



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

WBFBP-03A Plastic-Encapsulate Transistors

2SC4115E TRANSISTOR

DESCRIPTION

NPN Epitaxial planar Silicon Transistor

FEATURES

Low $V_{CE(sat)}$. $V_{CE(sat)} = 0.2V$ (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.)

MARKING:CFQ, CFR, CFS



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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	3	A
P_D	Total Device Dissipation	150	mW
T_J	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-55-150	$^{\circ}C$

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 50\mu A, I_E = 0$	40			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}	$V_{CB} = 30V, I_E = 0$			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	$V_{CE} = 2V, I_C = 0.5A, f = 100MHz$		290		MHz
Collector output capacitance	C_{obo}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		25		pF

CLASSIFICATION OF h_{FE}

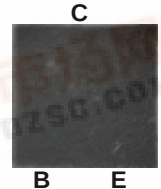
Rank	Q	R	S
Range	120-270	180-390	270-560

WBFBP-03A

(1.6×1.6×0.5)

unit: mm

TOP

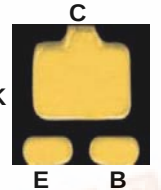


1. BASE

2. EMITTER

3. COLLECTOR

BACK



Typical Characteristics

2SC4115E

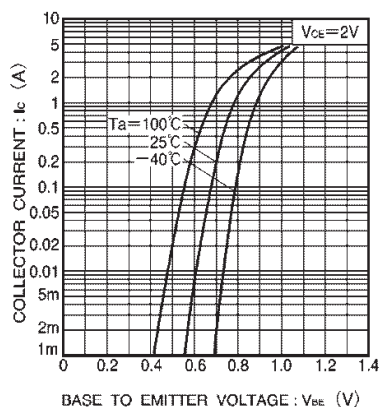


Fig.1 Grounded emitter propagation characteristics

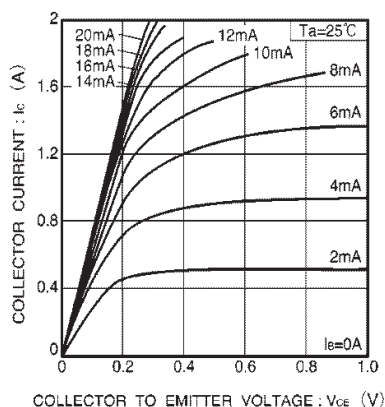


Fig.2 Grounded emitter output characteristics (I)

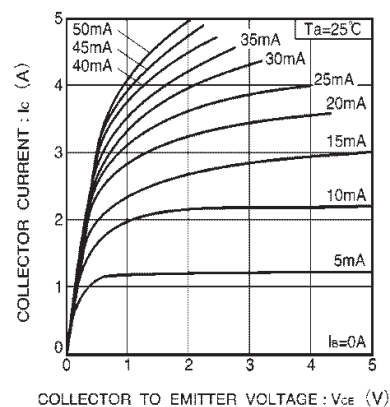


Fig.3 Grounded emitter output characteristics (II)

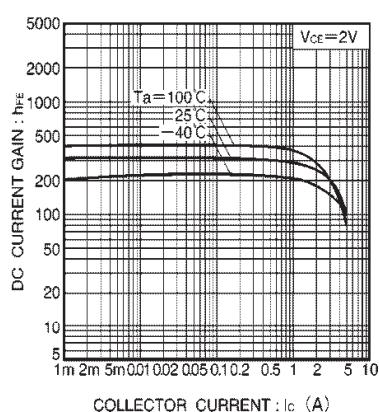


Fig.4 DC current gain vs. collector current

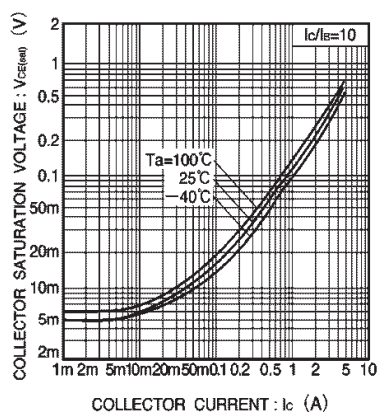


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

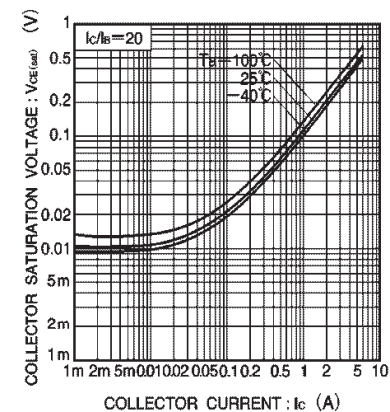


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

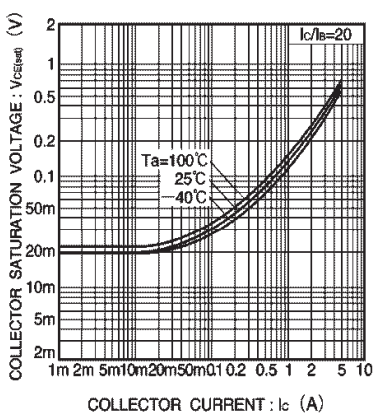


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

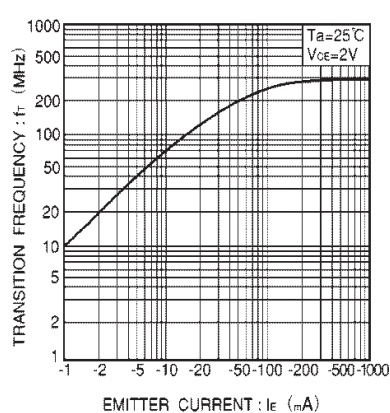


Fig.8 Gain bandwidth product vs. emitter current

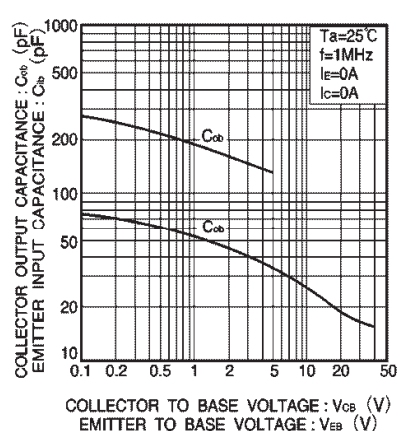
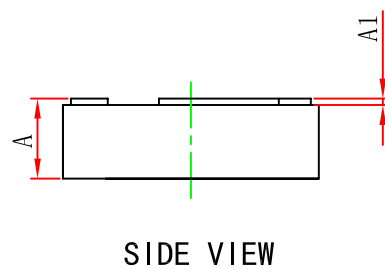
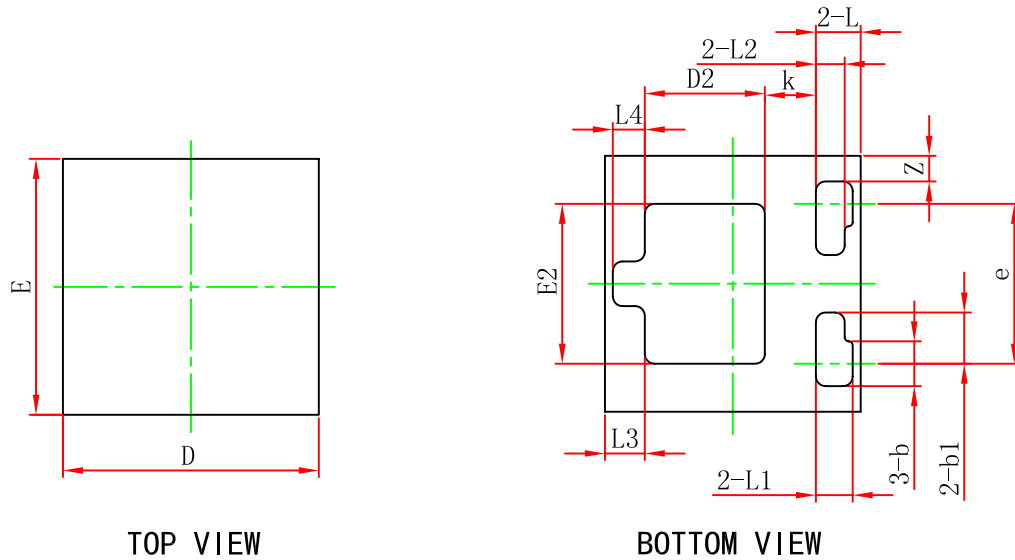
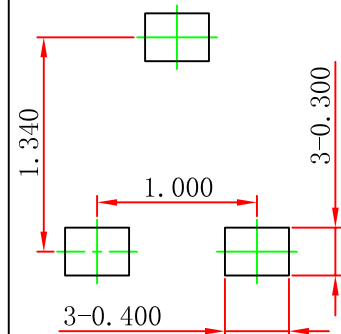


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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



(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.	