

SOT-323 Plastic-Encapsulate Transistor (NPN)

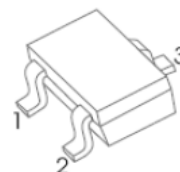
Feature

- Complementary to MMST2907AQ
- Power Dissipation of 200mW
- AEC-Q101 Qualified
- High Stability and High Reliability

Mechanical Data

- SOT-323 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

SOT-323



1. BASE
2. EMITTER
3. COLLECTOR

Marking: K3P

Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

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-Continuous	I_C	600	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

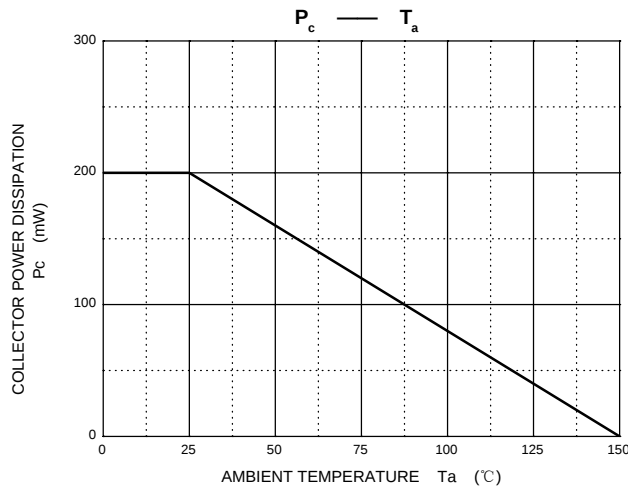
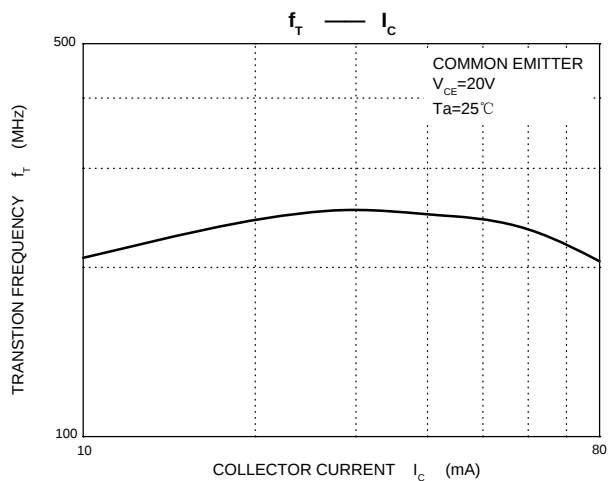
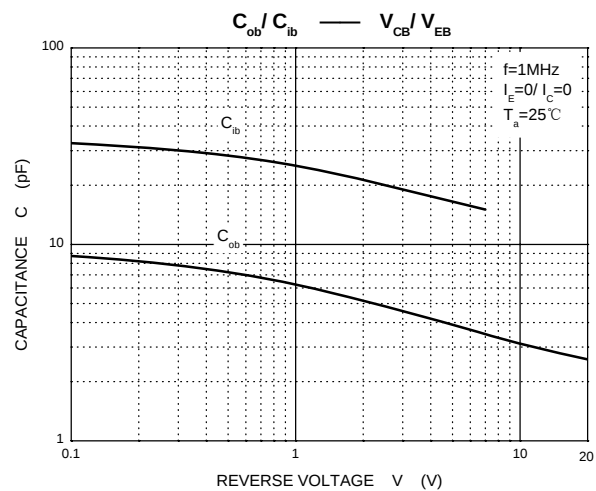
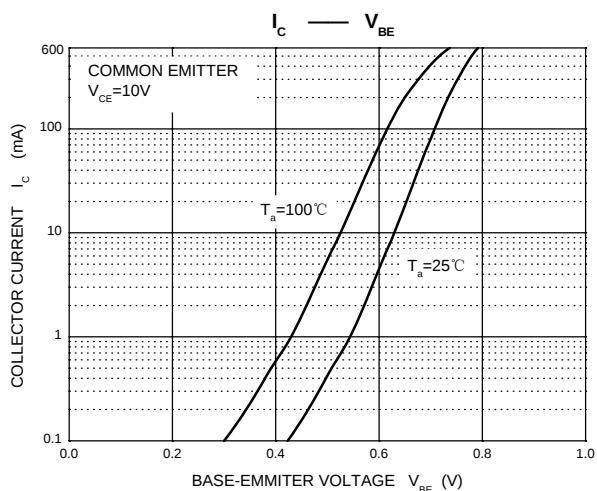
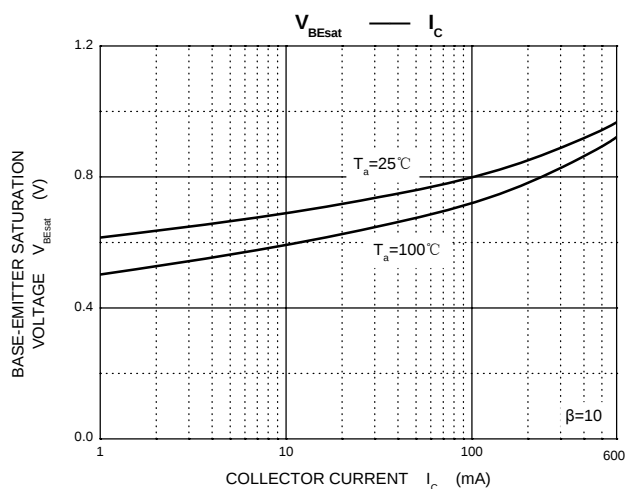
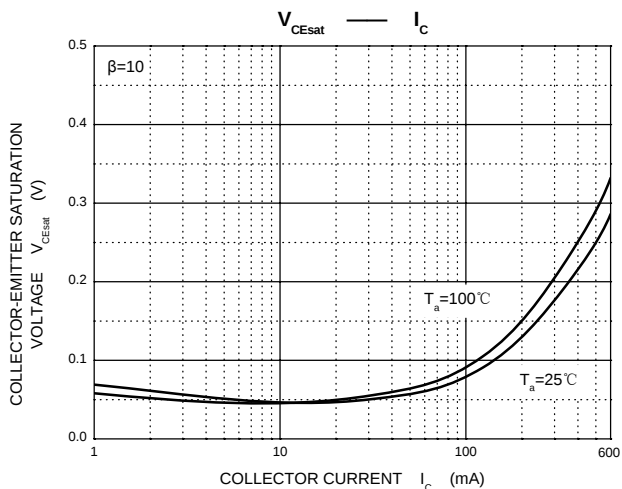
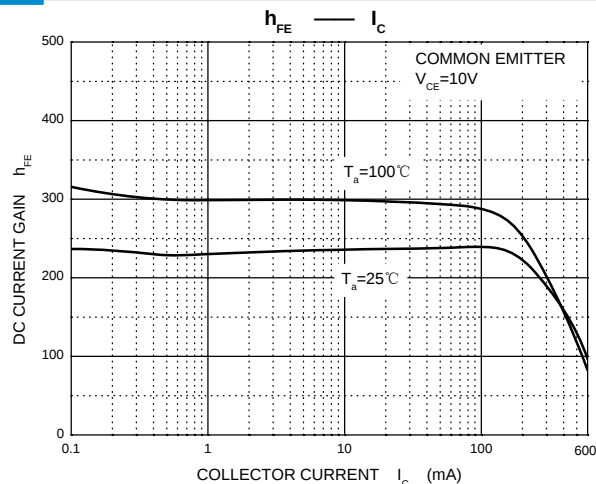
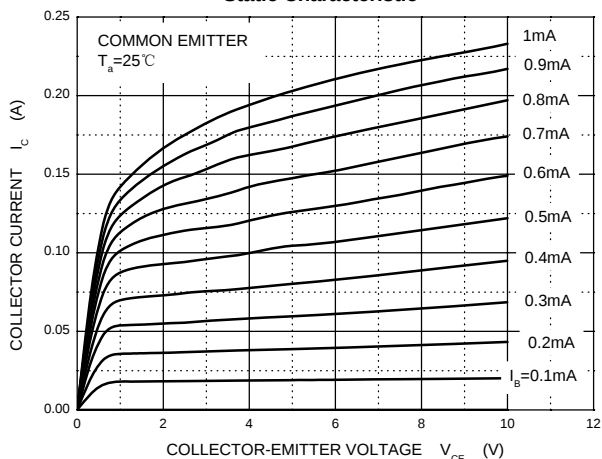
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 70\text{V}, I_E = 0$			100	nA
Collector cut-off current	I_{CEO}	$V_{CE} = 35\text{V}, I_B = 0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 3\text{V}, I_C = 0$			100	nA
DC current gain	$h_{FE(1)}$	$V_{CE} = 10\text{V}, I_C = 0.1\text{mA}$	35			
	$h_{FE(2)}$	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	50			
	$h_{FE(3)}$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	75			
	$h_{FE(4)}$	$V_{CE} = 10\text{V}, I_C = 150\text{mA}$	100		300	
	$h_{FE(5)}$	$V_{CE} = 10\text{V}, I_C = 500\text{mA}$	40			
	$h_{FE(6)}$	$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	35			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$ $I_C = 150\text{mA}, I_B = 15\text{mA}$			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$ $I_C = 150\text{mA}, I_B = 15\text{mA}$			2.0 1.2	V
Transition frequency	f_T	$V_{CE} = 20\text{V}, I_C = 20\text{mA}$ $f = 100\text{MHz}$	300			MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$			8	pF
Delay time	t_d	$V_{CC} = 30\text{V}, V_{BE(off)} = -0.5\text{V}$			10	ns
Rise time	t_r	$I_C = 150\text{mA}, I_{B1} = 15\text{mA}$			25	ns
Storage time	t_s	$V_{CC} = 30\text{V}, I_C = 150\text{mA}$			225	ns
Fall time	t_f	$I_{B1} = -I_{B2} = 15\text{mA}$			60	ns

Typical Characteristics

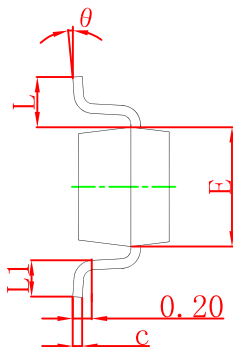
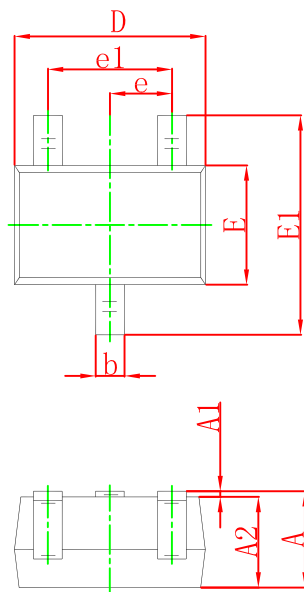


Static Characteristic



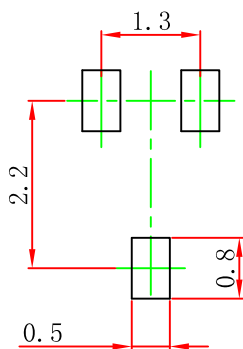


SOT-323 Package Outline Dimensions



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	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Notes:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.