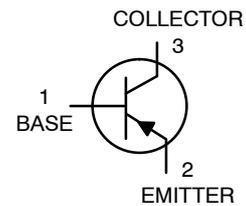


# PNP GENERAL PURPOSE AMPLIFIER

## ■ FEATURES

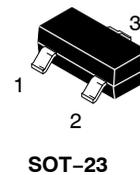
- Epitaxial planar die construction
- Complementary NPN Type available(MMBT2222A)



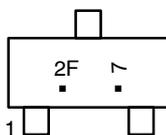
## ■ ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
MMBT2907	SOT-23 (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>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



- 2F = Specific Device Code
- 7 = Date Code\*
- = Pb-Free Package

(Note: Microdot may be in either location)

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

**■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, unless otherwise specified)**

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V <sub>CEO</sub>	-60	V
Collector-Base Voltage	V <sub>CBO</sub>	-60	V
Emitter Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current	I <sub>C</sub>	-600	mA
Collector dissipation	P <sub>C</sub>	250	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +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.

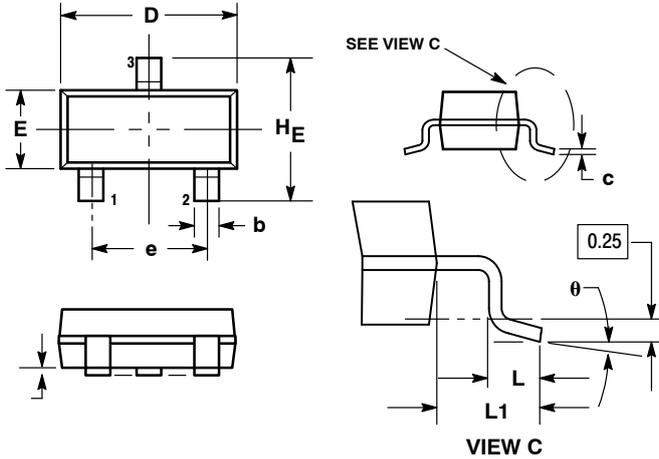
**■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Collector-base breakdown voltage</b>	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-10μA, I <sub>E</sub> =0	-60			V
<b>Collector-emitter breakdown voltage</b>	V <sub>(BR)CEO*</sub>	I <sub>C</sub> =-10mA, I <sub>B</sub> =0	-60			V
<b>Emitter-base breakdown voltage</b>	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0	-5			V
<b>Collector cut-off current</b>	I <sub>CBO</sub>	V <sub>CB</sub> =-50V, I <sub>E</sub> =0			-20	nA
<b>Base cut-off current</b>	I <sub>EBO</sub>	V <sub>CE</sub> =-3V, I <sub>C</sub> =0			-10	nA
<b>Collector cut-off current</b>	I <sub>CEX</sub>	V <sub>CE</sub> =-30 V, V <sub>BE(off)</sub> =-0.5V			-50	nA
<b>DC current gain</b>	h <sub>FE(1)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-150mA	100		300	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-0.1mA	75			
	h <sub>FE(3)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-1mA	100			
	h <sub>FE(4)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA	100			
	h <sub>FE(5)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-500mA	50			
<b>Collector-emitter saturation voltage</b>	V <sub>CE(sat)*</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA			-0.4	V
	V <sub>CE(sat)*</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA			-1.6	V
<b>Base-emitter saturation voltage</b>	V <sub>BE(sat)*</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA			-1.3	V
	V <sub>BE(sat)*</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA			-2.6	V
<b>Transition frequency</b>	f <sub>T</sub>	V <sub>CE</sub> =-20V, I <sub>C</sub> =-50mA, f=100MHz	200			MHz
<b>Delay time</b>	t <sub>d</sub>	V <sub>CE</sub> =-30V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =-15mA			10	ns
<b>Rise time</b>	t <sub>r</sub>				25	ns
<b>Storage time</b>	t <sub>s</sub>	V <sub>CE</sub> =-6V, I <sub>C</sub> =-150mA,			225	ns
<b>Fall time</b>	t <sub>f</sub>	I <sub>B1</sub> =- I <sub>B2</sub> =- 15mA			60	ns

\*Pulse test: t ≤ 300μs, δ ≤ 0.02.

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

