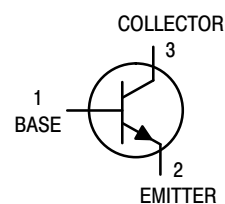


NPN GENERAL PURPOSE AMPLIFIER

FEATURES

*Epitaxial planar die construction

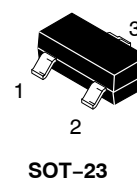
*Complementary PNP Type available(MMBT2907)



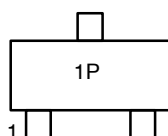
ORDERING INFORMATION

Device	Package	Shipping [†]
MMBT2222	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.



MARKING



1P = Specific Device Code

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CEO}	75	V
Collector-Base Voltage	V_{CBO}	40	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA
Collector dissipation	P_C	350	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

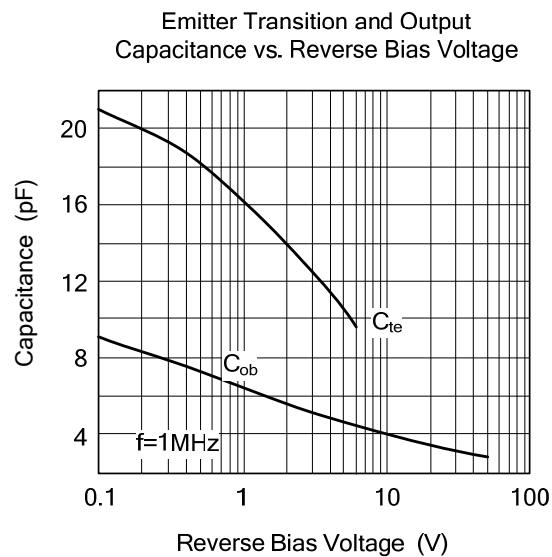
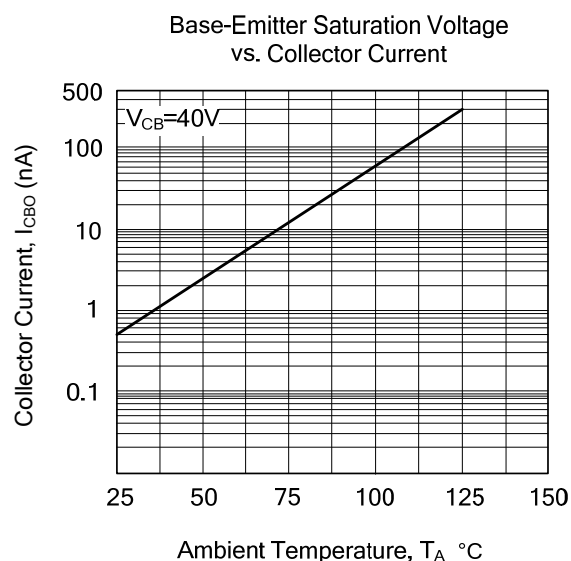
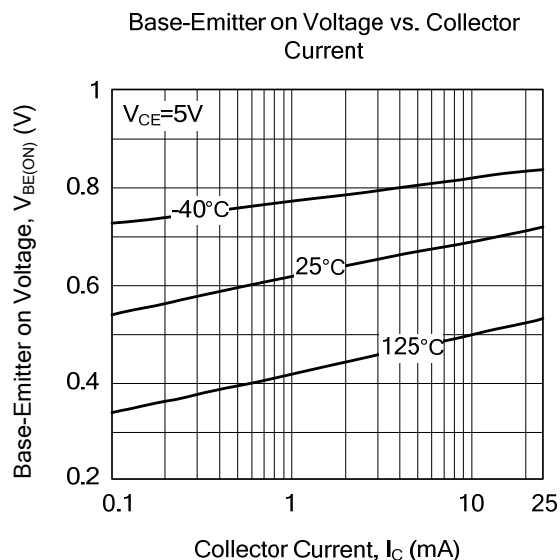
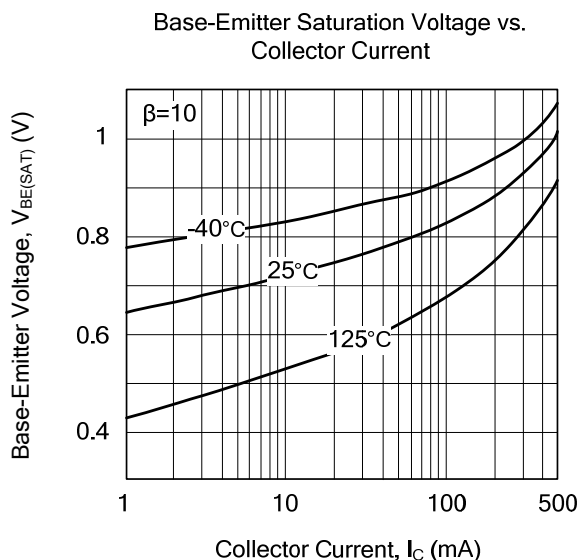
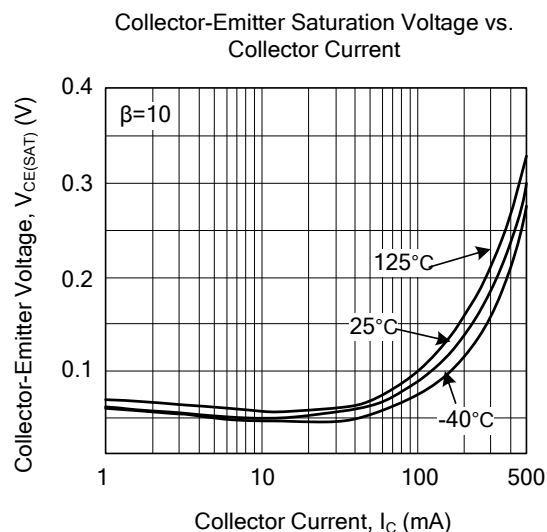
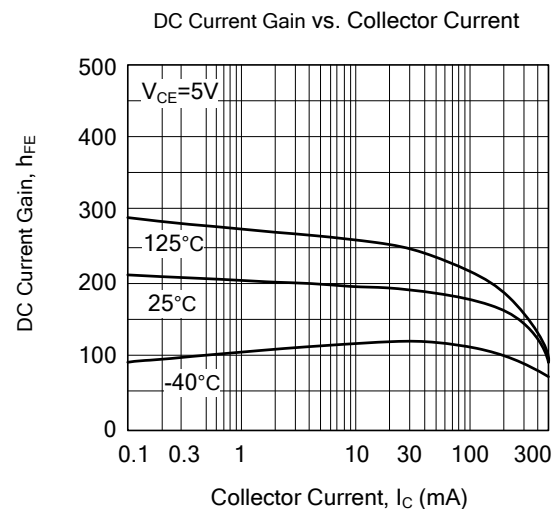
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

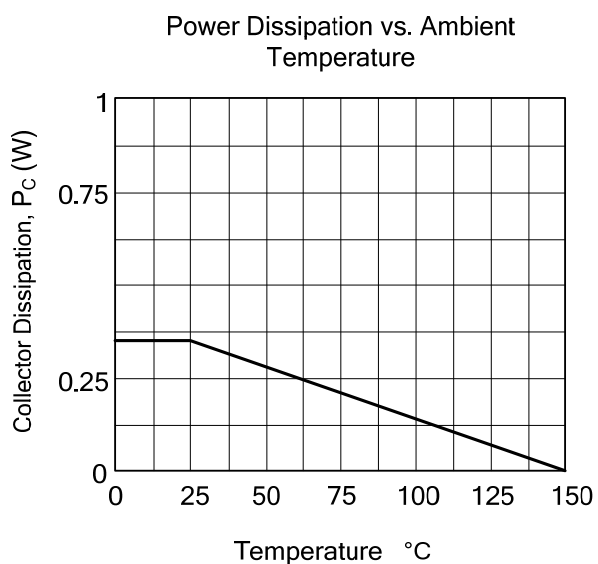
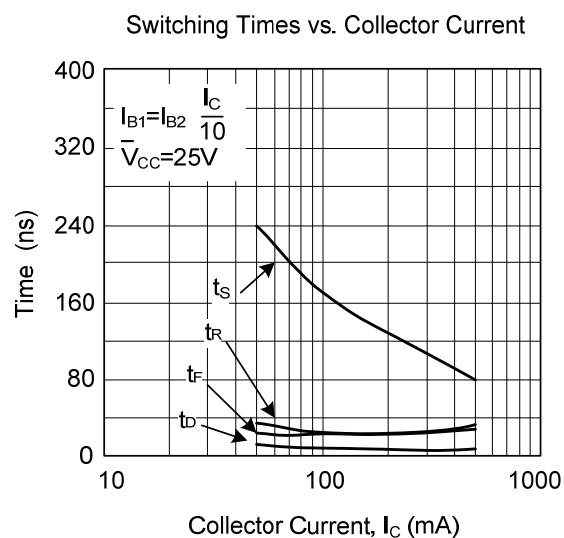
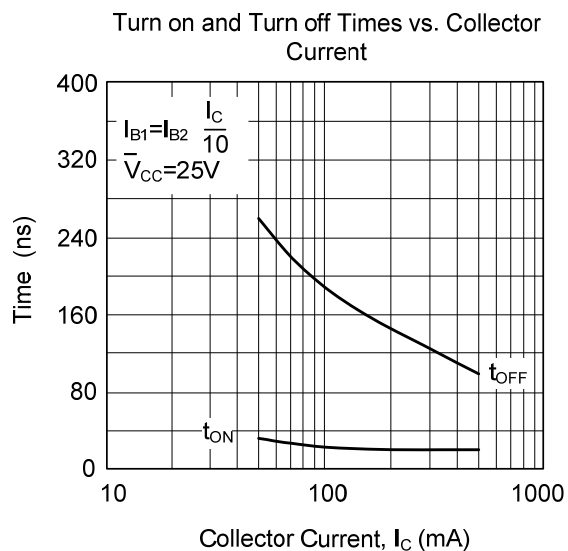
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=10\text{mA}$, $I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=60\text{V}$, $I_E=0$			0.01	μA
Collector cut-off current	I_{CEX}	$V_{CE}=30\text{V}$, $V_{BE(off)}=3\text{V}$			0.01	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=3\text{V}$, $I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=10\text{V}$, $I_C=150\text{mA}$	100		300	
	$h_{FE(2)}$	$V_{CE}=10\text{V}$, $I_C=0.1\text{mA}$	40			
	$h_{FE(3)}^*$	$V_{CE}=10\text{V}$, $I_C=500\text{mA}$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=500\text{mA}$, $I_B=50\text{mA}$ $I_C=150\text{mA}$, $I_B=15\text{mA}$			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=500\text{mA}$, $I_B=50\text{mA}$ $I_C=150\text{mA}$, $I_B=15\text{mA}$			2.0 1.2	V
Transition frequency	f_T	$V_{CE}=20\text{V}$, $I_C=20\text{mA}$, $f=100\text{MHz}$	300			MHz
Delay time	t_d	$V_{CC}=30\text{V}$, $V_{BE(off)}=-0.5\text{V}$			10	ns
Rise time	t_r	$I_C=150\text{mA}$, $I_{B1}=15\text{mA}$			25	ns
Storage time	t_s	$V_{CC}=30\text{V}$, $I_C=150\text{mA}$			225	ns
Fall time	t_f	$I_{B1}=-I_{B2}=15\text{mA}$			60	ns

*pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

TYPICAL CHARACTERISTICS

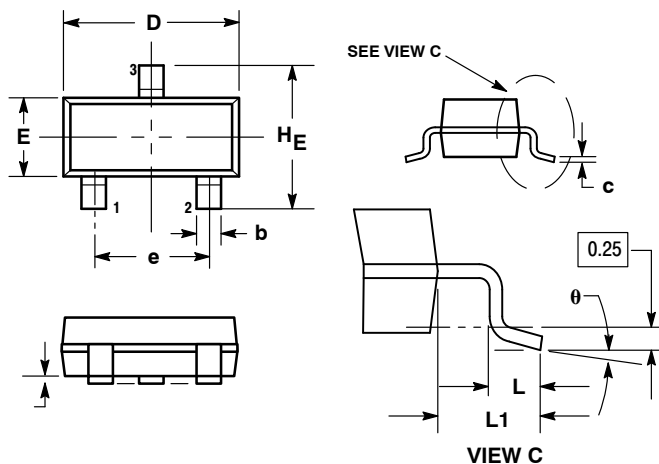


TYPICAL CHARACTERISTICS(Cont.)



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
- EMITTER
- COLLECTOR

SOLDERING FOOTPRINT

