

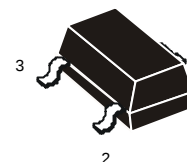
The Small-Signal PNP Silicon Chopper Low-Power Transistor

DESCRIPTION

The MMBT404A is an PNP silicon epitaxial transistor designed for application in TV tuner, frequency converter, oscillator, mixer and amplifier.

It has dynamic range and good current characteristic.

This chopper transistor in 3-Pin surface-mountable plastic package SOT23 offers superior quality and performance at low cost.



1 – Collector
2 – Emitter
3 – Base

FEATURES

- High collector current
 $I_C = -300 \text{ mA}$
- Low saturation voltages
 $V_{CE(sat)} = -0.4 \text{ V}$
 $V_{BE(sat)} = -1.5 \text{ V}$
- High total power dissipation
 $P_T = 200 \text{ mW}$
- Excellent h_{FE} linearity

	SOT23
JEDEC	TO-236
EIAJ	SC-59
GOST	ÉO-46
Weight:	0.01g

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	-35	V
Collector – Base Voltage	V_{CBO}	-40	V
Emitter – Base Voltage	V_{EBO}	-25	V
Collector Current	I_C	-300	mA
Total Dissipation	P_{tot}	200	mW
Junction Temperature	T_{JMAX}	150	°C
Operating Junction Temperature Range	T_{OPR}	-60 to +100	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

ORDERING INFORMATION

Device	Marking	Package	Quantity	Packing Style
MMBT404A	2N	SOT-23	–	In bulk
MMBT404A-T1	2N	SOT-23	3 Kpcs / Reel	Embossed tape 8-mm wide 7" dia. Pin 1 (Collector) face to perforation side of the tape.
MMBT404A-T3	2N	SOT-23	10 Kpcs / Reel	Embossed tape 8-mm wide 13" dia. Pin 1 (Collector) face to perforation side of the tape.

MMBT404A

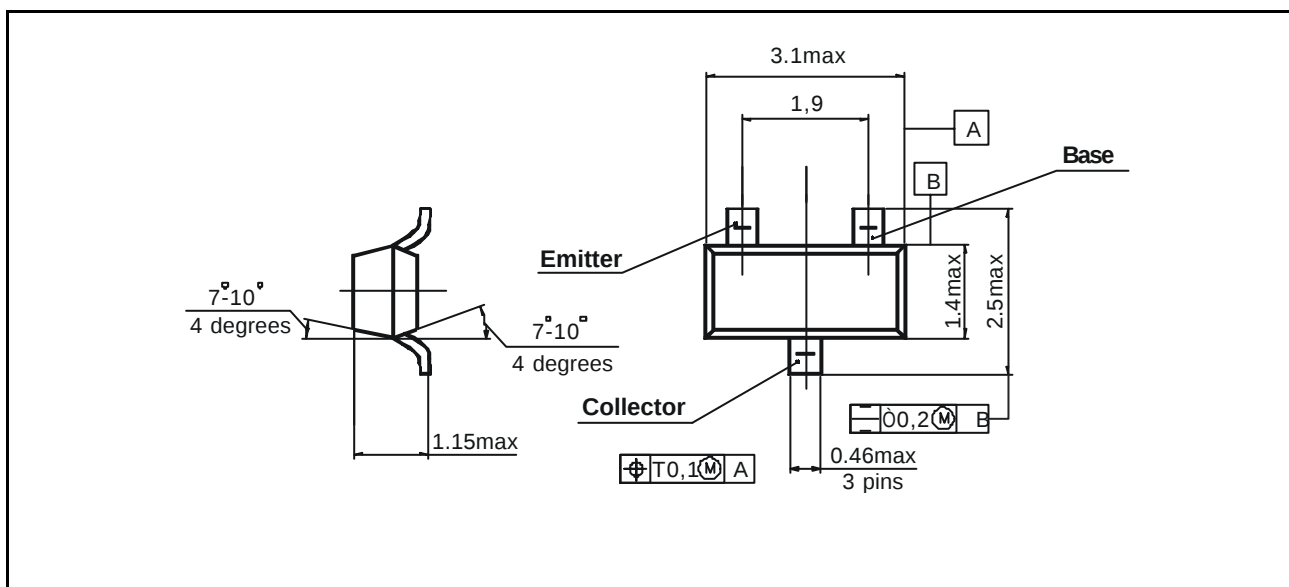
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DC CHARACTERISTICS					
Collector – Base Cutoff Current, $I_E = 0\text{mA}$, $V_{CB} = -10\text{V}$	I_{CBO}	–	–	-100	nA
Emitter – Base Cutoff Current, $I_C = 0\text{mA}$, $V_{EB} = -10\text{V}$	I_{EBO}	–	–	-100	nA
Collector – Base Breakdown Voltage, $I_C = -10\mu\text{A}$, $I_E = 0\text{mA}$	$V_{(BR)CBO}$	-40	–	–	V
Collector – Emitter Breakdown Voltage, $I_C = -10\text{mA}$, $I_B = 0\text{mA}$	$V_{(BR)CEO}$	-35	–	–	V
Emitter – Base Breakdown Voltage, $I_E = -10\mu\text{A}$, $I_C = 0\text{mA}$	$V_{(BR)CEO}$	-25	–	–	V
DC Current Gain, $I_C = -12\text{mA}$, $V_{CE} = -0.15\text{V}$	h_{FE1}	80	–	400	–

AC CHARACTERISTICS

Collector – Emitter Saturation Voltage, $I_C = -300\text{mA}$, $I_B = -30\text{mA}$	$V_{CE(sat)}$	–	–	-0.4	V
Base – Emitter Saturation Voltage, $I_C = -300\text{mA}$, $I_B = -30\text{mA}$	$V_{BE(sat)}$	–	–	-1.5	V
Collector – Base Capacitance, $I_E = 0\text{mA}$, $V_{CB} = -10\text{V}$, $f = 500\text{kHz}$	C_{OB}	–	–	20	pF
Current Gain – Bandwidth Product, $I_C = -10\text{mA}$, $V_{CE} = -5\text{V}$, $f = 500\text{kHz}$	f_T	4	–	–	MHz

PACKAGE DIMENSIONS of MMBT404A in mm



PLASTIC CASE KT-46