

Features

- Complementary to MMBT3904
- Power dissipation of 200mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

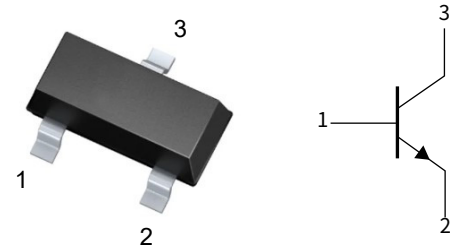


Function Diagram

Collector-Base Voltage
VCBO 60V
Collector Current
0.2 Ampere

Mechanical Data

- Case: SOT-23
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MMBT3904	SOT-23	MMBT3904	3000

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CB0}	V	60
Collector-Emitter Voltage	V _{CE0}		40
Emitter-Base Voltage	V _{EB0}		6.0
Collector Current	I _C	mA	200
Collector Power Dissipation	P _C	mW	200
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _J	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	625

Electrical Characteristics (T_a=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Max
Collector-Base Breakdown Voltage	V _{(BR)CBO}	V	I _C =10μA, I _E =0	60	—
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}		I _C =1.0mA, I _B =0	40	—
Emitter-Base Breakdown Voltage	V _{(BR)EBO}		I _E =10μA, I _C =0	6.0	—
Collector-Base cut-off current	I _{CBO}	nA	V _{CB} =60V, I _E =0	—	100
Collector cut-off current	I _{CEX}		V _{CE} =30V, V _{BE(off)} =3.0V	—	50
Emitter-Base cut-off current	I _{EBO}		V _{EB} =5.0V, I _C =0	—	100
DC Current Gain	h _{FE}	—	I _C =10mA, V _{CE} =1.0V	100	300
			I _C =50mA, V _{CE} =1.0V	60	—
			I _C =100mA, V _{CE} =1.0V	30	—
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V	I _C =50mA, I _B =5.0mA	—	0.3
Base-Emitter Saturation Voltage	V _{BE(sat)}		I _C =50mA, I _B =5.0mA	—	0.95
Delay time	t _d	ns	V _{CC} =3.0V, V _{BE(off)} =0.5V	—	35
Rise time	t _r		I _C =10mA, I _{B1} =1.0mA	—	35
Storage time	t _s		V _{CC} =3.0V, I _C =10mA	—	200
Fall time	t _f		I _{B1} =I _{B2} =1.0mA	—	50

Classification Of h_{FE}

RANK	L	H
Range	100-200	200-300

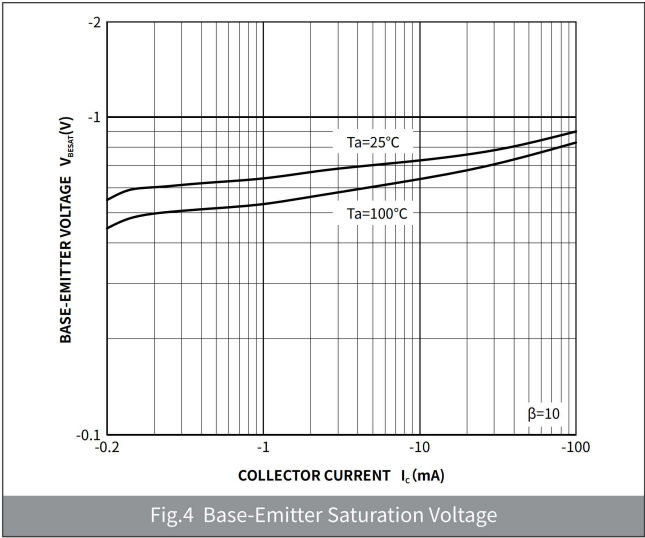
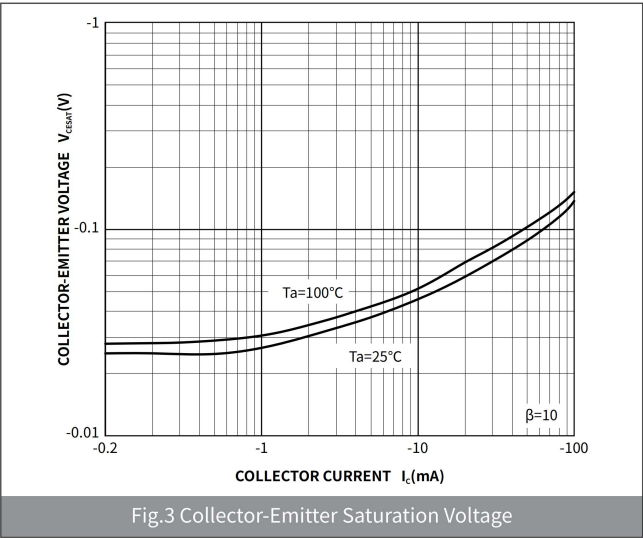
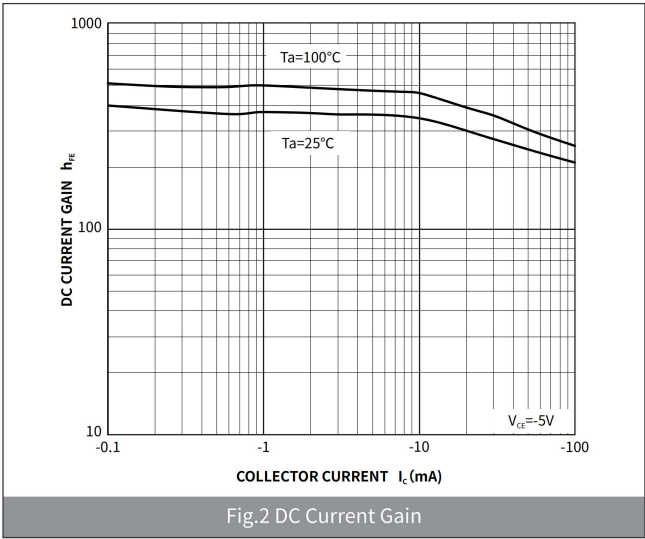
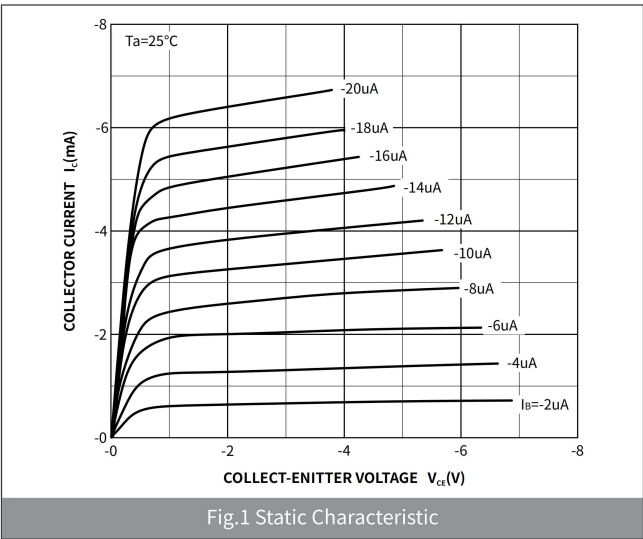
Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Max
Transition frequency	f_T	$I_C = 10\text{mA}$, $V_{CE} = 20\text{V}$, $f = 100\text{MHz}$	MHz	300	—

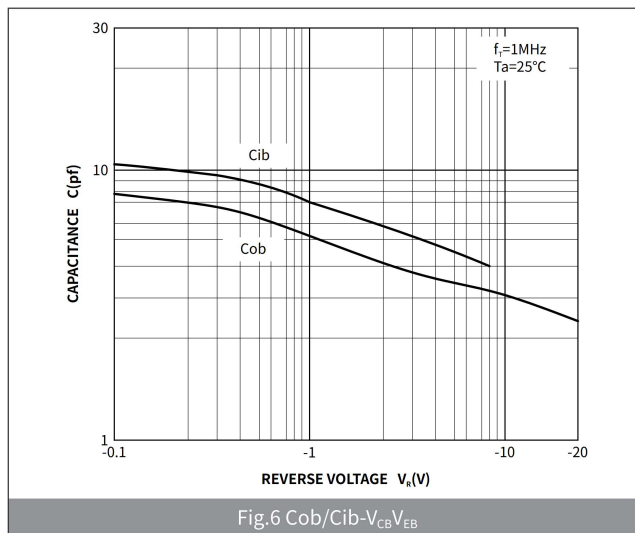
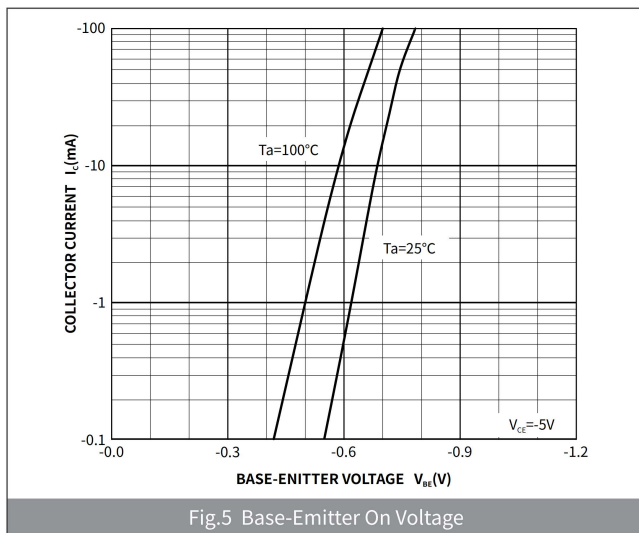
Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	120000	7"

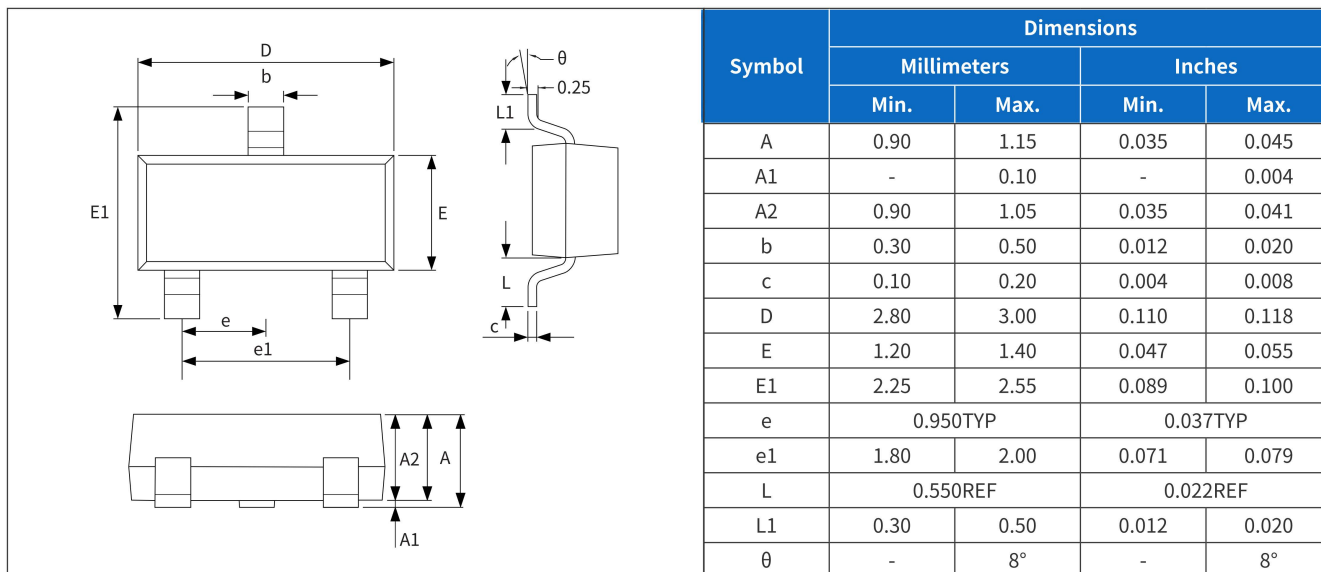
Ratings And Characteristics Curves ($T_a = 25^\circ\text{C}$ Unless otherwise specified)



Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



Package Outline Dimensions (SOT-23)



Suggested Pad Layout

