

**8050S****NPN SILICON TRANSISTOR****LOW VOLTAGE HIGH
CURRENT SMALL SIGNAL
NPN TRANSISTOR****DESCRIPTION**

The UTC **8050S** is a low voltage high current small signal NPN transistor, designed for Class B push-pull audio amplifier and general purpose applications.

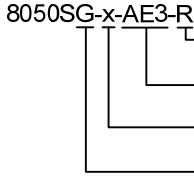
FEATURES

- * Collector current up to 700mA
- * Collector-Emitter voltage up to 20V
- * Complementary to UTC **8550S**

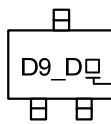
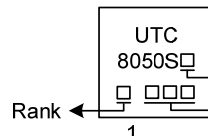
ORDERING INFORMATION

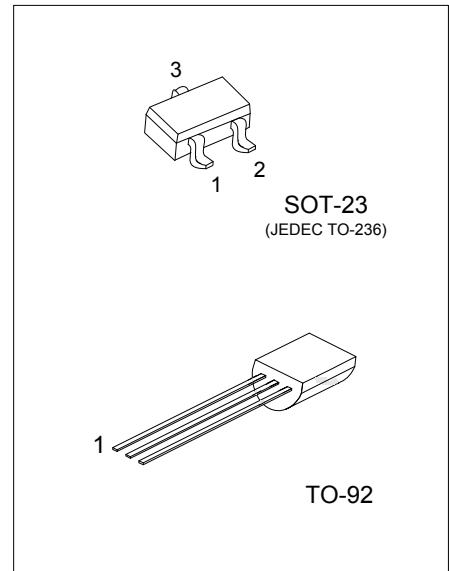
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
8050SL-x-AE3-R	8050SG-x-AE3-R	SOT-23	B	E	C	Tape Reel
8050SL-x-T92-B	8050SG-x-T92-B	TO-92	E	C	B	Tape Box
8050SL-x-T92-K	8050SG-x-T92-K	TO-92	E	C	B	Bulk

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

 8050SG-x-AE3-R (1) Packing Type (2) Package Type (3) Rank (4) Green Package	(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AE3: SOT-23, T92: TO-92 (3) x: refer to Classification of h_{FE2} (4) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-23	TO-92
 L: Lead Free G: Halogen Free	 L: Lead Free G: Halogen Free Date Code



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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	30	V
Collector-Emitter Voltage		V_{CEO}	20	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	700	mA
Collector Dissipation ($T_A=25^{\circ}\text{C}$)	SOT-23	P_C	350	mW
	TO-92		1	W
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.

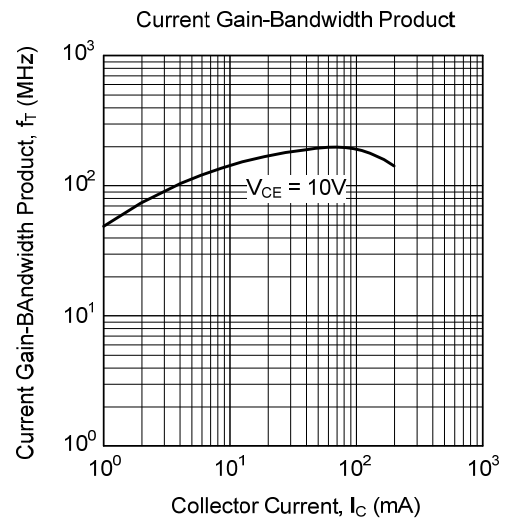
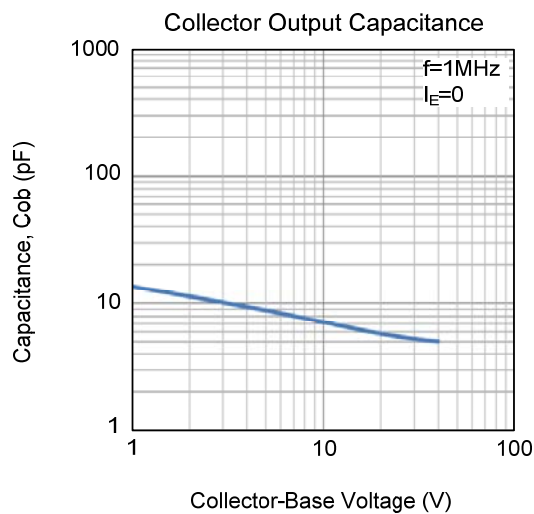
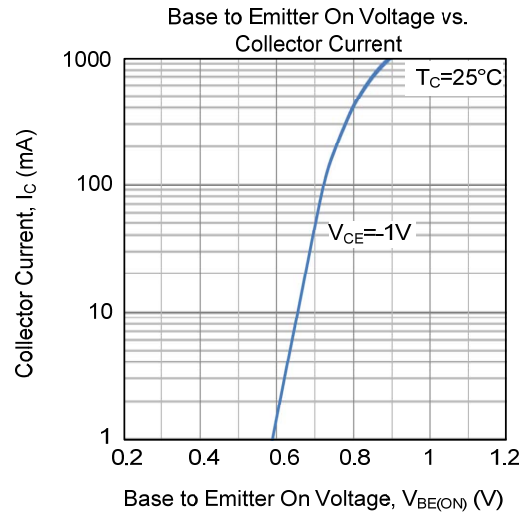
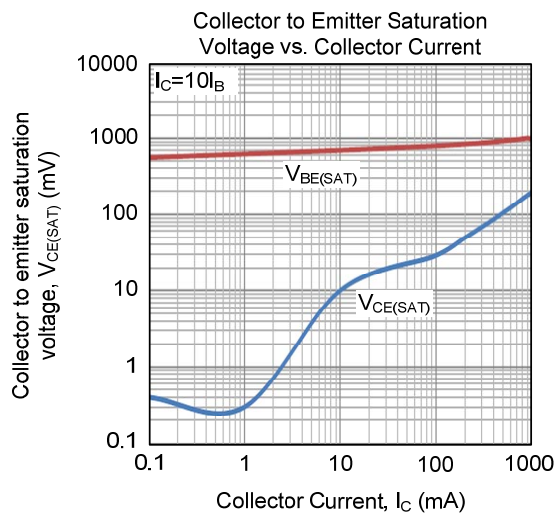
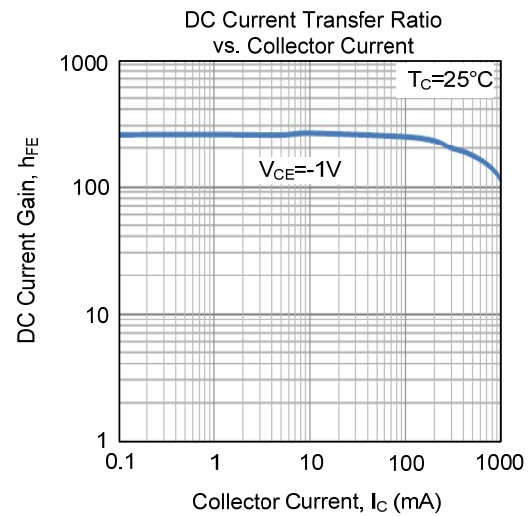
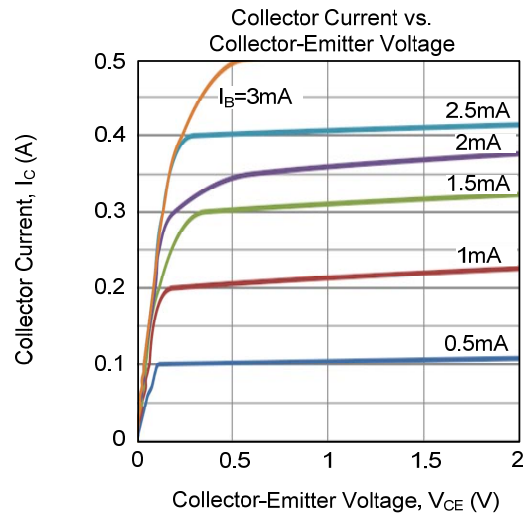
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 100\mu\text{A}, I_E = 0$	30			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1\text{mA}, I_B = 0$	20			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 100\mu\text{A}, I_C = 0$	5			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$			1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			100	nA
DC Current Gain (note)	h_{FE1}	$V_{CE} = 1\text{V}, I_C = 1\text{mA}$	100			
	h_{FE2}	$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	120		400	
	h_{FE3}	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	40			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$			1.2	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$			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	280-400

TYPICAL CHARACTERISTICS



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