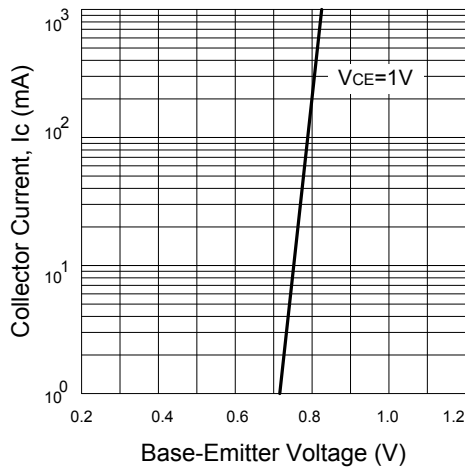
Static Characteristics



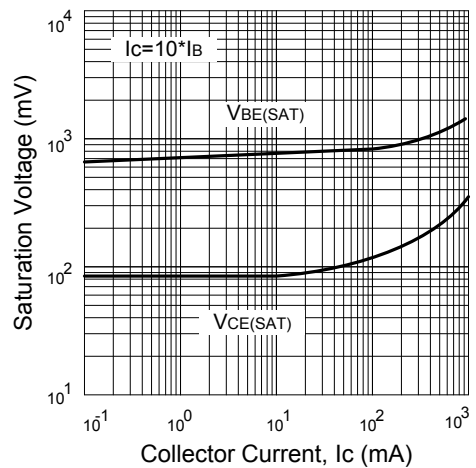
DC Current Gain



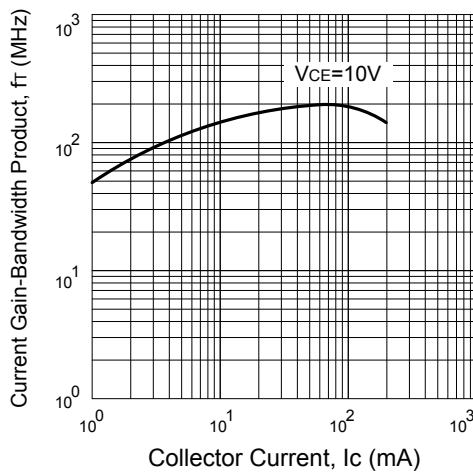
Base-Emitter on Voltage



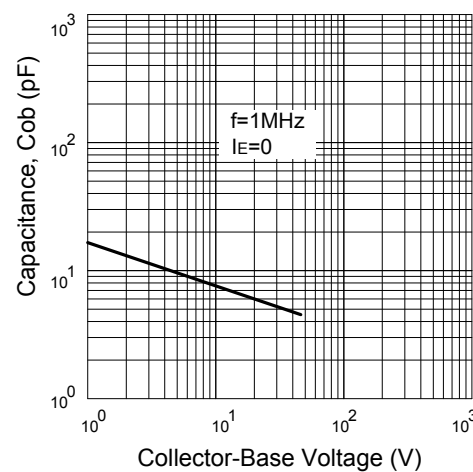
Saturation Voltage



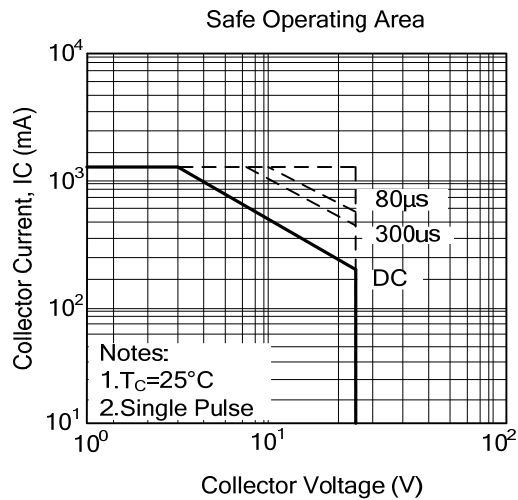
Current Gain-Bandwidth Product



Collector Output Capacitance



■ TYPICAL CHARACTERISTICS(Cont.)



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