



WBFBP-03A Plastic-Encapsulate Transistors

MMBT2907AE TRANSISTOR

DESCRIPTION

PNP Epitaxial planar type Silicon Transistor

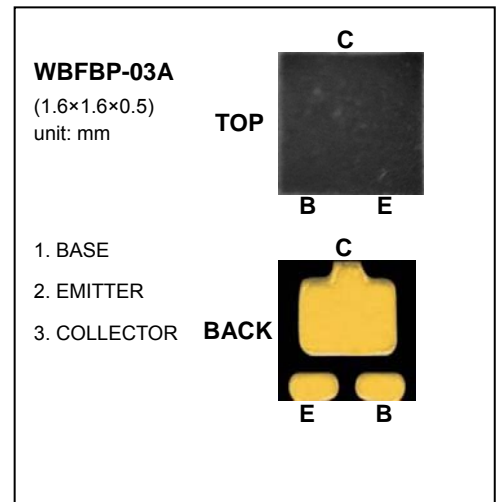
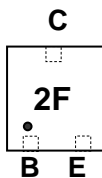
FEATURES

Complementary NPN Type available(MMBT2222AE)

APPLICATION

general purpose amplifier, switching.
For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)

MARKING:2F



MAXIMUM RATINGS $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-600	mA
P_C	Collector Dissipation	150	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55to+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -50\text{V}, I_E = 0$			-0.01	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-0.01	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = -10\text{V}, I_C = -0.1\text{mA}$	75			
	$h_{FE(2)}$	$V_{CE} = -10\text{V}, I_C = -1\text{mA}$	100			
	$h_{FE(3)}$	$V_{CE} = -10\text{V}, I_C = -10\text{mA}$	100			
	$h_{FE(4)}$	$V_{CE} = -10\text{V}, I_C = -150\text{mA}$	100		300	
	$h_{FE(5)}$	$V_{CE} = -10\text{V}, I_C = -500\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$ $I_C = -150\text{mA}, I_B = -15\text{mA}$			-1.6 -0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$ $I_C = -150\text{mA}, I_B = -15\text{mA}$			-2.6 -1.3	V
Transition frequency	f_T	$V_{CE} = -20\text{V}, I_C = -50\text{mA}$ $f = 100\text{MHz}$	200			MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			8	pF
Noise figure	NF	$V_{CB} = -5\text{V}, I_C = -0.1\text{mA}$, $f = 1\text{KHz}, R_s = 1\text{K}\Omega$			4	dB

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Delay time	t_d	$V_{CC}=-30V,$ $I_C=-150mA, I_{B1}=-15mA$			10	nS
Rise time	t_r				40	nS
Storage time	t_S	$V_{CC}=-6V, I_C=-150mA$ $I_{B1}=-I_{B2}=-15mA$			225	nS
Fall time	t_f				30	nS

Typical Characteristics

MMBT2907AE

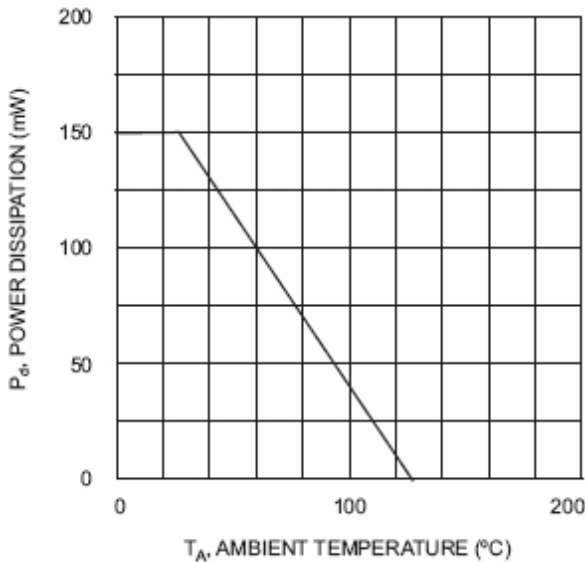


Fig. 1 Power Derating Curve, Total Package

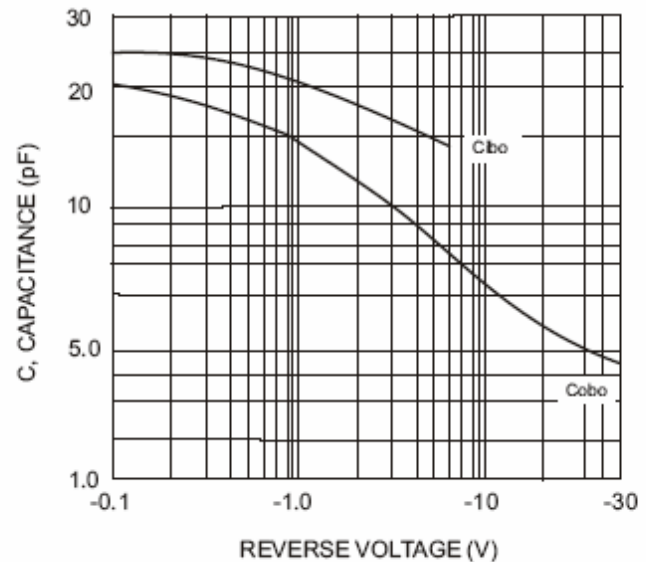


Fig. 2 Capacitances (Typical)

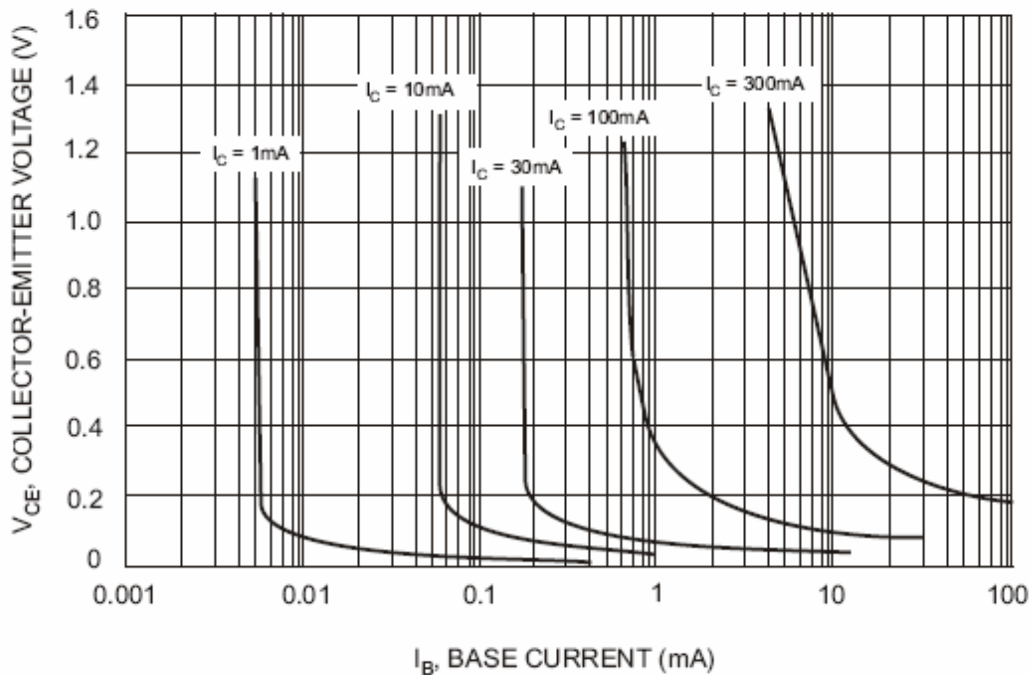


Fig. 3 Typical Collector Saturation Region

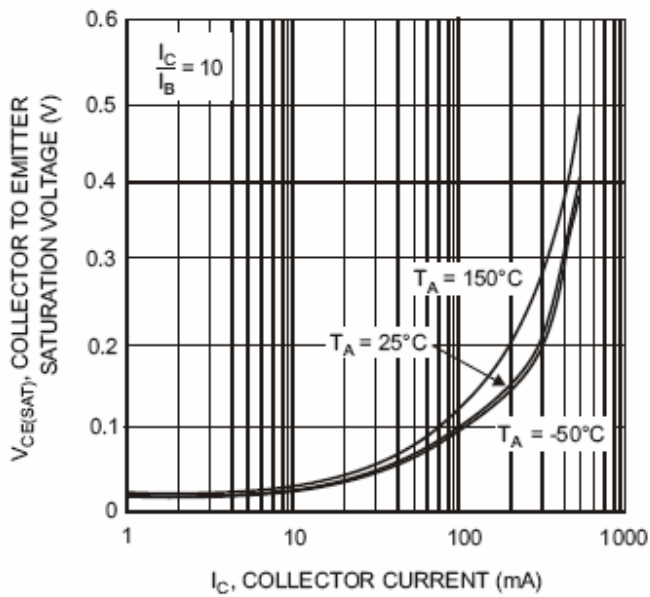


Fig. 4, Collector Emitter Saturation Voltage vs. Collector Current

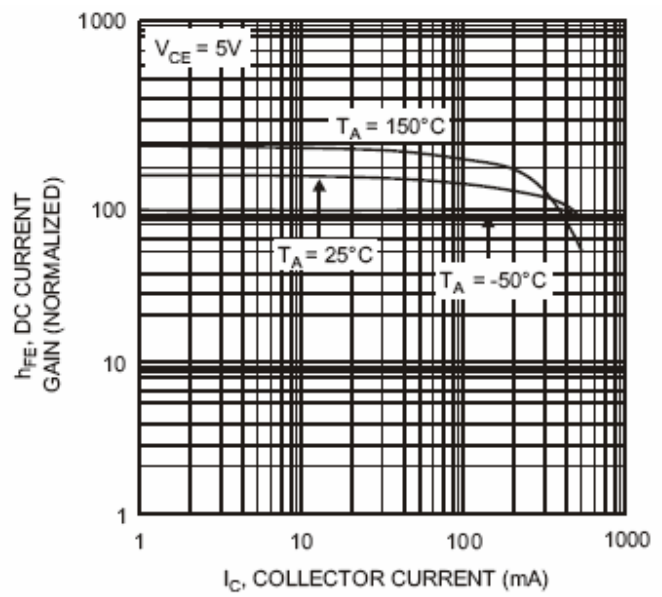


Fig. 5, DC Current Gain vs. Collector Current

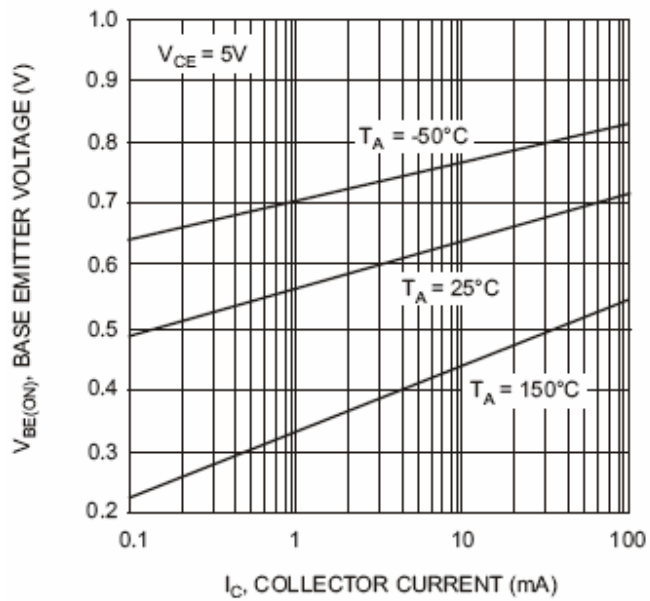


Fig. 6, Base Emitter Voltage vs. Collector Current

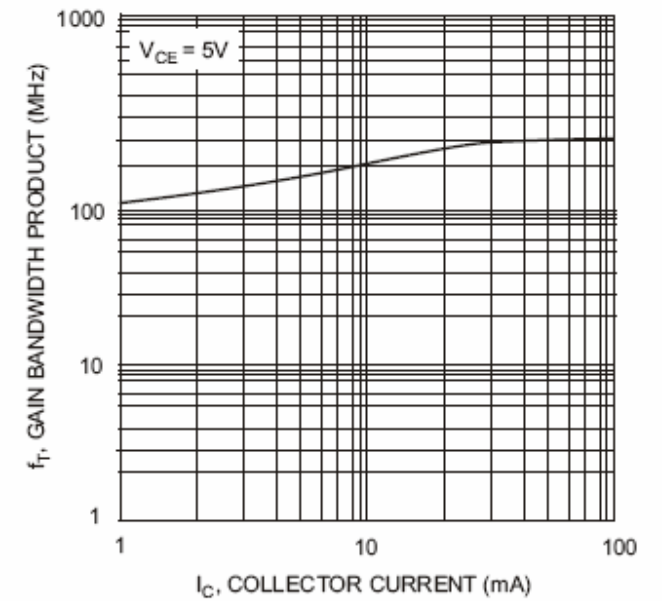
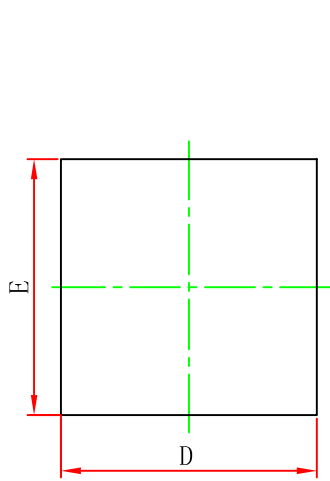
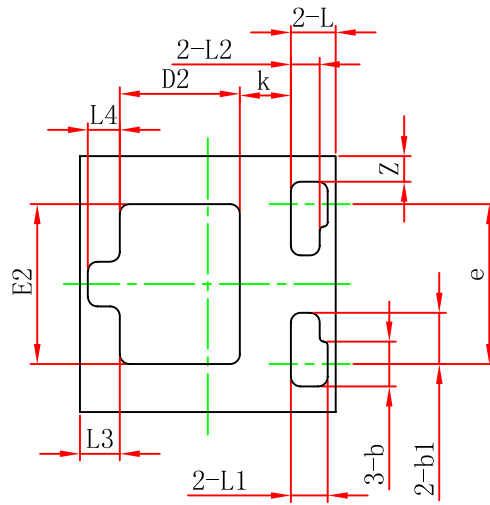


Fig. 7, Gain Bandwidth Product vs. Collector Current

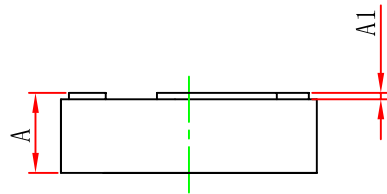
WBFBP-03A(1.6×1.6×0.5) PACKAGE OUTLINE DIMENSIONS



TOP VIEW

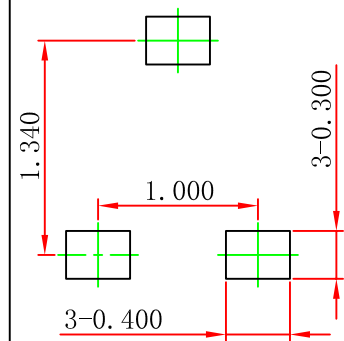


BOTTOM VIEW



SIDE VIEW

(LAND PATTERN RECOMMENDATION)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0.010	0.090	0.000	0.004
b	0.230	0.330	0.009	0.013
b1	0.320 REF.		0.013 REF.	
D	1.550	1.650	0.061	0.065
E	1.550	1.650	0.061	0.065
D2	0.750 REF.		0.030 REF.	
E2	1.000 REF.		0.040 REF.	
e	1.000 TYP.		0.040 TYP.	
L	0.280 REF.		0.011 REF.	
L1	0.230 REF.		0.009 REF.	
L2	0.180 REF.		0.007 REF.	
L3	0.250 REF.		0.010 REF.	
L4	0.200 REF.		0.008 REF.	
k	0.320 REF.		0.013 REF.	
z	0.160 REF.		0.006 REF.	