MMBT3906T

PNP TRANSISTORS

宏嘉诚科技 www.ichjc.com

SOT-523 Plastic-Encapsulate Transistors

Features

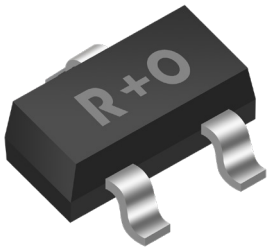
- Epitaxial Planar Die Construction
- Complementary NPN Type Available
- Also Available in Lead Free Version

Collector-Emitter Voltage
VCEO -40V
Collector Current
-0.2 Ampere

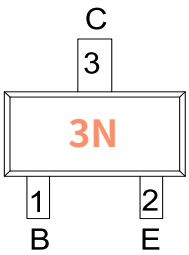
Mechanical Data

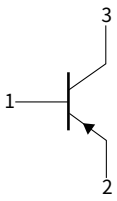
- Case: SOT-523
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-523



Function Diagram





Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-523	R1	0.0025	3000	15000	150000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	-40
Collector-Emitter Voltage	V_{CEO}		-40
Emitter-Base Voltage	V_{EBO}		-5
Collector Current	I_C	A	-0.2
Collector Power Dissipation	P_C	mW	150
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	°C /W	833

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Type	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	I_C=-10μA, I_E=0	-40	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		I_C=-1mA, I_B=0	-40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		I_E=-10μA, I_C=0	-5	—	—
Collector-Base cut-off current	I_{CBO}		V_{CE}=-30V,I_E=0	—	—	-0.1
Emitter-Base cut-off current	I_{EBO}		V_{EB}=-5.0V, I_C=0	—	—	-0.05
DC Current Gain	$h_{FE(1)}$	—	I_C=-0.1mA,V_{CE}=-1.0V	60	—	—
	$h_{FE(2)}$		I_C=-1mA,V_{CE}=-1.0V	80	—	—
	$h_{FE(3)}$		I_C=-10mA,V_{CE}=-1.0V	100	—	300
	$h_{FE(4)}$		I_C=-50mA,V_{CE}=-1.0V	60	—	—
	$h_{FE(5)}$		I_C=-100mA,V_{CE}=-1.0V	30	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	I_C=-10mA,I_B=-1mA	—	—	-0.25
			I_C=-50mA,I_B=-5mA	—	—	-0.4
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		I_C=-10mA,I_B=-1mA	-0.65	—	-0.85
			I_C=-50mA, I_B=-5mA	—	—	-0.95
Collector output capacitance	C_{ob}	pF	V_{CB}=-5.0V, I_E=0,f=1MHz	—	—	4.5
Base input capacitance	C_{ib}	pF	V_{EB}=-0.5V, I_C=0,f=1MHz	—	—	10
Noise figure	NF	dB	V_{CE}=-5.0V,I_C=-0.1mA	—	—	4
Delay time	t_d	ns	V_{CC}=-3.0V,$V_{BE(off)}$=-0.5V, I_C=-10mA,I_{B1}=-1mA	—	—	35
Rise time	t_r	ns	V_{CC}=-3.0V,$V_{BE(off)}$=-0.5V, I_C=-10mA,I_{B1}=-1mA	—	—	35
Storage time	t_s	ns	V_{CC}=-3.0V,I_C=-10mA,I_{B1}=I_{B2}=-1mA	—	—	225
Fall time	t_f	ns	V_{CC}=-3.0V,I_C=-10mA,I_{B1}=I_{B2}=-1mA	—	—	75

Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	I_C=-10mA, V_{CE}=-20V，f=100MHz	MHz	250	—	—

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

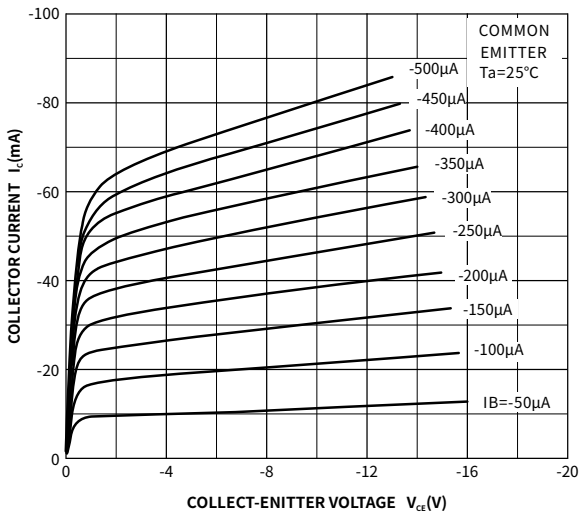


Fig.1 Static Characteristic

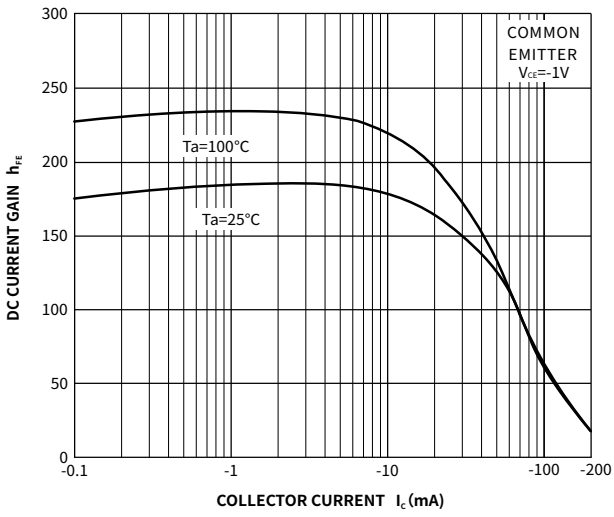


Fig.2 DC Current Gain

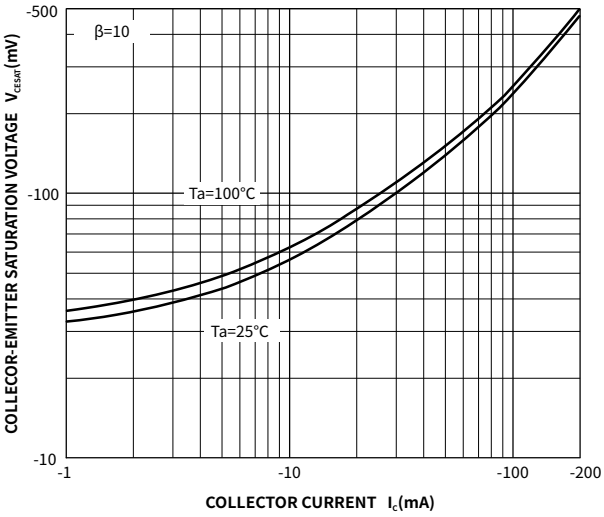


Fig.3 Collector-Emitter Saturation Voltage

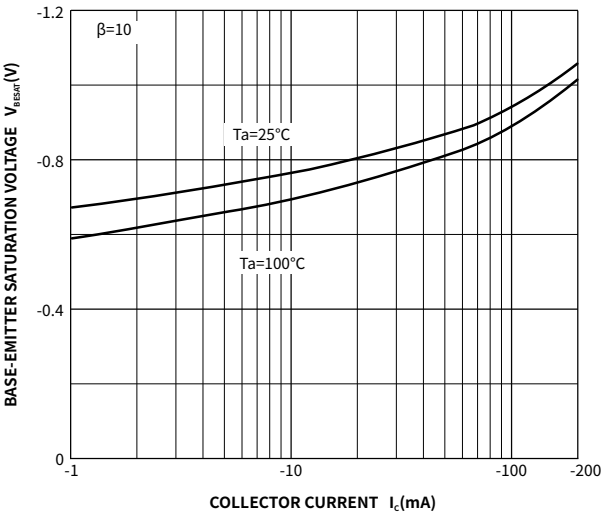


Fig.4 Base-Emitter Saturation Voltage

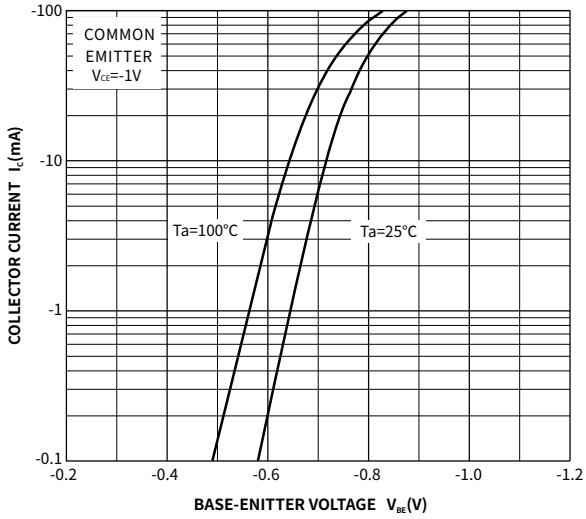


Fig.5 Base-Emitter On Voltage

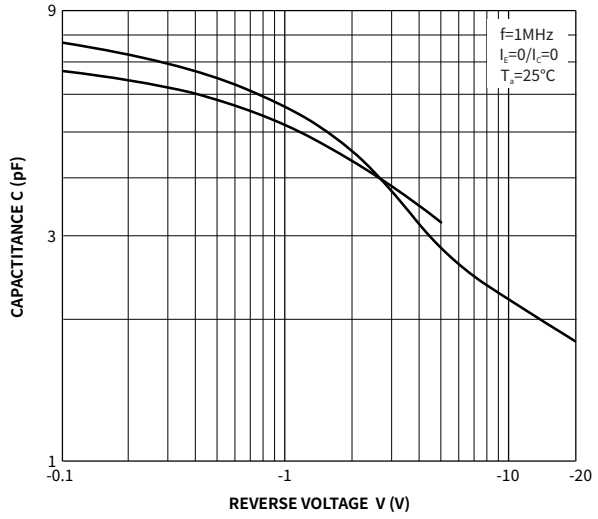
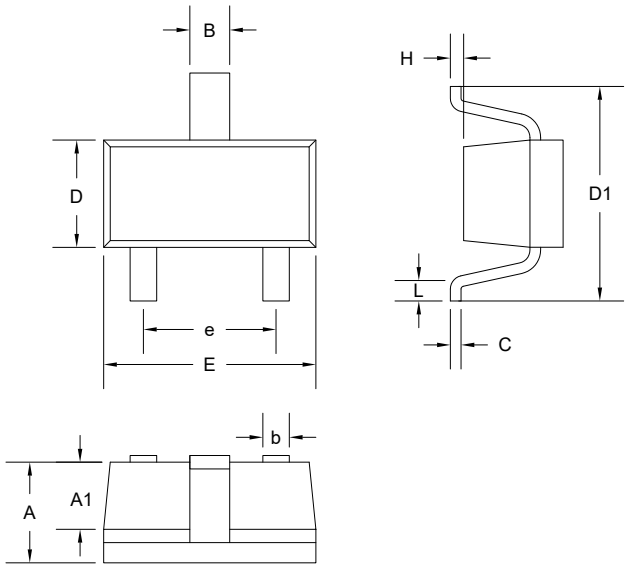


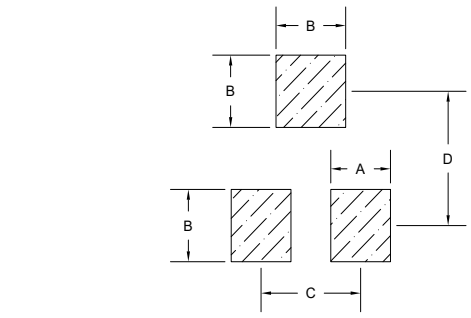
Fig.6 Cob/Cib-$V_{CB}V_{EB}$

Package Outline Dimensions (SOT-523)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.85	0.026	0.033
A1	0.40	0.60	0.016	0.024
B	0.25	0.35	0.010	0.014
b	0.15	0.25	0.006	0.010
C	0.05	0.15	0.002	0.006
D	0.70	0.90	0.028	0.035
D1	1.50	1.70	0.059	0.067
E	1.5	1.7	0.059	0.067
e	0.95	1.05	0.037	0.041
H	-	0.10	-	0.004
L	0.17	-	0.007	-

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.70	0.020	0.028
B	0.60	0.80	0.024	0.031
C	0.90	1.10	0.035	0.043
D	1.20	1.40	0.047	0.055