

**DESCRIPTION**

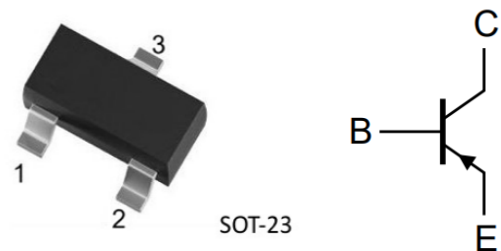
The MMBT3906L is available in SOT-23 package.

FEATURE

- Complementary to MMBT3904L
- RoHS compliance

ORDERING INFORMATION

Package Type	Part Number
SOT-23	MMBT3906L
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION

PIN#	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$, unless otherwise noted.

V_{CEO} , Collector–Emitter Voltage	-40V
V_{CBO} , Collector–Base Voltage	-40V
V_{EBO} , Emitter–Base Voltage	-5V
I_C , Collector Current — Continuous	-200mA
P_C , Collector Power Dissipation	200mW
T_J , Junction Temperature Range	150°C
T_{STG} , Storage Temperature Range	-55°C ~ +150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**ELECTRICAL CHARACTERISTICS**T_A = 25°C, unless otherwise noted.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage	V _{CEO}	I _C = -1 mA, I _B =0	-40	-	-	V
Collector–Base Breakdown Voltage	V _{CBO}	I _C =-100 μA, I _E =0	-40	-	-	V
Emitter–Base Breakdown Voltage	V _{EBO}	I _E = -100 μA, I _C = 0	-6	-	-	V
Collector Cutoff Current	I _{CBO}	V _{CB} = -40V, I _E =0	-	-	-100	nA
Collector- emitter Cutoff Current	I _{CEX}	V _{CE} =- 30 V, V _{EB (off)} =3V			-50	
Emitter Cutoff Current	I _{EBO}	VEB= -5V, IC=0			-100	
DC Current Gain	h _{FE}	I _C =-10mA, V _{CE} =-1.0V	100	-	300	
DC Current Gain		I _C =-50mA, V _{CE} =-1.0V	60			
		I _C =-100mA,V _{CE} =-1.0V	30			
Collector–Emitter Saturation Voltage	V _{CE(sat)}	I _C = -10mA, I _B = -1mA	-	-	-0.2	V
		I _C = -50mA, I _B = -5mA	-	-	-0.3	
Base–Emitter Saturation Voltage	V _{BE(sat)}	I _C = -10mA, I _B = -1mA	-0.65	-	-8.5	V
		I _C = -50mA, I _B = -5mA	-	-	-0.95	
Delay time	t _d	V _{CC} =-3.0V, V _{BE} =0.5V			35	ns
Rise time	t _r	I _C =-10mA, I _{B1} =-1.0mA			35	
Storage time	t _s	V _{CC} =-3.0V, I _C =-10mA			225	
Fall time	t _f	I _{B1} =I _{B2} =-1.0mA			75	
Transition Frequency	f _T	V _{CE} =-20V, I _C =-10mA, f=100MHz	250	-	-	MHz
Collector Output Capacitance	C _{ob}	V _{CB} =-5V, f=1MHz	-	-	4.5	pF
Collector Input Capacitance	C _{ib}	V _{EB} =-0.5V, I _E =0,f=1MHz			10	



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Static Characteristics

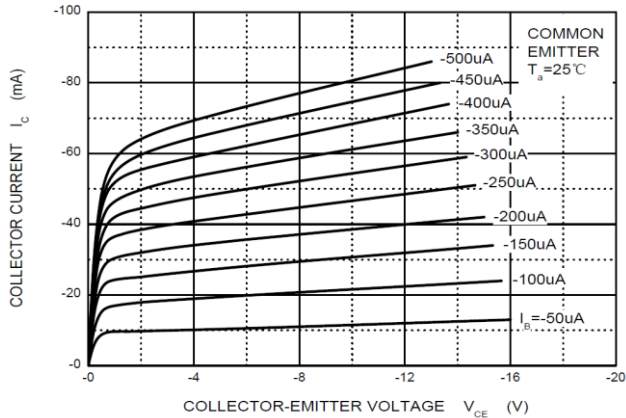


Fig 2. $h_{FE} - I_C$

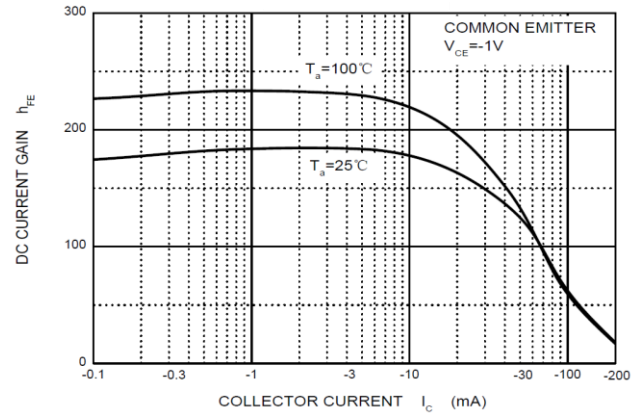


Fig 3. $V_{CE(sat)} - I_C$

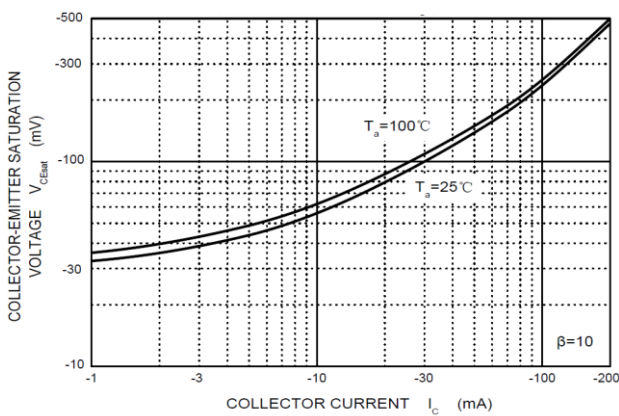


Fig 4. $V_{BE(sat)} - I_C$

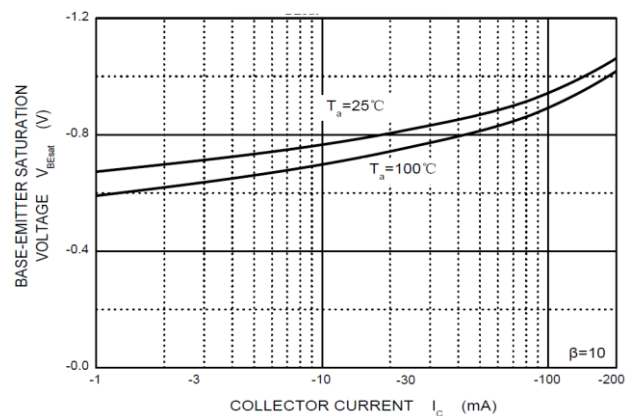


Fig 5. $I_{CE(sat)} - V_{BE}$

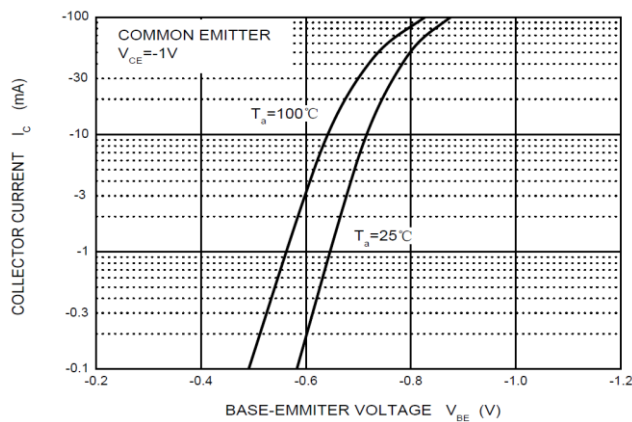


Fig 6. $C_{ob} / C_{ib} - V_{CB} / V_{EB}$

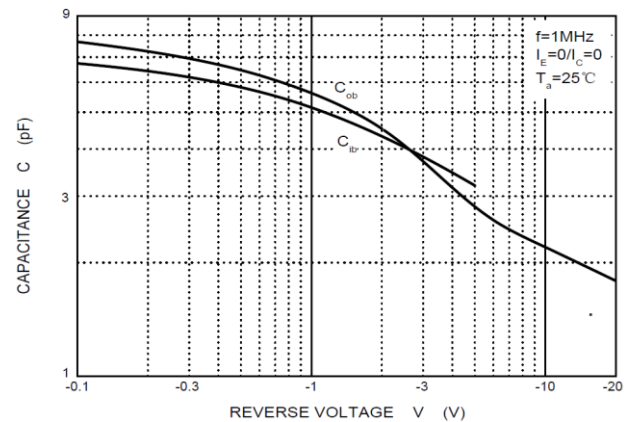




Fig 7. f_T - I_C

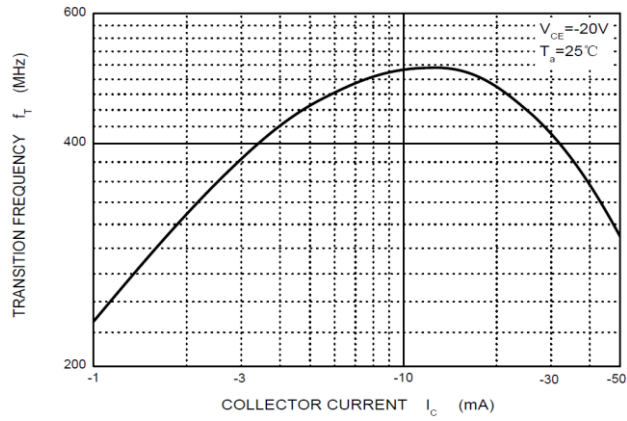
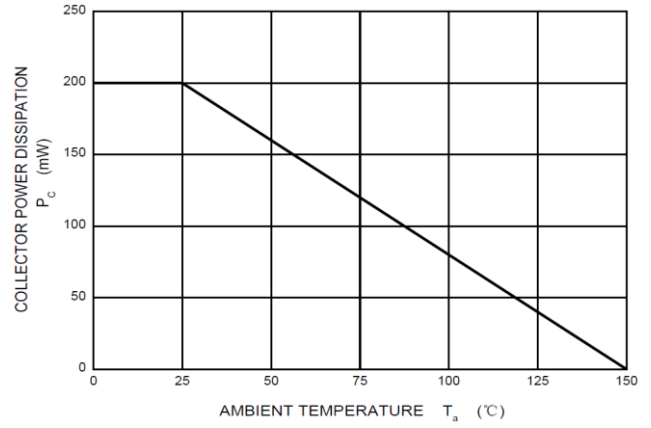


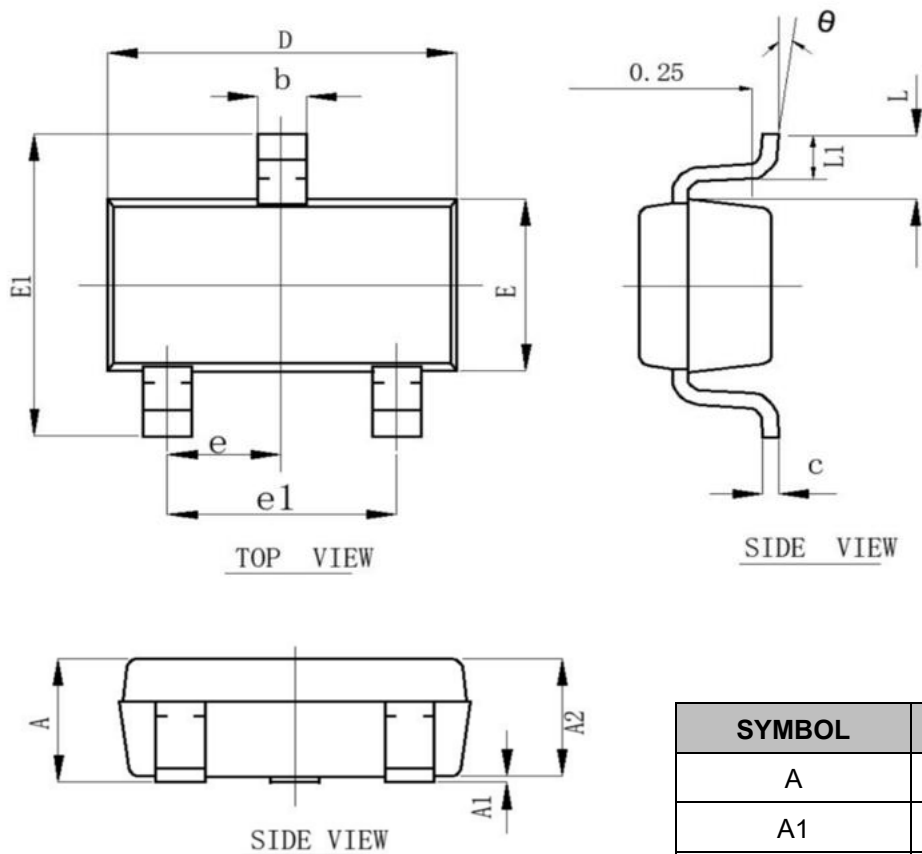
Fig 8. P_C - T_a





PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



SYMBOL	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.00
E	1.200	1.400
E1	2.250	2.550
L	0.550 REF	
θ	0°	8°
L1	0.300	0.500
e	0.950 TYP.	
e1	1.800	2.000



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