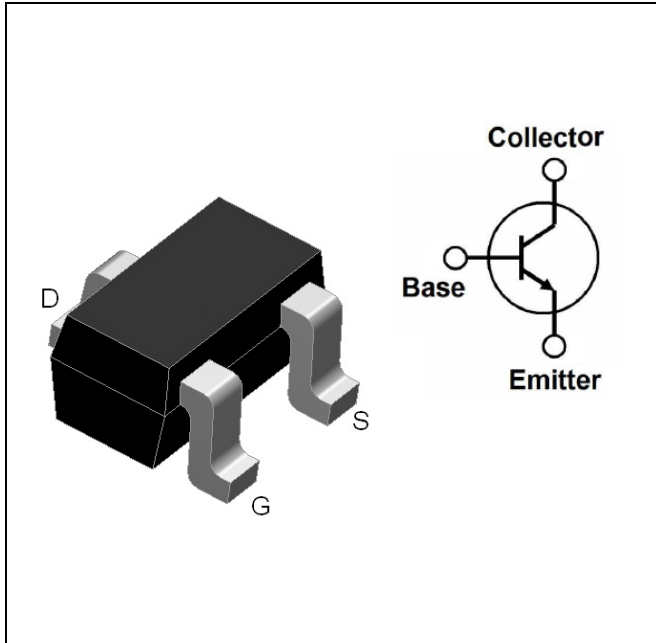


## GENERAL PURPOSE TRANSISTORS NPN Silicon



### FEATURES

- Low Collector Output Capacitance

### MECHANICAL DATA

- Available in SOT-523 Package
- Solderability : MIL-STD-202, Method 208
- Full RoHS Compliance

### ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
2SC4617□-△-5T3R	SOT-523	Tape Reel	See Classification Of $h_{FE}$

#### Notes:

1. □: none is for Lead Free package;  
"G" is for Halogen Free package.
2. △: Rank Of  $h_{FE}$ ; See Classification Of  $h_{FE}$

### THERMAL DATA

PARAMETER	SYMBOL	VALUES	UNIT
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	833	°C/W

#### Notes:

3. The value of  $R_{\theta JA}$  is measured with device mounted on 1 in<sup>2</sup> FR-4 board with 2 oz copper.

### ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$ , unless otherwise specified. (Note 1)

PARAMETER	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CEO}$	50	V
Collector-Base Voltage	$V_{CBO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current (Continuous)	$I_C$	150	mA
Collector dissipation	$P_C$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 ~ +150	$^\circ\text{C}$

**Note:**

1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ , unless otherwise noted.

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	50			V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 50\mu\text{A}, I_E = 0$	60			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 50\mu\text{A}, I_C = 0$	7			V
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 7\text{V}, I_E = 0$			0.1	$\mu\text{A}$
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60\text{V}, I_E = 0$			0.1	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
Dc Current Gain	$h_{FE}$	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	120		560	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.4	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Collector Capacitance	$C_{ob}$	$V_{CB} = 12\text{V}, I_E = 0, f = 1\text{MHz}$			3.5	pF
Transition Frequency	$f_T$	$V_{CE} = 12\text{V}, I_C = 2\text{mA}, f = 100\text{MHz}$		180		MHz

### CLASSIFICATION OF $h_{FE}$

RANK	Q	R	S
$h_{FE}$ RANGE	120~270	180~390	270~560
MARKING	<b>BQ</b>	<b>BR</b>	<b>BS</b>

## ELECTRICAL CHARACTERISTICS CURVES

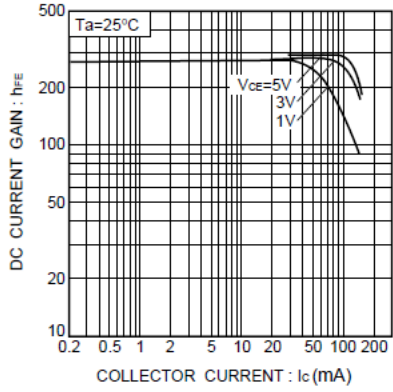


Fig.1 DC current gain vs. collector current ( I )

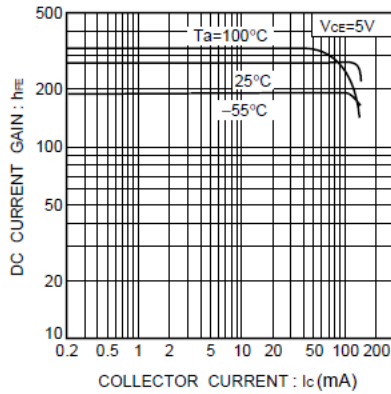


Fig.2 DC current gain vs. collector current ( II )

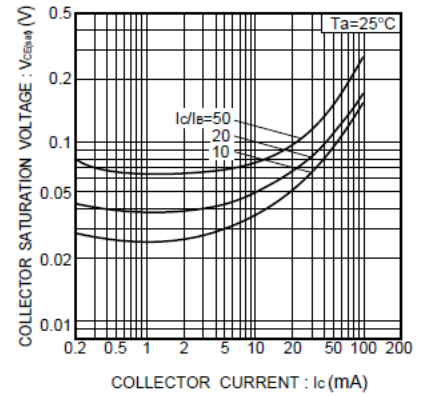


Fig.3 Collector-emitter saturation voltage vs. collector current

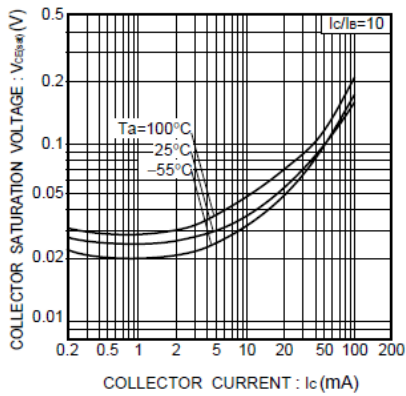


Fig.4 Collector-emitter saturation voltage vs. collector current ( I )

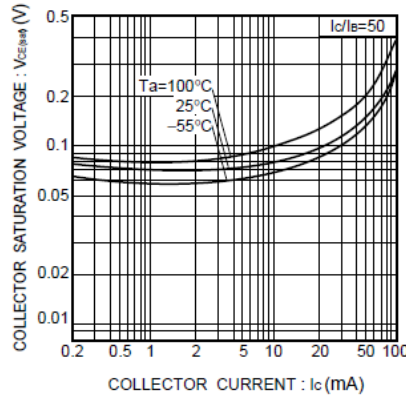


Fig.5 Collector-emitter saturation voltage vs. collector current ( II )

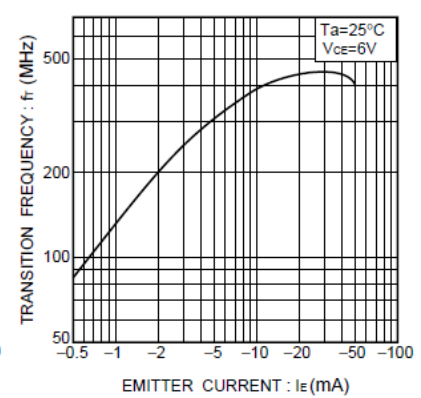


Fig.6 Gain bandwidth product vs. emitter current

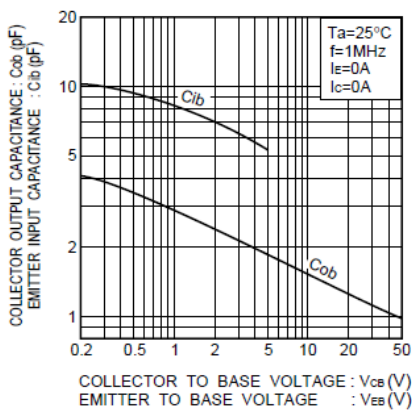


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

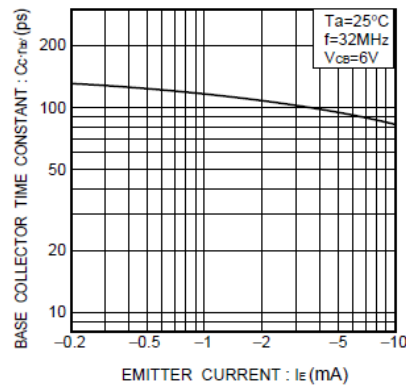


Fig.8 Base-collector time constant vs. emitter current

**PHYSICAL DIMENSION**

Unit : Inch (Millimeter)

