

**WBFBP-03A Plastic-Encapsulate Transistors****2SA1585E** TRANSISTOR**DESCRIPTION**

PNP Epitaxial planar type Silicon Transistor

FEATURESLow $V_{CE(sat)}$. $V_{CE(sat)} = -0.2V$ (Typ.) ($I_C/I_B = -2A/-0.1A$)**APPLICATION**

Excellent current gain characteristics

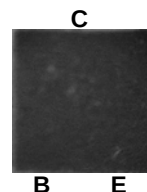
For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)

WBFBP-03A

(1.6×1.6×0.5)

unit: mm

TOP



1. BASE

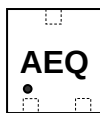
2. EMITTER

3. COLLECTOR

BACK

**MARKING:AEQ, AER, AES**

C



B E

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-20	V
V_{CEO}	Collector-Emitter Voltage	-20	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current -Continuous	-2	A
P_C	Collector Power Dissipation	150	mW
T_j	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature Range	-55-150	$^{\circ}C$

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -50\mu A$, $I_E = 0$	-20			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA$, $I_B = 0$	-20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -50\mu A$, $I_C = 0$	-6			V
Collector cut-off current	I_{CBO}	$V_{CB} = -20V$, $I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5V$, $I_C = 0$			-0.1	μA
DC current gain	h_{FE}	$V_{CE} = -2V$, $I_C = -0.1A$	120		560	
Collector-emitter saturation voltage	V_{CEsat}	$I_C = -2A$, $I_B = -0.1A$			-0.5	V
Transition frequency	f_T	$V_{CE} = -2V$, $I_C = -0.5A$ $f = 100MHz$		240		MHz
Collector output capacitance	C_{obo}	$V_{CB} = -10V$, $I_E = 0$, $f = 1MHz$		35		pF

CLASSIFICATION OF h_{FE}

Rank	Q	R	S
Range	120-270	180-390	270-560

Typical Characteristics

2SA1585E

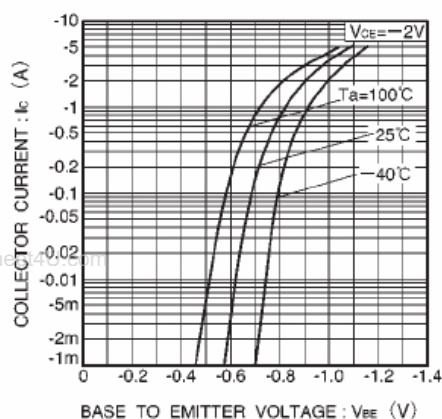


Fig.1 Grounded emitter propagation characteristics

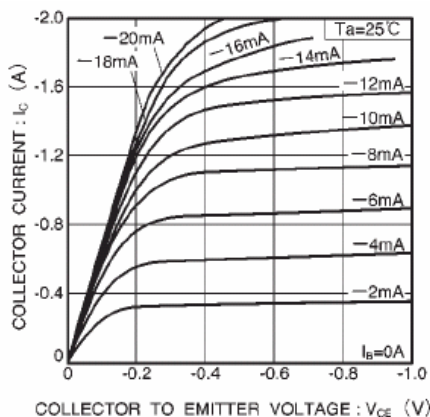


Fig.2 Grounded emitter output characteristics (I)

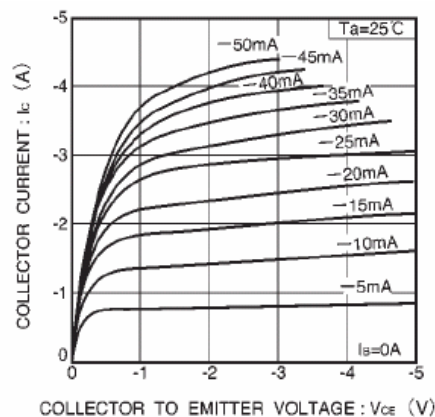


Fig.3 Grounded emitter output characteristics (II)

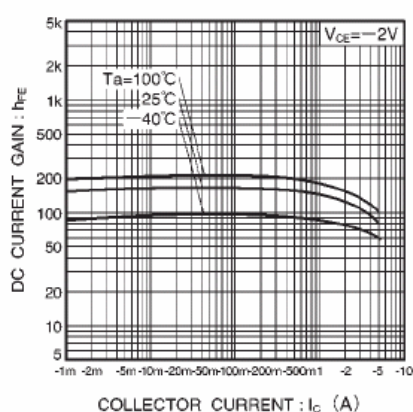


Fig.4 DC current gain vs. collector current

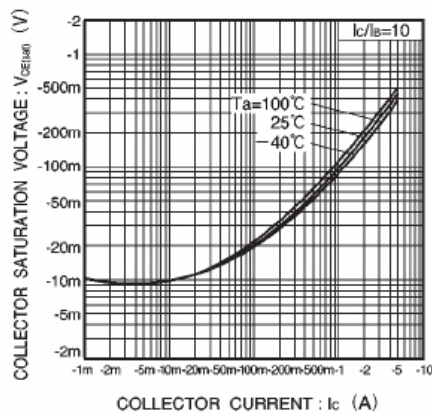


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

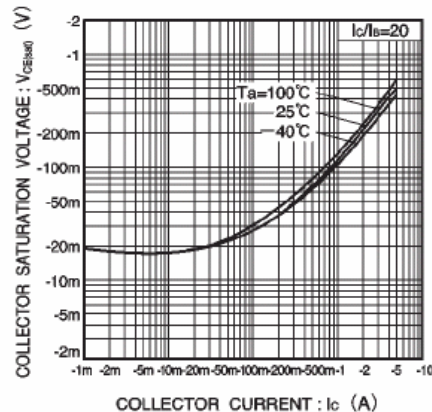


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

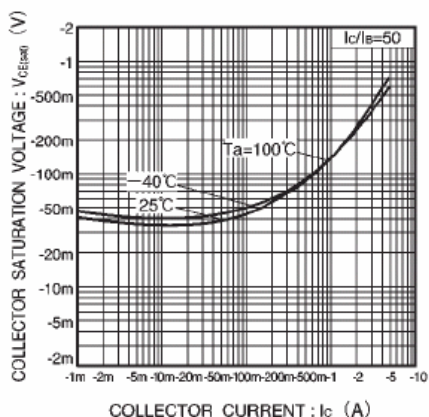


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

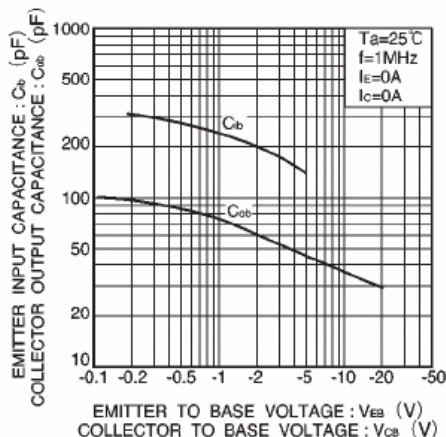


Fig.8 Gain bandwidth product vs. emitter current
Collector output capacitance vs. collector-base voltage

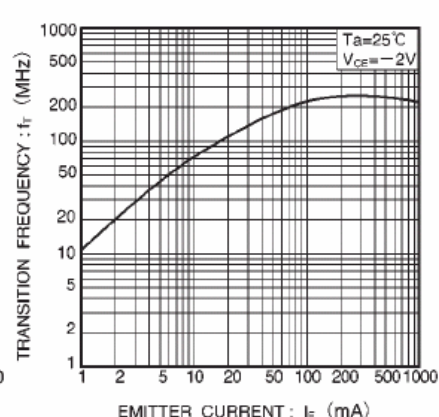
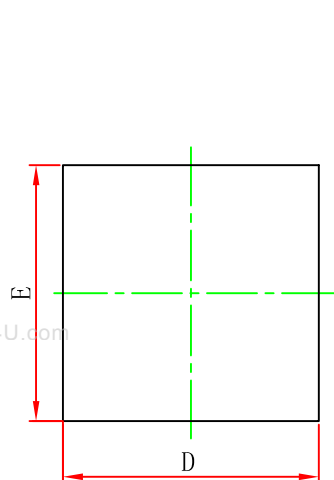
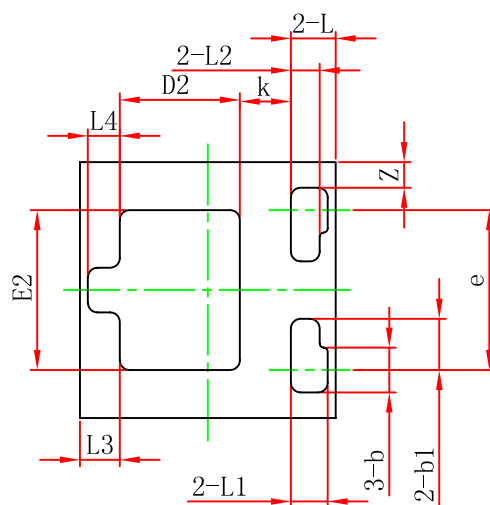


Fig.9 Emitter input capacitance vs. emitter base voltage

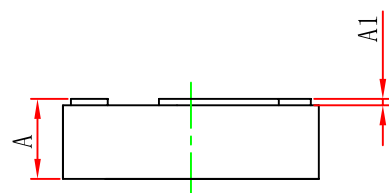
WBFBP-03A(1.6×1.6×0.5) PACKAGE OUTLINE DIMENSIONS



TOP VIEW

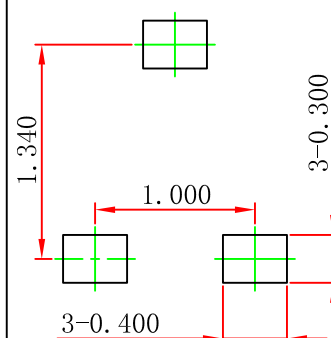


BOTTOM VIEW



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.	