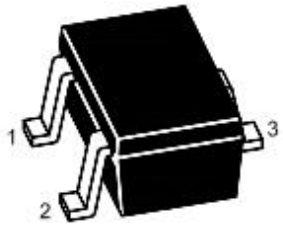
NPN Silicon Epitaxial Planar Transistor

for switching and amplifier applications



1.Base 2.Emitter 3.Collector

SOT-323 Plastic Package

FEATURES

- Complementary to MMBT2907AW
- Small Package

MARKING:K3P/1P

Absolute Maximum Ratings (T_a = 25 C)

Parameter		Symbol	Value	Unit
Collector Base Voltage	MMBT2222W MMBT2222AW	V_{CBO}	60 75	V
Collector Emitter Voltage	MMBT2222W MMBT2222AW	V_{CEO}	30 40	V
Emitter Base Voltage	MMBT2222W MMBT2222AW	V_{EBO}	5 6	V
Collector Current		I_C	600	mA
Power Dissipation		P_{tot}	150	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at V_{CE} = 10 V, I_C = 0.1 mA		h_{FE}	35	-	-
at V_{CE} = 10 V, I_C = 1 mA at		h_{FE}	50	-	-
V_{CE} = 10 V, I_C = 10 mA at		h_{FE}	75	-	-
V_{CE} = 1 V, I_C = 150 mA		h_{FE}	50	-	-
at V_{CE} = 10 V, I_C = 150 mA		h_{FE}	100	300	-
at V_{CE} = 10 V, I_C = 500 mA	MMBT2222W	h_{FE}	30	-	-
	MMBT2222AW	h_{FE}	40	-	-
Collector Base Cutoff Current					
at V_{CB} = 50 V	MMBT2222W	I_{CBO}	-	100	nA
at V_{CB} = 60 V	MMBT2222AW		-	100	
Emitter Base Cutoff Current					
at V_{EB} = 3 V		I_{EBO}	-	100	nA
Collector Base Breakdown Voltage					
at I_C = 10 µA	MMBT2222W	$V_{(BR)CBO}$	60	-	V
	MMBT2222AW		75	-	
Collector Emitter Breakdown Voltage					
at I_C = 10 mA	MMBT2222W	$V_{(BR)CEO}$	30	-	V
	MMBT2222AW		40	-	
Emitter Base Breakdown Voltage					
at I_E = 10 µA	MMBT2222W	$V_{(BR)EBO}$	5	-	V
	MMBT2222AW		6	-	
Collector Emitter Saturation Voltage					
at I_C = 150 mA, I_B = 15 mA	MMBT2222W		-	0.4	
	MMBT2222AW	$V_{CE(sat)}$	-	0.3	V
at I_C = 500 mA, I_B = 50 mA	MMBT2222W		-	1.6	
	MMBT2222AW		-	1	
Base Emitter Saturation Voltage					
at I_C = 150 mA, I_B = 15 mA	MMBT2222W		-	1.3	
	MMBT2222AW	$V_{BE(sat)}$	0.6	1.2	V
at I_C = 500 mA, I_B = 50 mA	MMBT2222W		-	2.6	
	MMBT2222AW		-	2	
Transition Frequency					
at V_{CE} = 20 V, -I_E = 20 mA, f = 100 MHz		f_T	300	-	MHz
Collector Output Capacitance					
at V_{CB} = 10 V, f = 100 KHz		C_{ob}	-	8	pF
Delay Time					
at V_{CC} = 30 V, $V_{BE(OFF)}$ = 0.5 V, I_C = 150 mA, I_{B1} = 15 mA		t_d	-	10	ns
Rise Time					
at V_{CC} = 30 V, $V_{BE(OFF)}$ = 0.5 V, I_C = 150 mA, I_{B1} = 15 mA		t_r	-	25	ns
Storage Time					
at V_{CC} = 30 V, I_C = 150 mA, I_{B1} = -I_{B2} = 15 mA		t_{stg}	-	225	ns
Fall Time					
at V_{CC} = 30 V, I_C = 150 mA, I_{B1} = -I_{B2} = 15 mA		t_f	-	60	ns

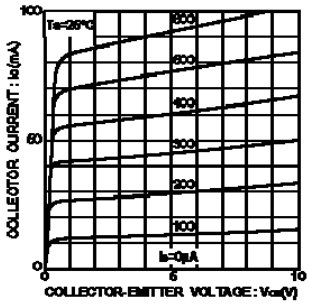


Fig.1 Grounded emitter output characteristics

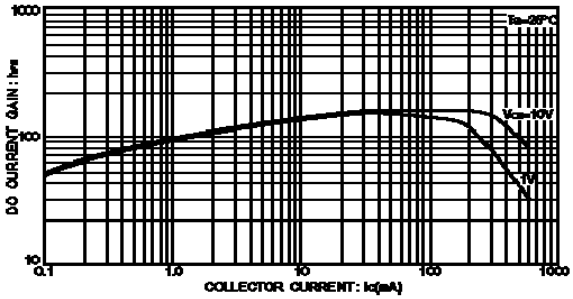


Fig.3 DC current gain vs. collector current(I)

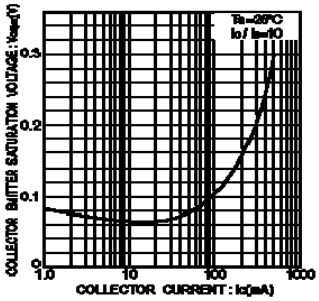


Fig.2 Collector-emitter saturation voltage vs. collector current

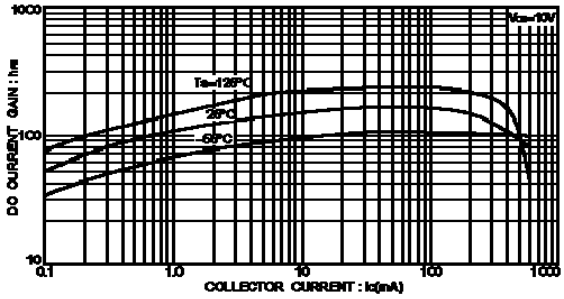


Fig.4 DC current gain vs. collector current(II)

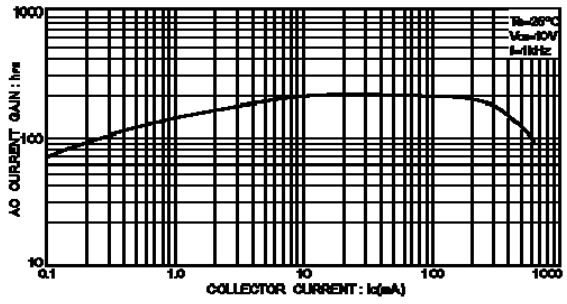


Fig.5 AC current gain vs. collector current

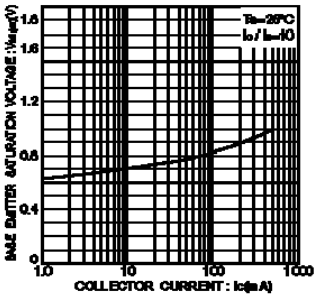
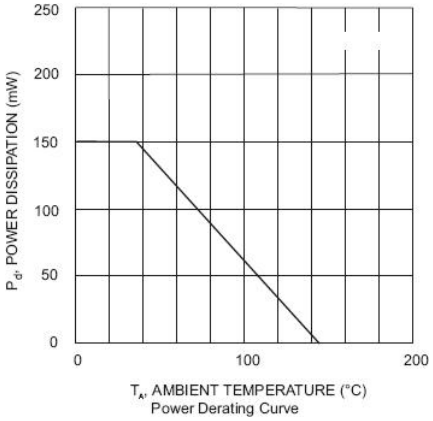
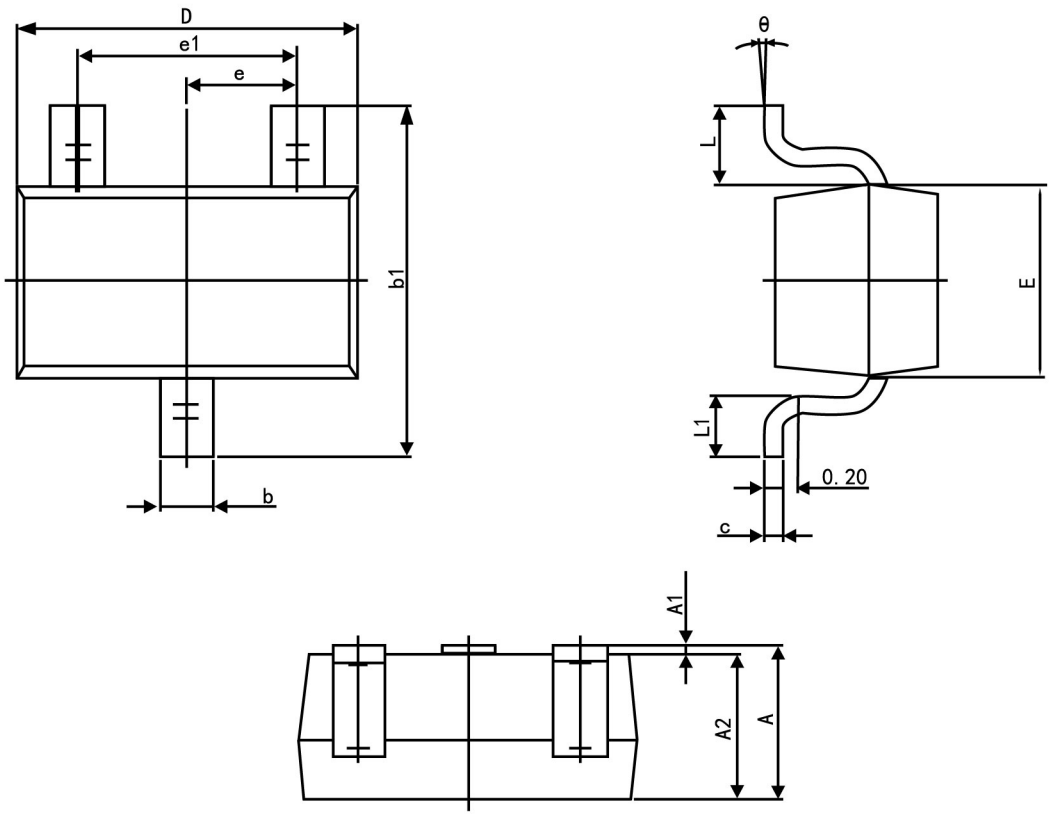


Fig.6 Base-emitter saturation voltage vs. collector current



Power Derating Curve

SOT-323 Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.200	0.400
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	**0°**	8°