

LOW VOLTAGE HIGH CURRENT SMALL SIGNAL NPN TRANSISTOR

■ DESCRIPTION

The MMBT8050 is a low voltage high current small signal NPN transistor, designed for Class B push-pull audio amplifier and general purpose applications.

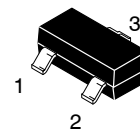
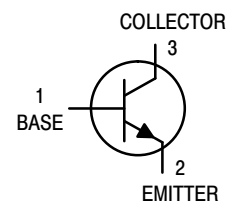
■ FEATURES

- *Collector current up to 1000mA
- *Collector-Emitter voltage up to 25V
- *Complementary to MMBT8550

■ ORDERING INFORMATION

Device	Package	Shipping [†]
MMBT8050	SOT-23 (Pb-Free)	3000 / Tape & Reel

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



SOT-23

■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, 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}	5	V	
Collector Current	I_C	1000	mA	
Collector Dissipation($T_A=25^{\circ}\text{C}$)	SOT-23	P_C	1	W
	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)

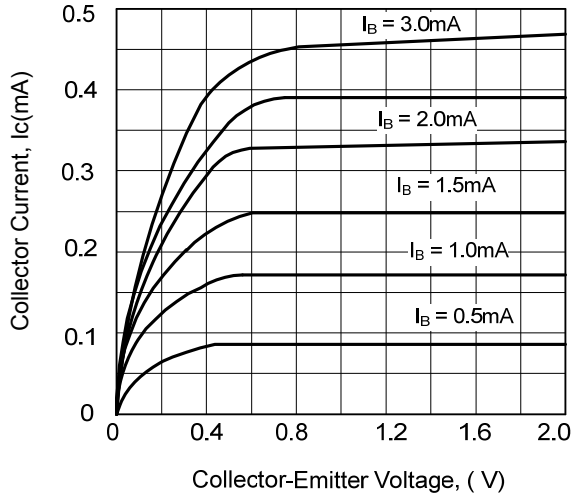
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 100\mu\text{A}, I_E = 0$	40			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1\text{mA}, I_B = 0$	25			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 100\mu\text{A}, I_C = 0$	5			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 35\text{V}, I_E = 0$			100	nA
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		400	
	h_{FE2}	$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	120			
	h_{FE3}	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	40			
Collector-Emitter Saturation Voltage	$V_{CE\text{ SAT}}$	$I_C = 800\text{mA}, I_B = 80\text{mA}$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE\text{ SAT}}$	$I_C = 800\text{mA}, I_B = 80\text{mA}$			1.2	V
Base-Emitter Saturation Voltage	$V_{BE\text{ SAT}}$	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$			1.0	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 6\text{V}, I_C = 20\text{mA}$	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}

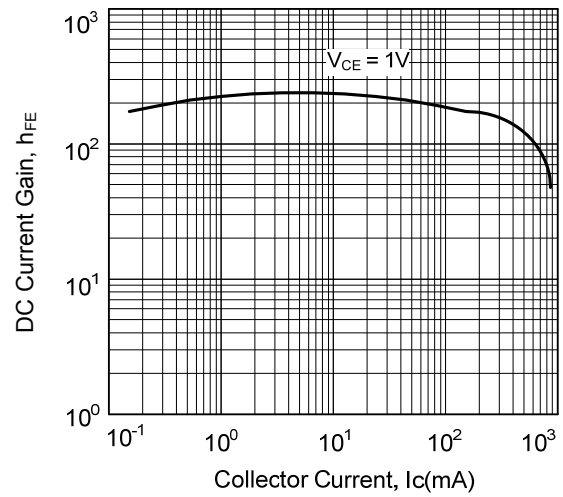
RANK	C	D	E
RANGE	120-200	160-300	280-400

■ TYPICAL CHARACTERISTICS

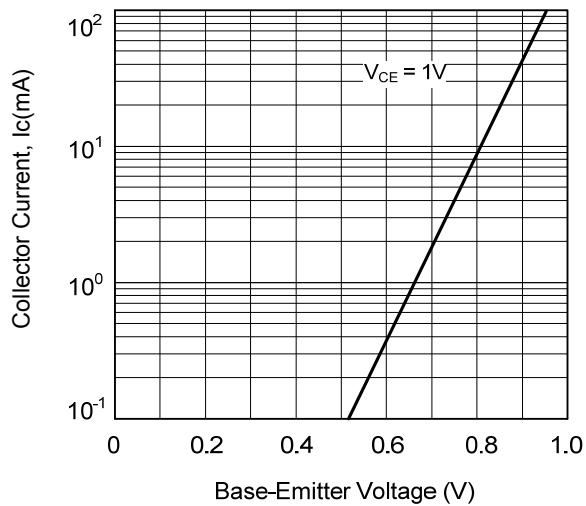
Static Characteristics



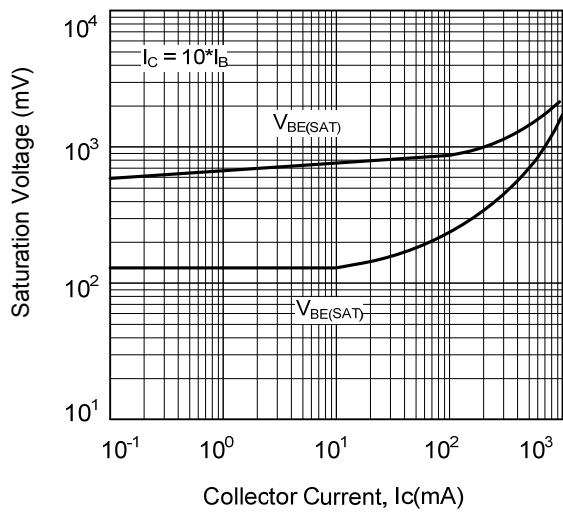
DC Current Gain



Base-Emitter on Voltage

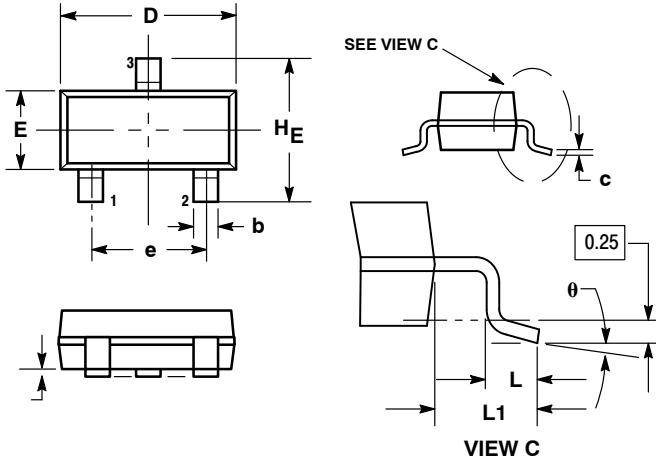


Saturation Voltage



PACKAGE DIMENSIONS

SOT-23



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

- STYLE 6:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR

SOLDERING FOOTPRINT

