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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Small Signal Product

300mW, NPN Small Signal Transistor

FEATURES

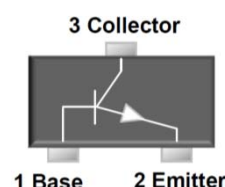
- Epitaxial planar die construction
- Surface device type mounting
- Moisture sensitivity level 1
- Matte Tin (Sn) lead finish with Nickel (Ni) underplate
- Pb free version and RoHS compliant
- Packing code with suffix "G" means green compound (halogen-free)

MECHANICAL DATA

- Case: SOT- 23, molded plastic
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed: 260°C/10s
- Weight: 0.008g (approximately)
- Marking Code: 1AM



SOT-23



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P _D	300	mW
Collector-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	I _C	200	mA
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes:1. Valid provided that electrodes are kept at ambient temperature

PARAMETER	SYMBOL	MIN	MAX	UNIT
Collector-Base Breakdown Voltage I _C = 10 μA I _E = 0	V _{(BR)CBO}	60	-	V
Collector-Emitter Breakdown Voltage I _C = 1 mA I _B = 0	V _{(BR)CEO}	40	-	V
Emitter-Base Breakdown Voltage I _E = 10 μA I _C = 0	V _{(BR)EBO}	6	-	V
Collector Cut-off Current V _{CB} = 60 V I _E = 0	I _{CBO}	-	0.1	μA
Collector Cut-off Current V _{CE} = 30 V V _{BE(OFF)} = 3 V	I _{CEO}	-	50	nA
Emitter Cut-off Current V _{EB} = 5 V I _C = 0	I _{EBO}	-	0.1	μA
DC Current Gain V _{CE} = 1 V I _C = 10 mA V _{CE} = 1 V I _C = 50 mA V _{CE} = 1 V I _C = 100 mA	h _{FE}	100	400	
		60	-	
		30	-	
Collector-Emitter Saturation Voltage I _C = 50 mA I _B = 5 mA	V _{CE(sat)}	-	0.3	V
Base-Emitter Saturation Voltage I _C = 50 mA I _B = 5 mA	V _{BE(sat)}	-	0.95	V
Transition frequency V _{CE} = 20 V I _C = 10 mA f = 100MHz	f _T	250	-	MHz
Delay time V _{CC} = 3 V V _{BE} = 0.5 V I _C = 10 mA	t _d	-	35	ns
Rise time I _{B1} = 1.0 mA	t _r	-	35	ns
Storage time V _{CC} = 3 V I _C = 10 mA	t _s	-	200	ns
Fall time I _{B1} = I _{B2} = 1.0 mA	t _f	-	50	ns

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RATINGS AND CHARACTERISTICS CURVES

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

Fig.1 Typical Pulsed Current Gain
VS. Collector Current

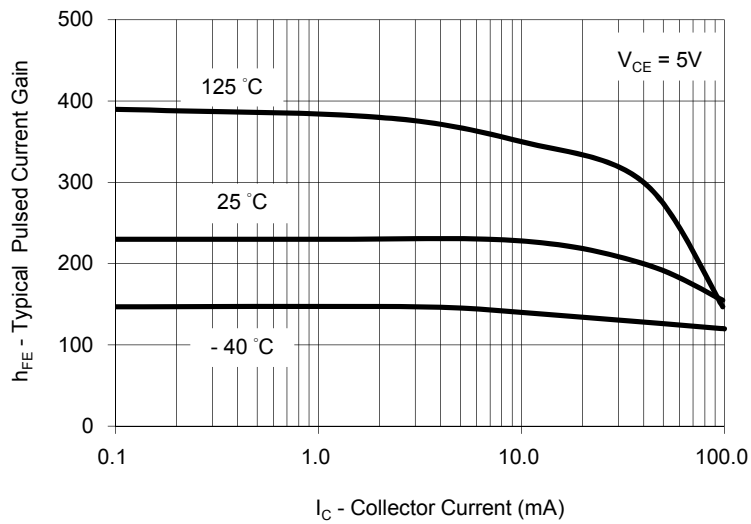


Fig. 2 Collector-Emitter Saturation Voltage
VS. Collector Current

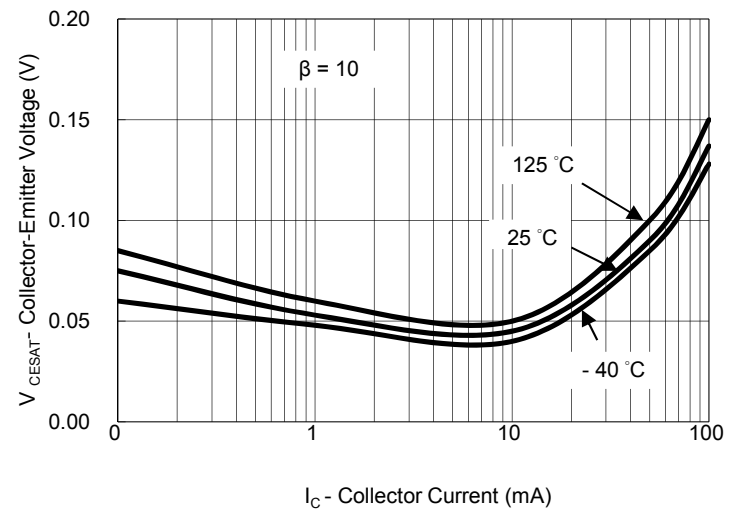


Fig. 3 Base-Emitter Saturation Voltage
VS. Collector Current

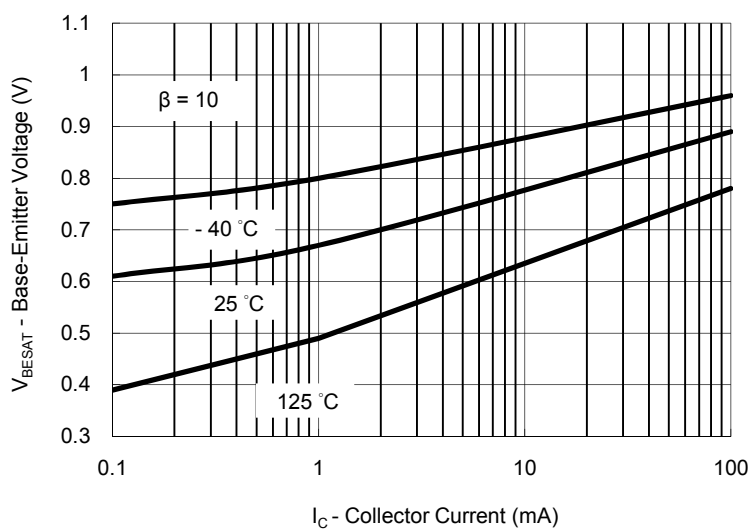


Fig. 4 Base-Emitter On Voltage
VS. Collector Current

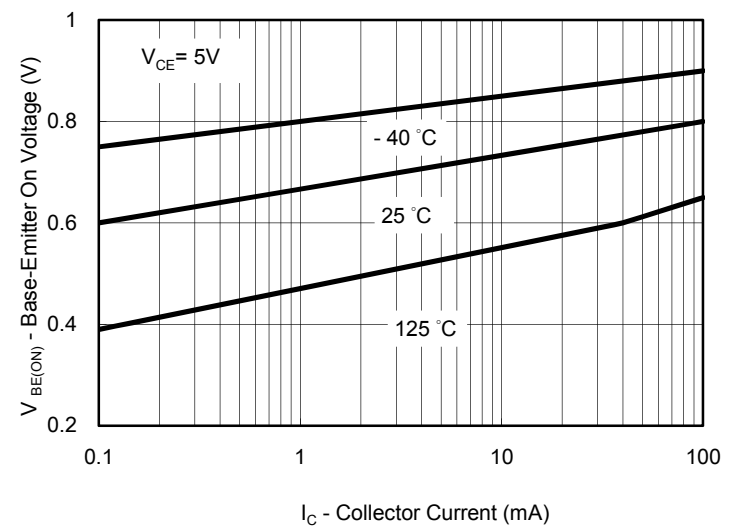


Fig. 5 Collector-Cutoff Current
VS. Ambient Temperature

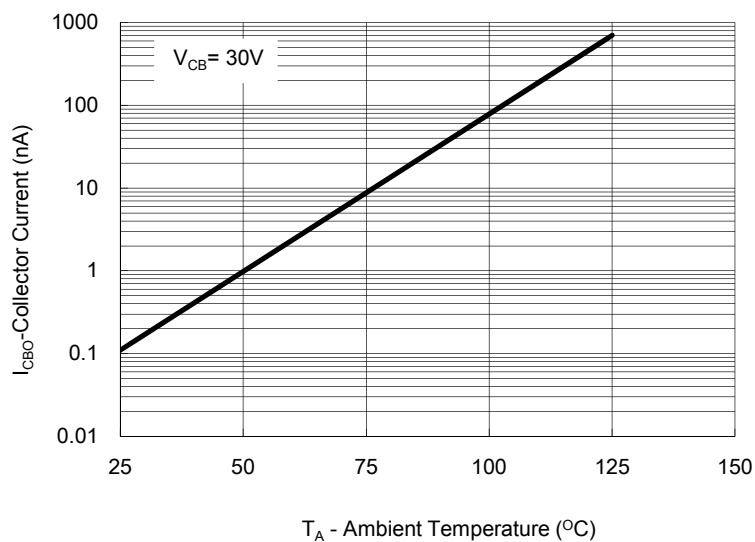
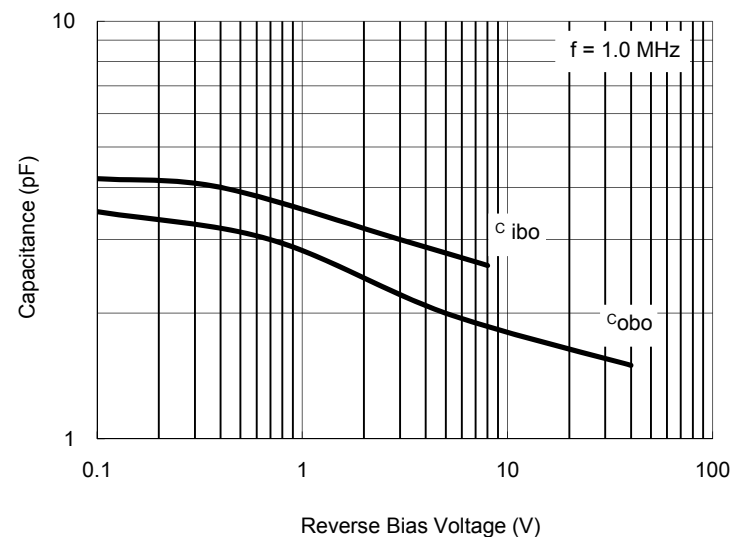


Fig. 6 Capacitance VS.
Reverse Bias Voltage



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ORDERING INFORMATION

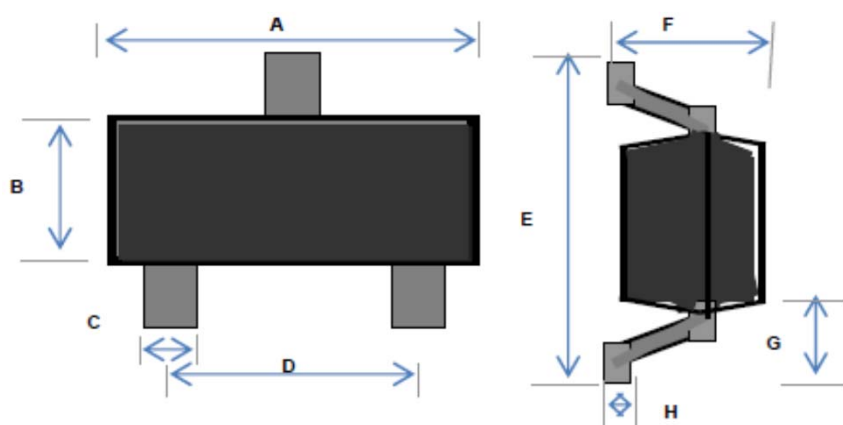
PART NO.	PART NO. SUFFIX (Note 1)	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
MMBT3904	-xx	RF	G	SOT-23	3K / 7" Reel
		R5			10K / 13" Reel

Note 1: Part No. Suffix „-xx “ would be used for special requirement

EXAMPLE

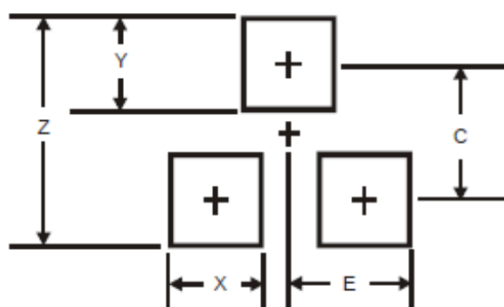
PREFERRED P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
MMBT3904 RF	MMBT3904		RF		Multiple manufacture source
MMBT3904 RFG	MMBT3904		RF	G	Multiple manufacture source Green compound
MMBT3904-D0 RFG	MMBT3904	-D0	RF	G	Defined manufacture source Green compound
MMBT3904-B0 RFG	MMBT3904	-B0	RF	G	Defined manufacture source Green compound

PACKAGE OUTLINE DIMENSIONS



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

SUGGEST PAD LAYOUT



DIM	Unit (mm)	Unit (inch)
	TYP	TYP
Z	2.8	0.11
X	0.7	0.03
Y	0.9	0.04
C	1.9	0.07
E	1.0	0.04

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