JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

WBFBP-03A Plastic-Encapsulate Transistors

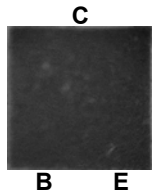
MMBTA42E TRANSISTOR

DESCRIPTION
NPN Epitaxial Silicon Transistor

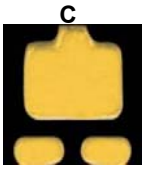
FEATURES
Power dissipation P_{CM} : 0.15 W (Tamb=25℃)

APPLICATION
High Voltage Amplifier
For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)

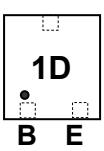
WBFBP-03A
(1.6×1.6×0.5)
unit: mm



1. BASE
2. EMITTER
3. COLLECTOR



MARKING:1D



MAXIMUM RATINGS T_A=25℃ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	310	V
V_{CEO}	Collector-Emitter Voltage	305	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	300	mA
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	200	℃/W
$R_{\theta JC}$	Thermal Resistance, unction to Case	83.3	℃/W

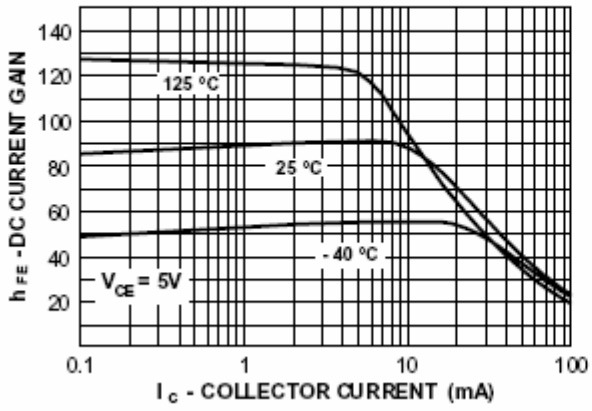
ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100μA, I_E=0	310		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 1mA, I_B=0	305		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 100μA, I_C=0	5		V
Collector cut-off current	I_{CBO}	V_{CB}=200V, I_E=0		0.25	μA
Collector cut-off current	I_{CEO}	V_{CE}=200V, I_B=0		0.25	μA
		V_{CE}=300V, I_B=0		5	μA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V, I_C=0		0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=10V, I_C=1mA	60		
	$h_{FE(2)}$	V_{CE}=10V, I_C=10mA	100	200	
	$h_{FE(3)}$	V_{CE}=10V, I_C=30mA	75		
Collector-emitter saturation voltage	V_{CE}(sat)	I_C=20mA, I_B= 2mA		0.2	V
Base-emitter saturation voltage	V_{BE}(sat)	I_C= 20mA, I_B=2mA		0.9	V
Transition frequency	f_T	V_{CE}=20V, I_C= 10mA f=30MHz	50		MHz

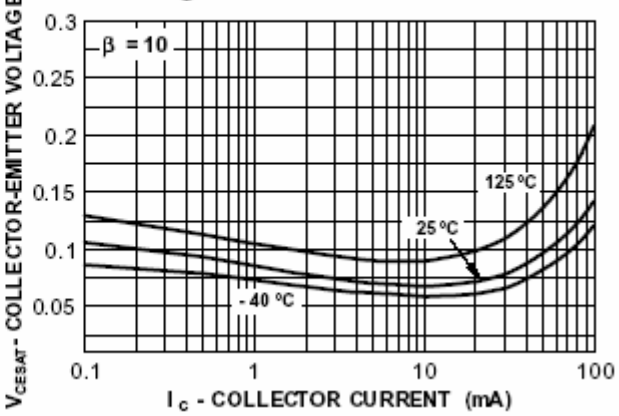
Typical Characteristics

MMBTA42E

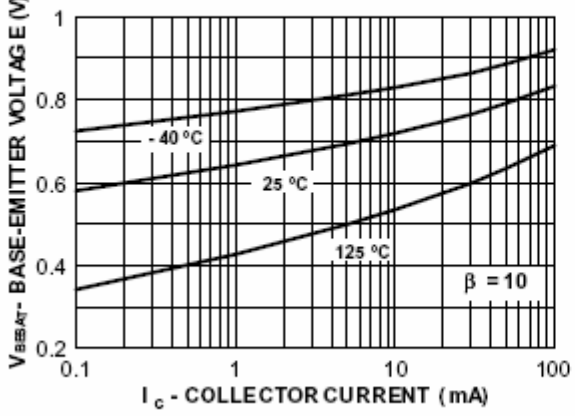
DC Current Gain vs Collector Current



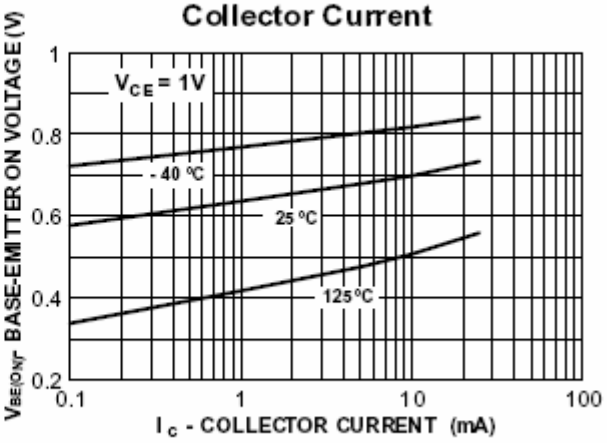
Collector-Emitter Saturation Voltage vs Collector Current



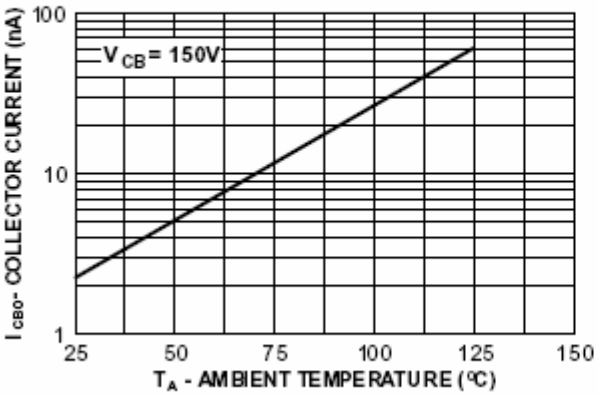
Base-Emitter Saturation Voltage vs Collector Current



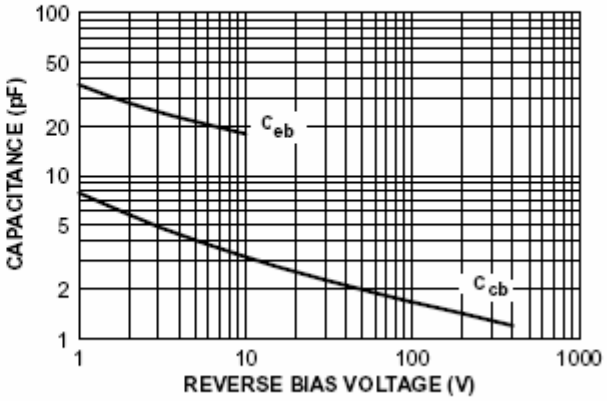
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



Collector-Base and Emitter-Base Capacitance vs Reverse Bias Voltage



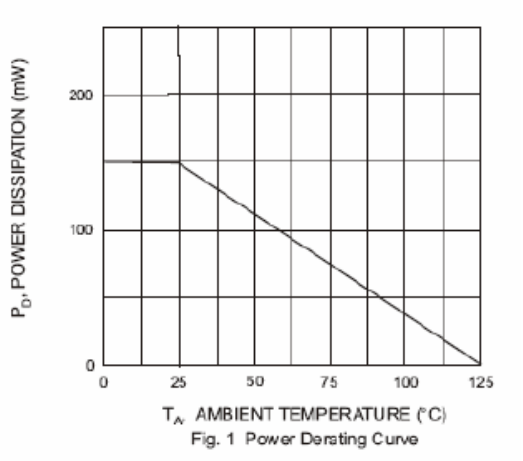
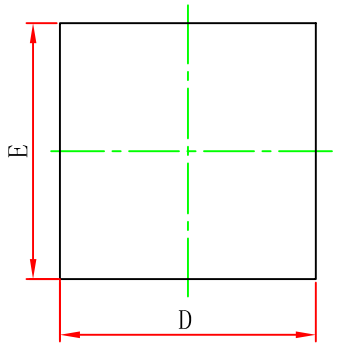
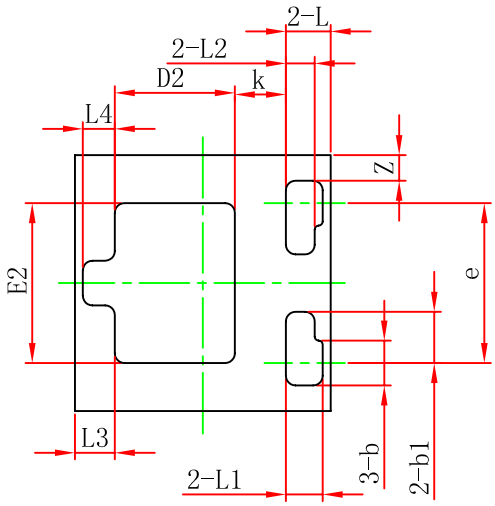


Fig. 1 Power Derating Curve

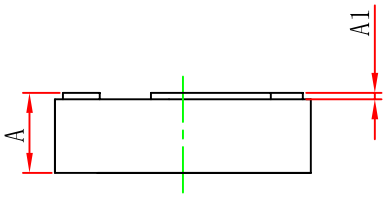
WBFBP-03A(1.6×1.6×0.5) PACKAGE OUTLINE DIMENSIONS



TOP VIEW

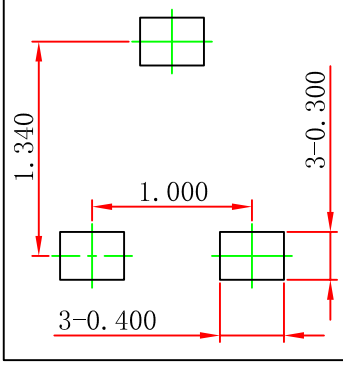


BOTTOM VIEW



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.	