



**HE8051**

**NPN SILICON TRANSISTOR**

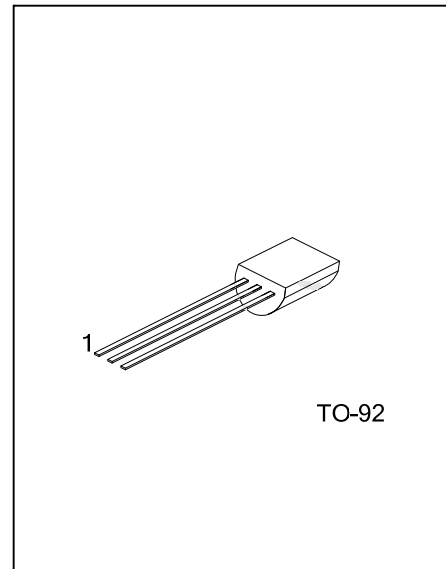
**LOW VOLTAGE HIGH CURRENT  
SMALL SIGNAL NPN  
TRANSISTOR**

■ **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**

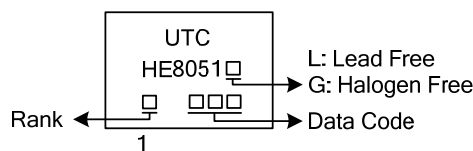


■ **ORDERING INFORMATION**

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
HE8051L-x-T92-B	HE8051G-x-T92-B	TO-92	E	B	C	Tape Box
HE8051L-x-T92-K	HE8051G-x-T92-K	TO-92	E	B	C	Bulk

<p>HE8051L-x-T92-B</p>	<p>(1) B: Tape Box, K: Bulk</p> <p>(2) T92: TO-92</p> <p>(3) x: refer to Classification of <math>h_{FE2}</math></p> <p>(4) L: Lead Free, G: Halogen Free</p>
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■ **MARKING**



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

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 ( $T_A=25^\circ\text{C}$ )	$P_C$	1	W
Collector Current	$I_C$	1.5	A
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +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.

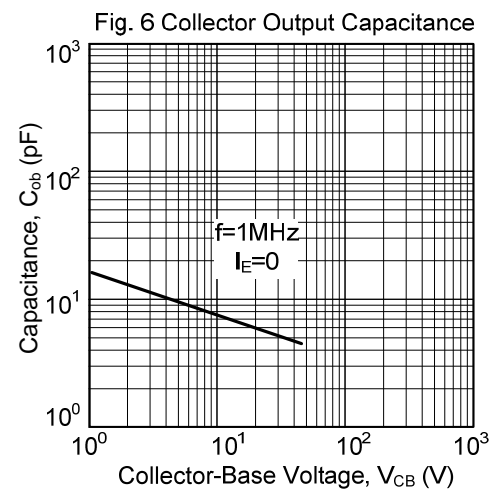
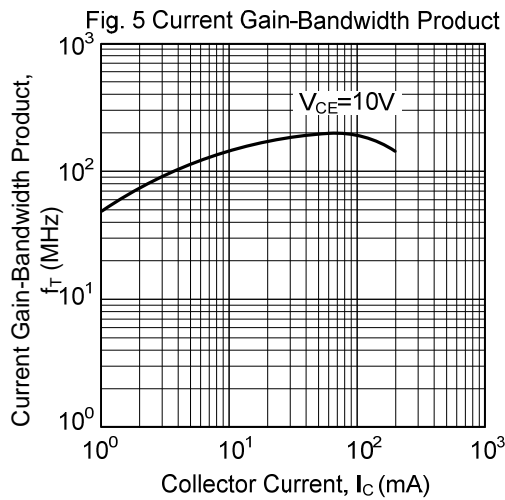
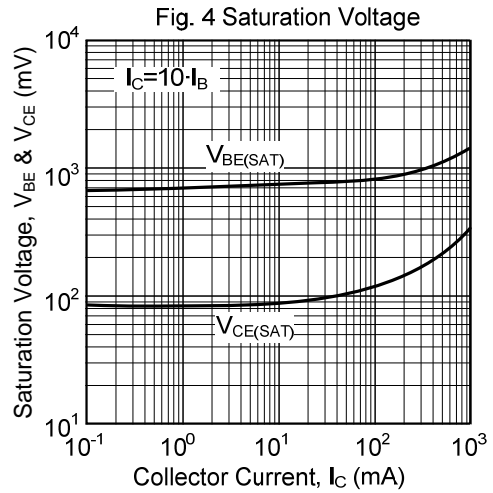
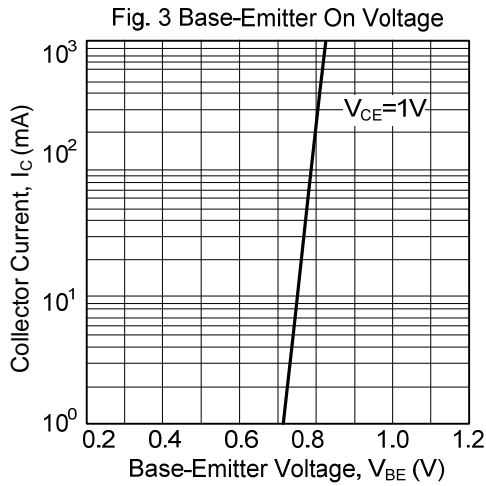
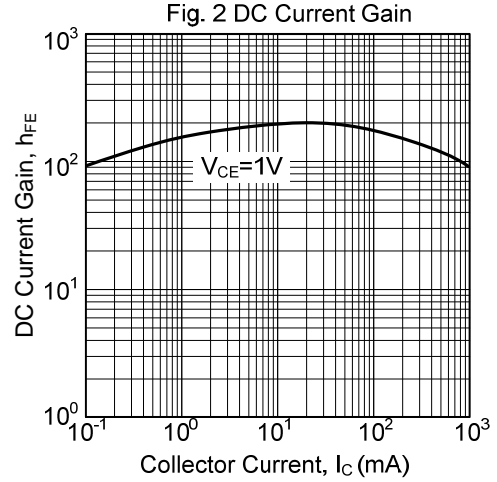
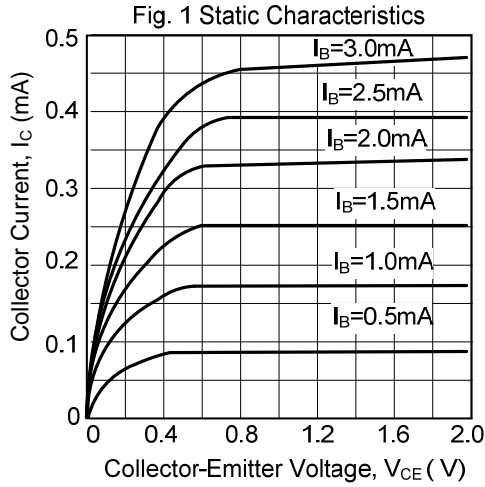
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

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 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



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