MMBT2907A

PNP TRANSISTORS

宏嘉诚科技 www.ichjc.com

SOT-23 Plastic-Encapsulate Transistors

Features

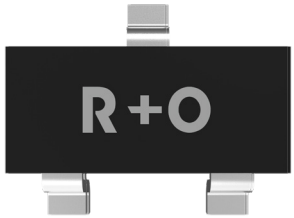
- Complementary to MMBT2222A
- Power dissipation of 250mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Collector-Base Voltage
VCBO -60V
Collector Current
-0.6 Ampere

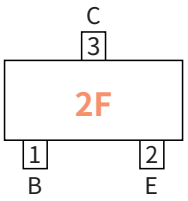
Mechanical Data

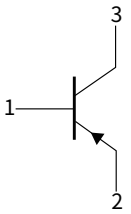
- Case: SOT-23
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-23



Function Diagram





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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	-60
Collector-Emitter Voltage	V_{CEO}		-60
Emitter-Base Voltage	V_{EBO}		-5.0
Collector Current	I_C	A	-0.6
Collector Power Dissipation	P_C	mW	250
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	417

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= -50mA, V_{CE}= -20V,f=100MHz	MHz	200	—

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''

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Max
Collector-Base Breakdown Voltage	V_{CBO}	V	I_C=-10μA, I_E=0	-60	—
Collector-Emitter Breakdown Voltage	V_{CEO}		I_C=-10mA I_B=0	-60	—
Emitter-Base Breakdown Voltage	V_{EBO}		I_E=-10μA, I_C=0	-5.0	—
Collector-Base cut-off current	I_{CBO}	nA	V_{CB}=-50V, I_E =0	—	-20
Collector cut-off current	I_{CEX}		V_{CE}=-30V, $V_{BE(off)}$=-0.5V	—	-50
Emitter-Base cut-off current	I_{EBO}		V_{EB}=-3.0V, I_C =0	—	-10
DC Current Gain	h_{FE}	—	I_C=-150mA, V_{CE}=-10V	100	300
			I_C=-0.1mA, V_{CE}=-10V	75	—
			I_C=-1.0mA, V_{CE}=-10V	100	—
			I_C=-10mA, V_{CE}=-10V,	100	—
			I_C=-500mA, V_{CE}=-10V,	50	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	V	I_C=-150mA, I_B=-15mA	—	-0.4
Collector-Emitter Saturation Voltage	$V_{CE(sat)2}$		I_C=-500mA, I_B=-50mA	—	-1.6
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$		I_C=-150mA, I_B=-15mA	—	-1.3
Base-Emitter Saturation Voltage	$V_{BE(sat)2}$		I_C=-500mA, I_B=-50mA	—	-2.6
Delay time	t_d	ns	V_{CC}=-30V, I_C=-150mA,I_{B1}=-15mA	—	10
Rise time	t_r			—	25
Storage time	t_s		V_{CC}=-6.0V, I_C=-150mA I_{B1}=I_{B2}=-15mA	—	225
Fall time	t_f			—	60

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

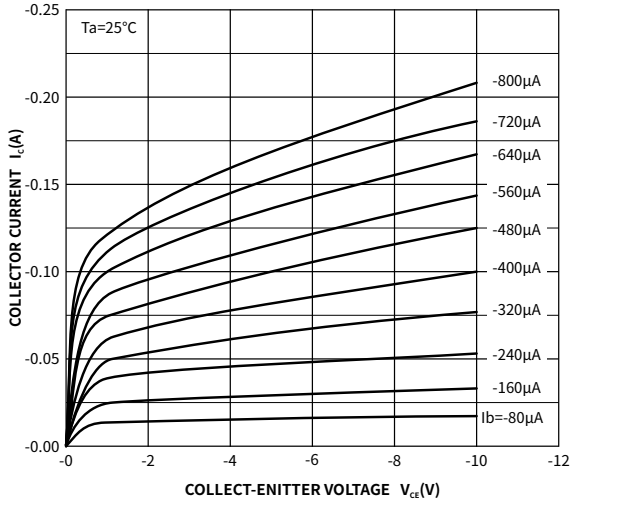


Fig.1 Static Characteristic

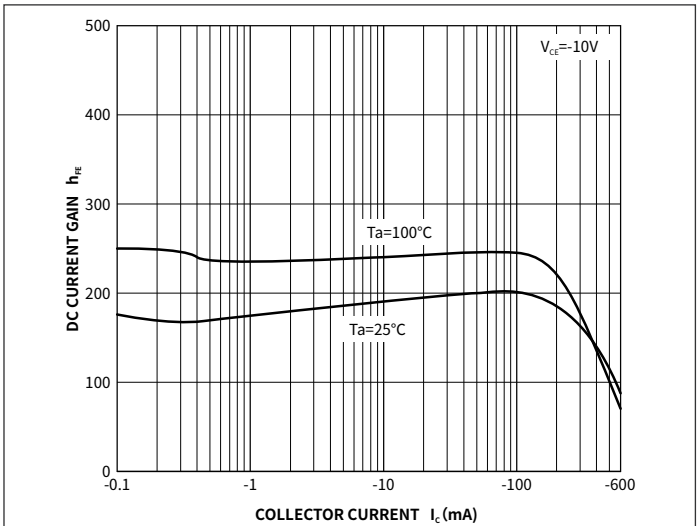


Fig.2 DC Current Gain

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

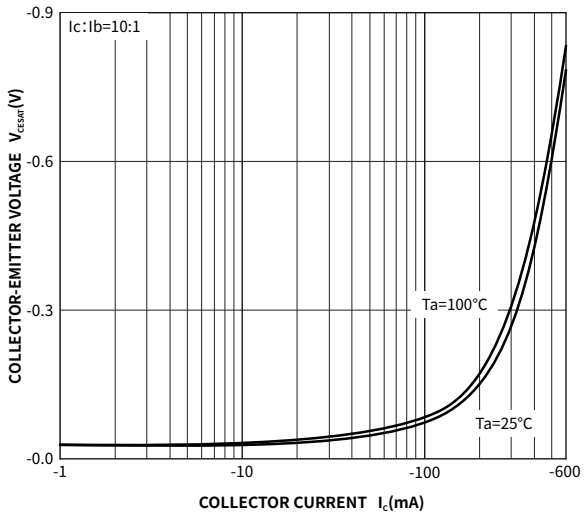


Fig.3 Collector-Emitter Saturation Voltage

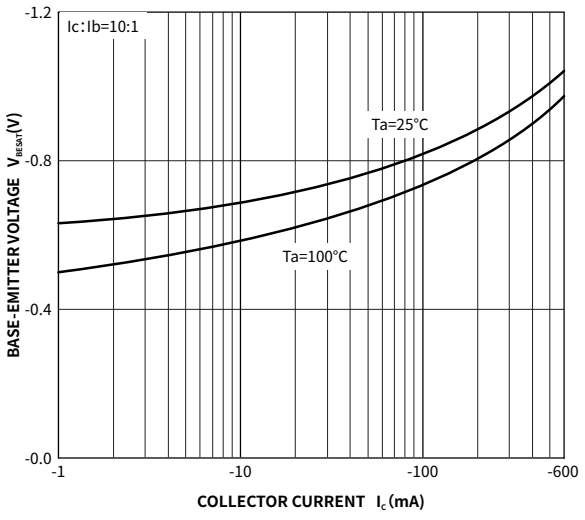


Fig.4 Base-Emitter Saturation Voltage

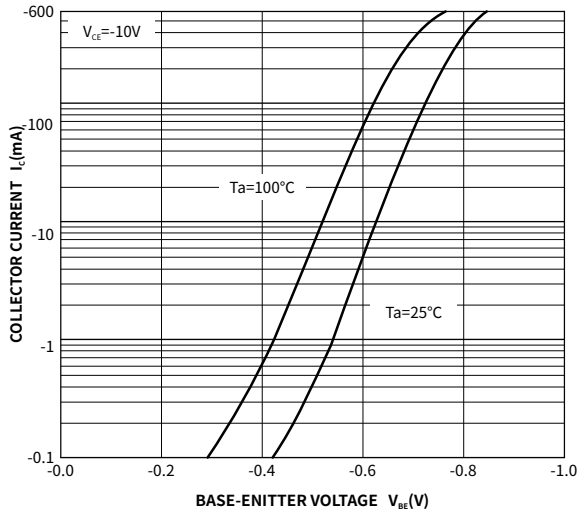


Fig.5 Base-Emitter On Voltage

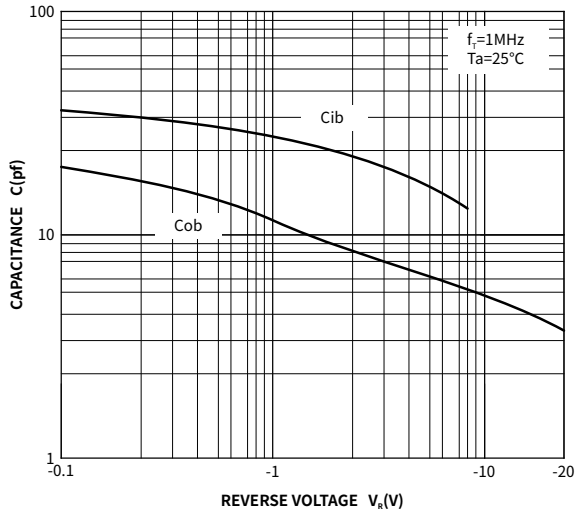
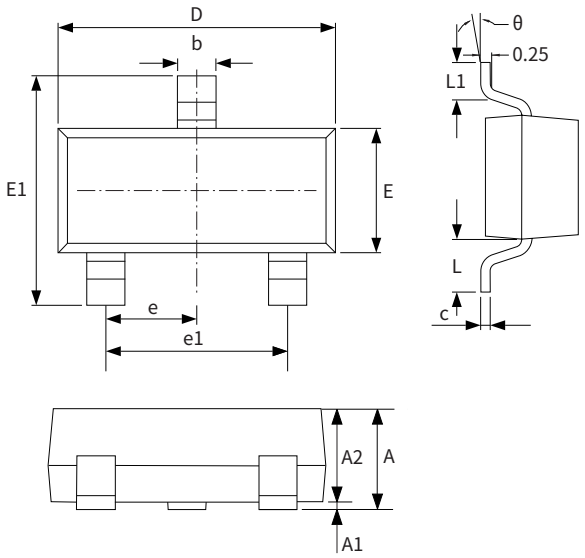


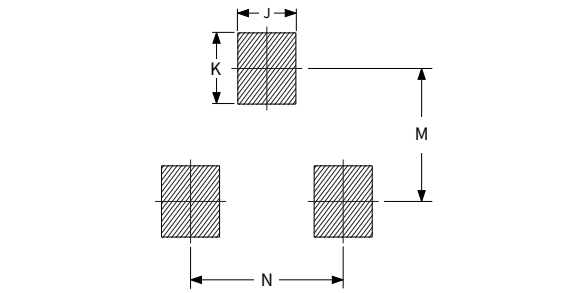
Fig.6 Cob/Cib-$V_{CB}V_{EB}$

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077