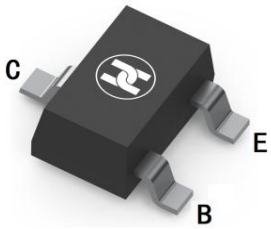
BIPOLAR TRANSISTOR (NPN)



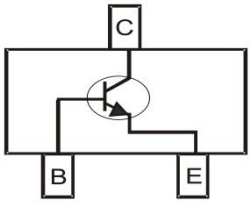
SOT-323

FEATURES

- Complementary to MMST2907A
- Epitaxial planar die construction
- Surface Mount device

MECHANICAL DATA

- Case: SOT-323
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)



MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~+150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

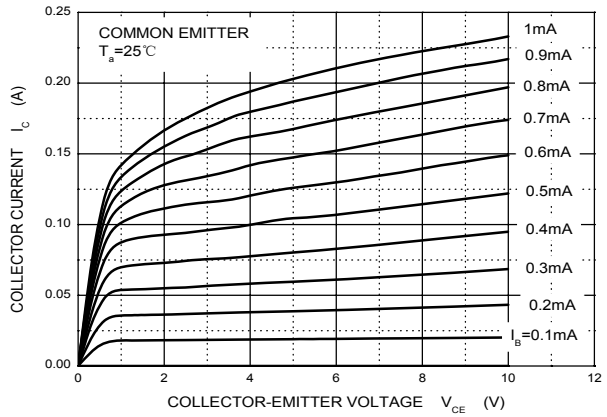
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	75			V	I_C=10uA, I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	40			V	I_C=10mA, I_B=0
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6			V	I_E=10uA, I_C=0
Collector cut-off current	I_{CBO}			100	nA	V_{CB}=70V, I_E=0
Collector cut-off current	I_{CEO}			100	nA	V_{CE}=30V, I_B=0
Emitter cut-off current	I_{EBO}			100	nA	V_{EB}=3V, I_C=0
DC current gain	h_{FE1}	35				V_{CE}=10V, I_C=0.1mA
	h_{FE2}	50				V_{CE}=10V, I_C=1mA
	h_{FE3}	75				V_{CE}=10V, I_C=10mA
	h_{FE4}	100		300		V_{CE}=10V, I_C=150mA
	h_{FE5}	40				V_{CE}=10V, I_C=500mA
	h_{FE6}	35				V_{CE}=1V, I_C=150mA
Collector-emitter saturation voltage	$V_{CE(sat)}$			1	V	I_C=500mA, I_B=50mA
	$V_{CE(sat)}$			0.3	V	I_C=150mA, I_B=15mA
Base-emitter saturation voltage	$V_{BE(sat)}$			2.0	V	I_C=500mA, I_B=50mA
	$V_{BE(sat)}$			1.2	V	I_C=150mA, I_B=15mA
Transition frequency	f_T	300			MHz	V_{CE}=20V, I_C=20mA,f=100MHz
Output capacitance	C_{ob}			8	pF	V_{CB}=10V, I_E=0,f=0.1MHz
Delay time	t_d			10	ns	V_{CC}=30V, I_C=150mA,
Rise time	t_r			25	ns	$V_{BE(OFF)}$=0.5V,I_{B1}=15mA
Storage time	t_S			225	ns	V_{CC}=30V, I_C=150mA
Fall time	t_f			60	ns	I_{B1}=I_{B2}=15mA

Marking:K3P

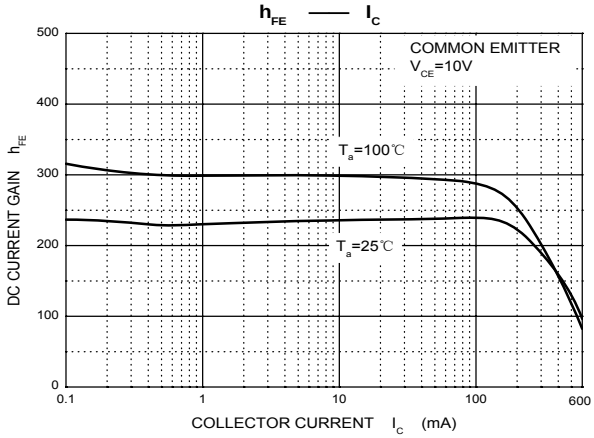
BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

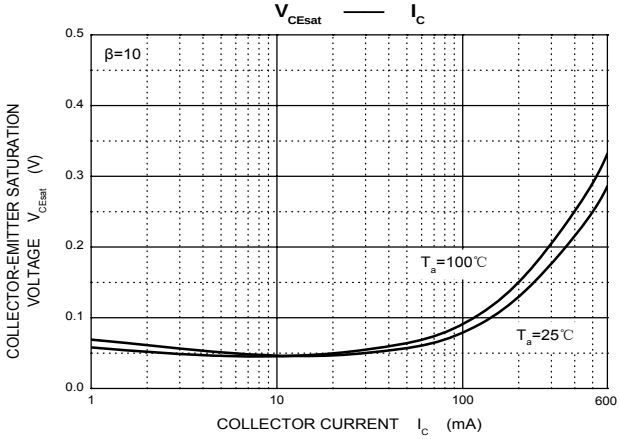
Static Characteristic



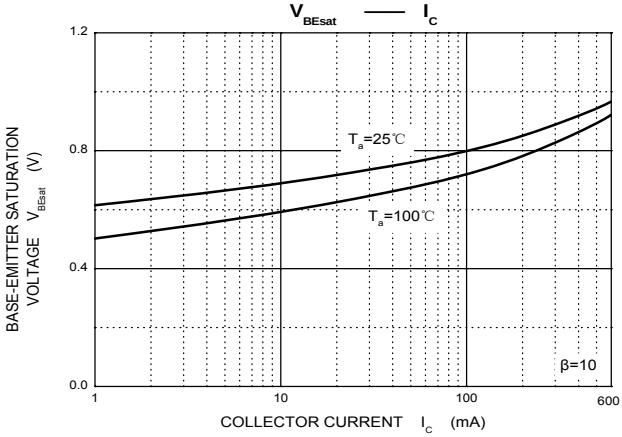
h_{FE} —— I_C



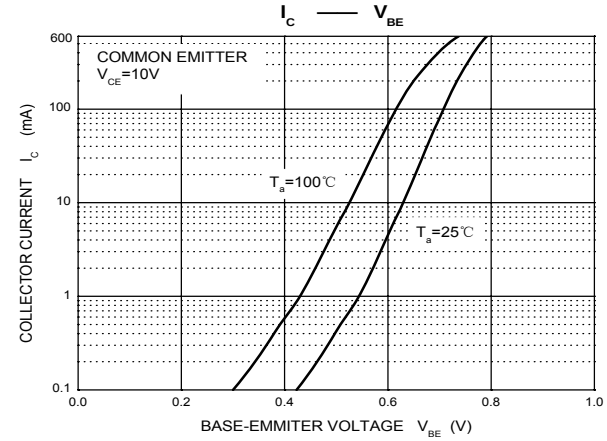
V_{CEsat} —— I_C



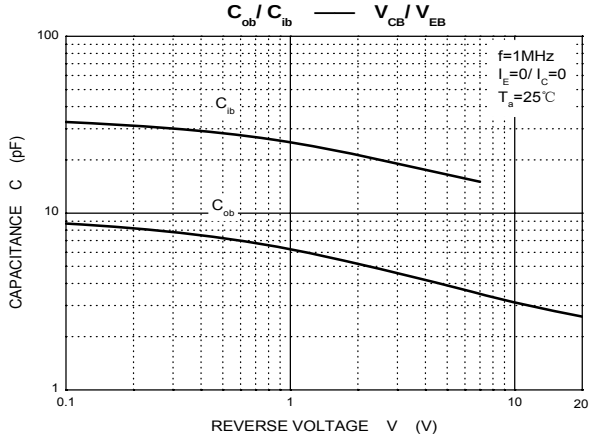
V_{BEsat} —— I_C



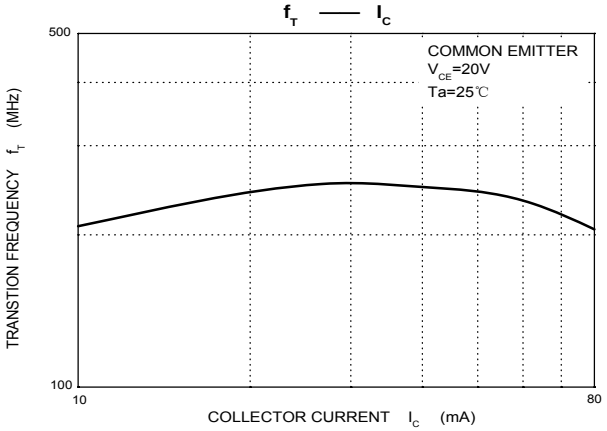
I_C —— V_{BE}



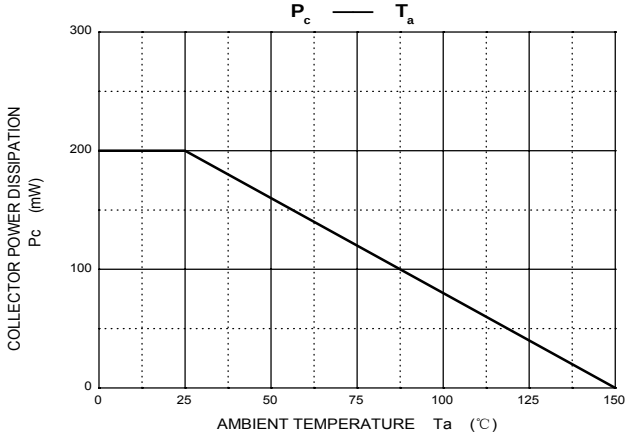
C_{ob} / C_{ib} —— V_{CB} / V_{EB}



f_T —— I_C

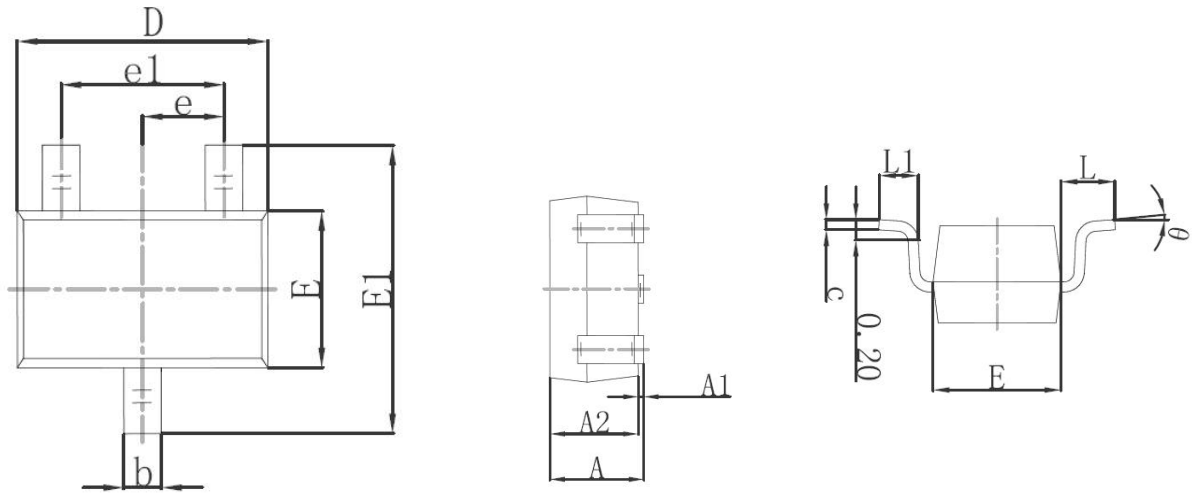


P_c —— T_a



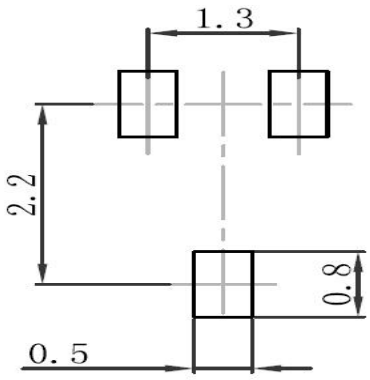
BIPOLAR TRANSISTOR (NPN)

SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

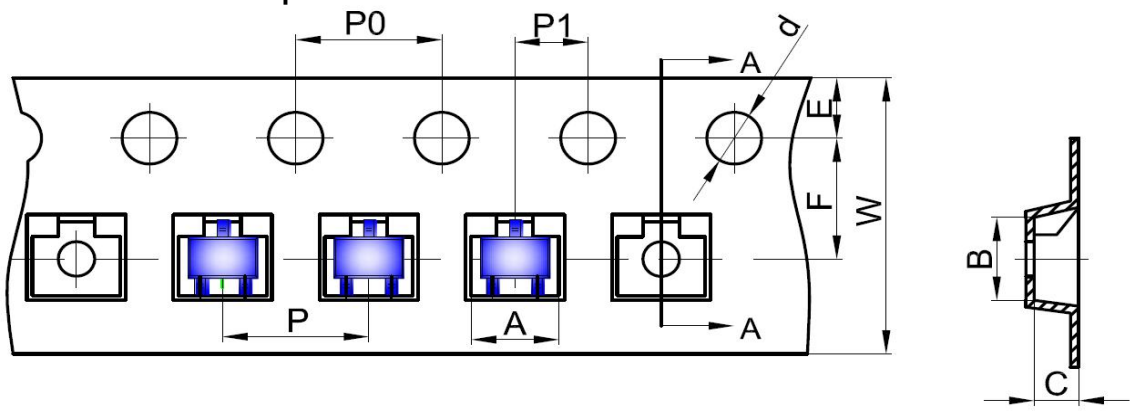
2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

BIPOLAR TRANSISTOR (NPN)

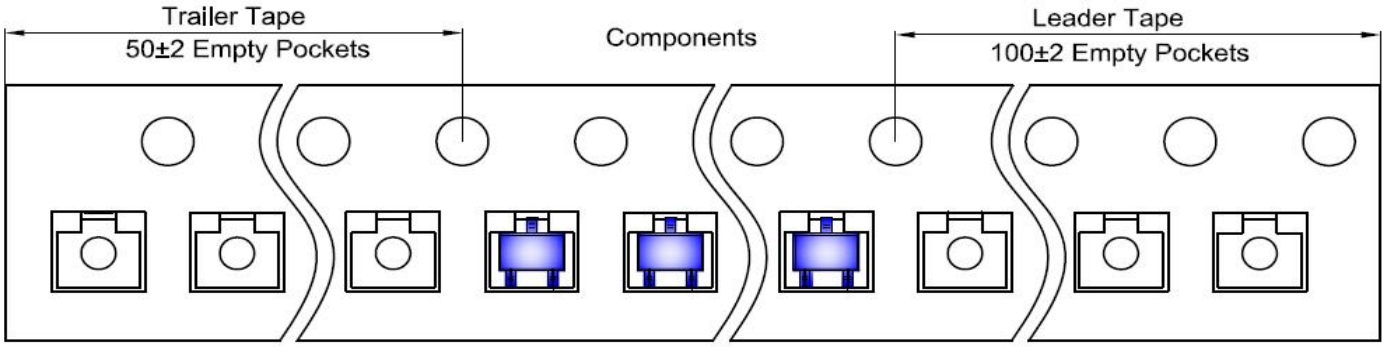
SOT-323 Tape and Reel

SOT-323 Embossed Carrier Tape

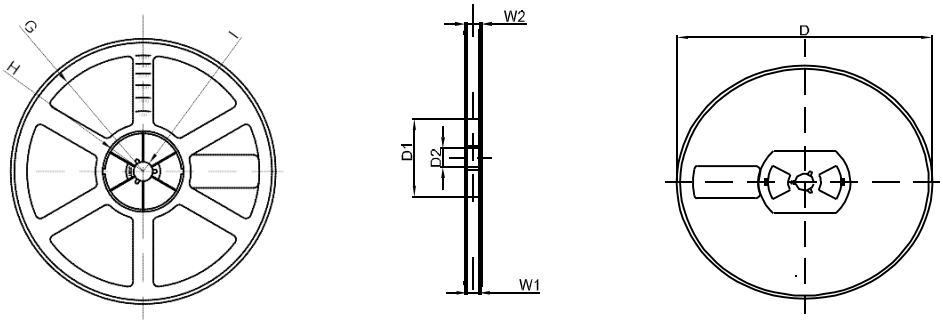


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-323	2.25	2.55	1.19	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-323 Tape Leader and Trailer



SOT-323 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1