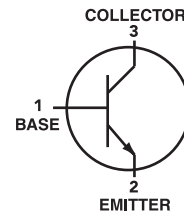


NPN General Purpose Transistors

 Lead(Pb)-Free



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	50	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Collector Current-Continuous	I_C	150	mAdc

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) $T_A=25^{\circ}\text{C}$	P_D	150	mW
Derate above 25°C		1.2	$\text{mW}/^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Junction and Storage, Temperature	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

DEVICE MARKING

2SC4617Q=BQ, 2SC4617R=BR, 2SC4617S=BS

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C=1\ \mu\text{Adc}, I_B=0$)	$V_{(BR)CEO}$	50	-	Vdc
Collector-Base Breakdown Voltage ($I_C=50\ \text{Adc}, I_E=0$)	$V_{(BR)CBO}$	60	-	Vdc
Emitter-Base Breakdown Voltage ($I_E=50\ \mu\text{Adc}, I_C=0$)	$V_{(BR)EBO}$	7.0	-	Vdc
Collector Cutoff Current ($V_{CE}=50\ \text{Vdc}, I_E=0$)	I_{CEO}	-	0.1	μAdc
Collector Cutoff Current ($V_{CB}=60\ \text{Vdc}, I_E=0$)	I_{CBO}	-	0.1	μAdc
Emitter Cutoff Current ($V_{EB}=7.0\ \text{Vdc}, I_C=0$)	I_{EBO}	-	0.1	μAdc

1.FR-5=1.0 x 0.75 x 0.062 in

2SC4617



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

Characteristics	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C=1\text{ mA}$, $V_{CE}=6.0\text{ Vdc}$)	h_{FE}	120	-	560	-
Collector-Emitter Saturation Voltage ($I_C=50\text{ mA}$, $I_B=5\text{ mA}$)	$V_{CE(sat)}$	-	-	0.5	Vdc
Output Capacitance ($V_{CB}=12\text{ Vdc}$, $I_E=0\text{ A}$, $f=1\text{ MHz}$)	C_{ob}	-	2.0	3.5	PF
Current-Gain-Bandwidth Product ($I_E=2\text{ mA}$, $V_{CE}=12\text{ Vdc}$, $f=30\text{ MHz}$)	f_T	-	180	-	MHz

CLASSIFICATION OF h_{FE}

Item	Q	R	S
Range	120-270	180-390	270-560
Marking	BQ	BR	BS

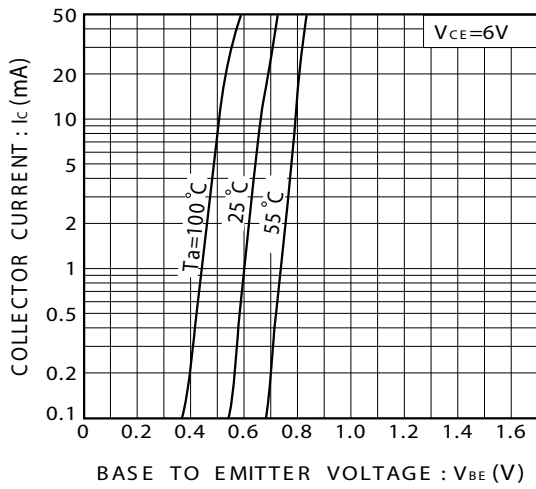


FIG.1 Grounded emitter propagation characteristics

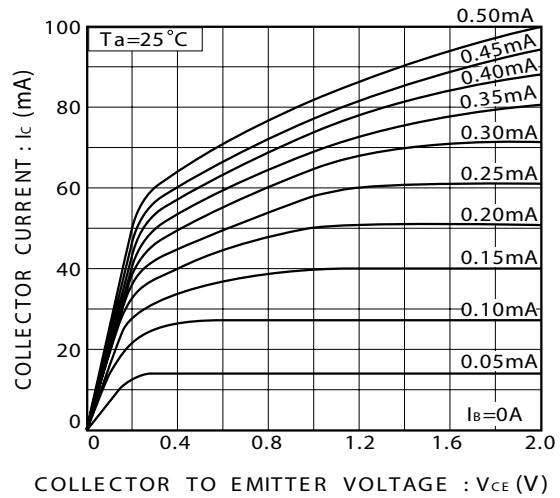


FIG.2 Grounded emitter output characteristics (I)

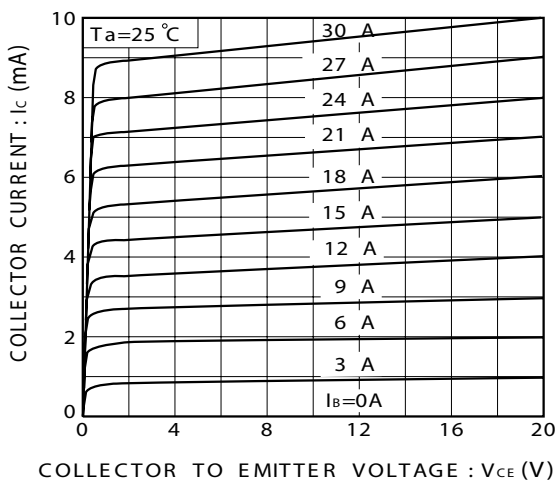


FIG.3 Grounded emitter output characteristics (I)

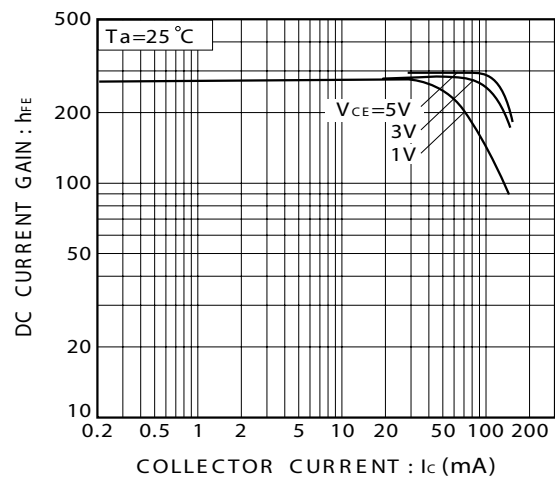


FIG.4 DC current gain vs. collector current (I)

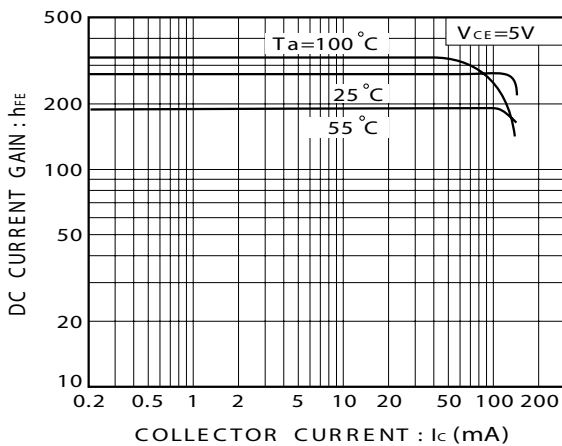


FIG.5 DC current gain vs. collector current (I)

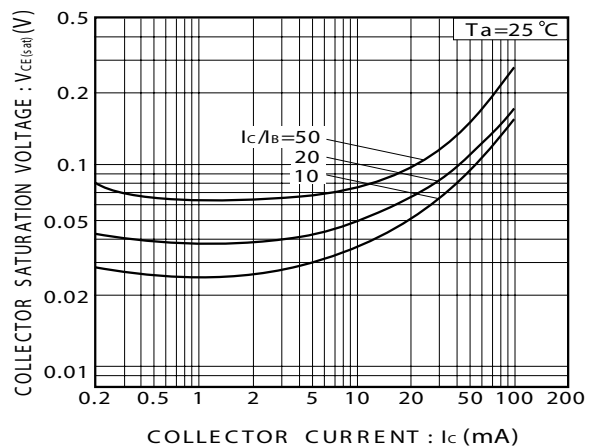


FIG.6 Collector-emitter saturation voltage vs. collector current

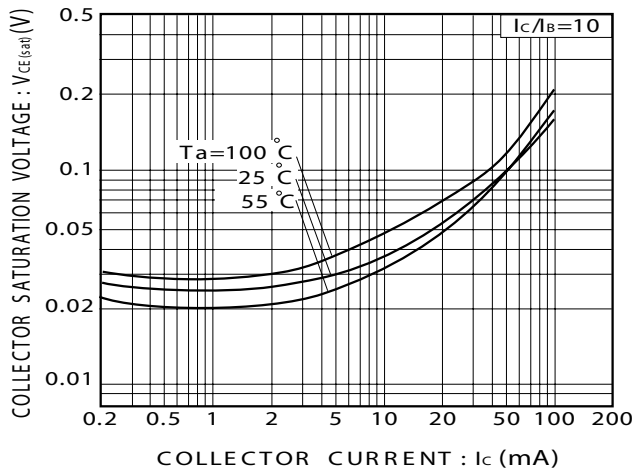


FIG.7 Collector-emitter saturation voltage vs. collector current (I)

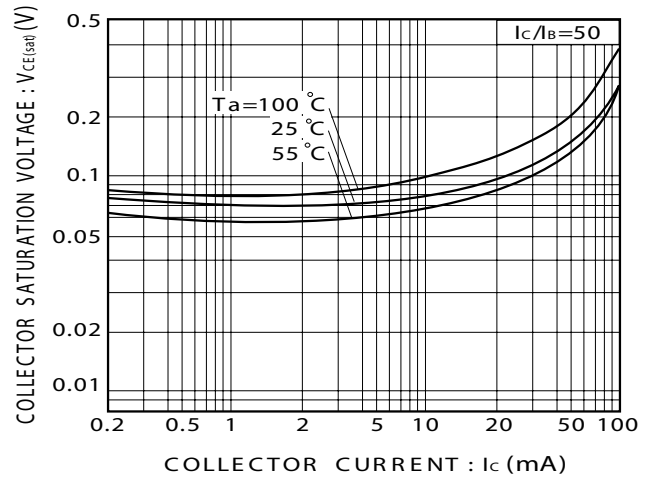


FIG.8 Collector-emitter saturation voltage vs. collector current (I)

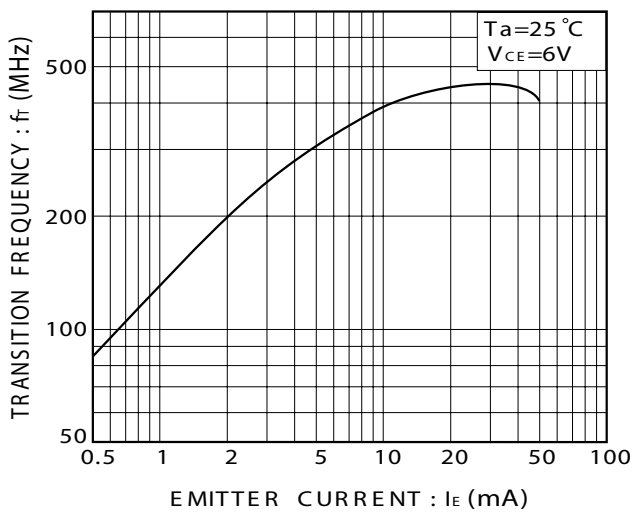
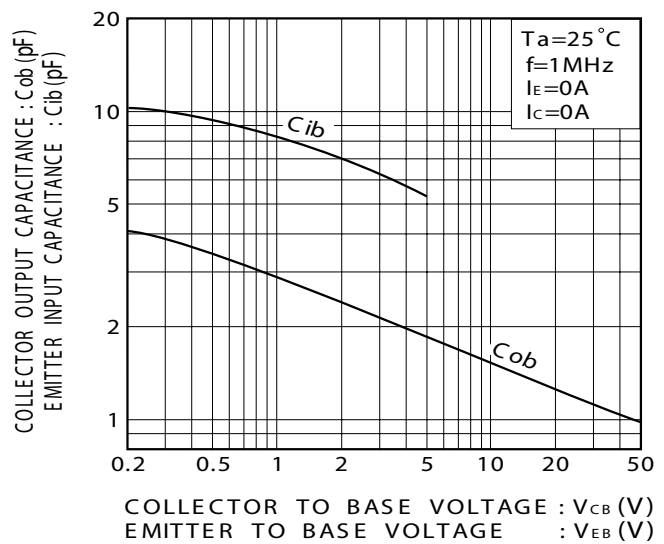


FIG.9 Gain bandwidth product vs. emitter current



**FIG.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage**

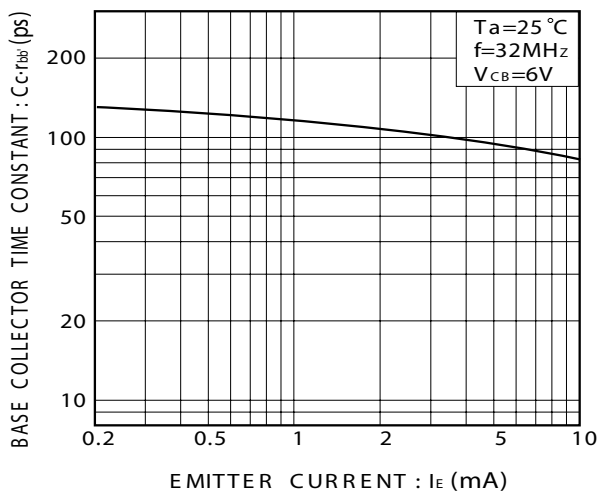


FIG.11 Base-collector time constant vs. emitter current

SC-89 Outline Demensions

Unit:mm

