

# NPN general purpose transistor

## SST6838

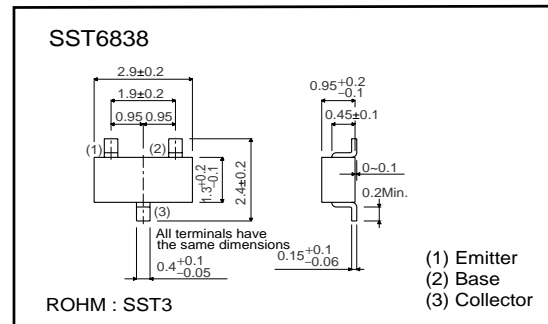
### ●Features

- 1)  $V_{CE0}$  minimum is 40V ( $I_c = 1\text{mA}$ )
- 2) Complements the SST6839.

### ●Package, marking and packaging specifications

Part No.	SST6838
Packaging type	SST3
Marking	RBR
Code	T116
Basic ordering unit (pieces)	3000

### ●External dimensions (Unit : mm)



### ●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage	$V_{CEO}$	40	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_c$	0.2	A
Collector power dissipation	$P_c$	0.2	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### ●Electrical characteristics ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$V_{CBO}$	50	-	-	V	$I_c=10\mu\text{A}$ ( $T_a=-40^\circ\text{C}$ to $+125^\circ\text{C}$ )
Collector-emitter breakdown voltage	$V_{CEO}$	40	-	-	V	$I_c=1\text{mA}$ ( $T_a=-40^\circ\text{C}$ to $+125^\circ\text{C}$ )
Collector cutoff current	$I_{CBO}$	-	-	0.5	$\mu\text{A}$	$V_{CB}=30\text{V}$ ( $T_a=85^\circ\text{C}$ )
		-	-	5		$V_{CB}=30\text{V}$ ( $T_a=125^\circ\text{C}$ )
Emitter cutoff current	$I_{EBO}$	-	-	0.5	$\mu\text{A}$	$V_{EB}=4\text{V}$ ( $T_a=85^\circ\text{C}$ )
		-	-	5		$V_{EB}=4\text{V}$ ( $T_a=125^\circ\text{C}$ )
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_c/I_b=50\text{mA}/5\text{mA}$ ( $T_a=25^\circ\text{C}$ )
		-	-	0.5		$I_c/I_b=10\text{mA}/0.2\text{mA}$ ( $T_a=85^\circ\text{C}$ )
		-	-	0.7		$I_c/I_b=10\text{mA}/0.2\text{mA}$ ( $T_a=125^\circ\text{C}$ )
DC current transfer ratio	$h_{FE1}$	200	-	-	-	$V_{CE}/I_c=5\text{V}/1\text{mA}$ ( $T_a=-40^\circ\text{C}$ to $+25^\circ\text{C}$ )
		-	-	800		$V_{CE}/I_c=5\text{V}/1\text{mA}$ ( $T_a=85^\circ\text{C}$ )
		-	-	1000		$V_{CE}/I_c=5\text{V}/1\text{mA}$ ( $T_a=125^\circ\text{C}$ )
DC current transfer ratio	$h_{FE2}$	150	-	-	-	$V_{CE}/I_c=5\text{V}/10\text{mA}$ ( $T_a=-40^\circ\text{C}$ to $+25^\circ\text{C}$ )
Transition frequency	$f_t$	50	180	-	MHz	$V_{CE}=12\text{V}$ , $I_c=2\text{mA}$ , $f=100\text{MHz}$ ( $T_a=25^\circ\text{C}$ )
Collector output capacitance	$C_{ob}$	-	2	3.5	pF	$V_{CB}=12\text{V}$ , $f=1\text{MHz}$ ( $T_a=25^\circ\text{C}$ )
Emitter input capacitance	$C_{ib}$	-	17	-	pF	$V_{EB}=0.5\text{V}$ , $f=1\text{MHz}$ ( $T_a=25^\circ\text{C}$ )

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●Electrical characteristic curves

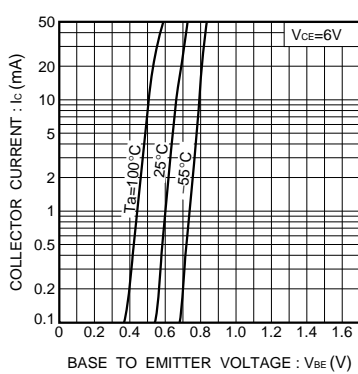


Fig.1 Grounded emitter propagation characteristics

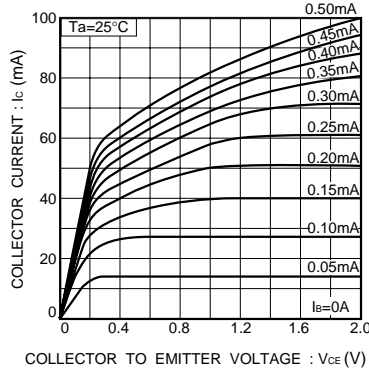


Fig.2 Grounded emitter output characteristics ( I )

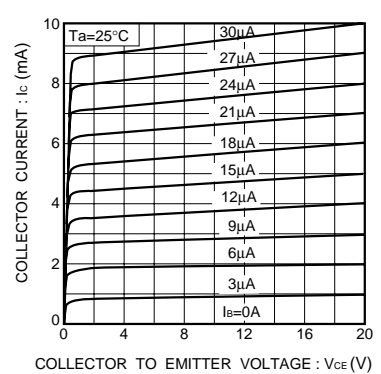


Fig.3 Grounded emitter output characteristics ( II )

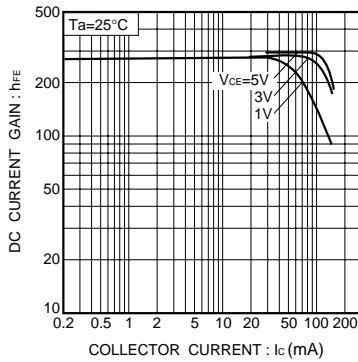


Fig.4 DC current gain vs. collector current ( I )

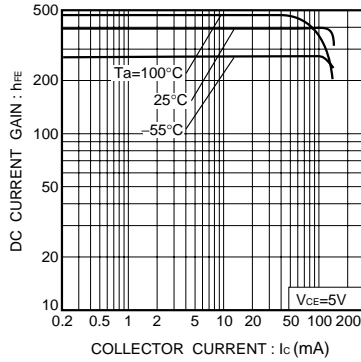


Fig.5 DC current gain vs. collector current ( II )

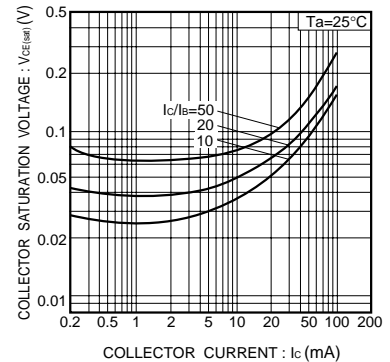


Fig.6 Collector-emitter saturation voltage vs. collector current

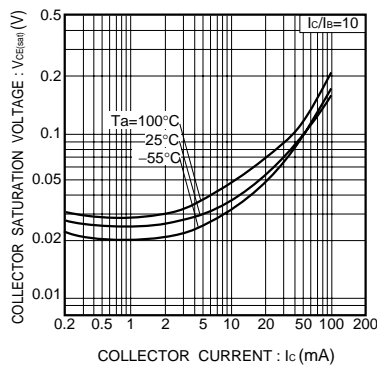


Fig.7 Collector-emitter saturation voltage vs. collector current ( I )

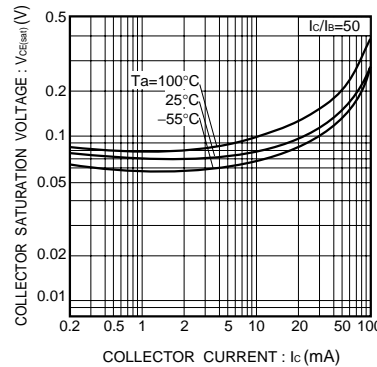


Fig.8 Collector-emitter saturation voltage vs. collector current ( II )

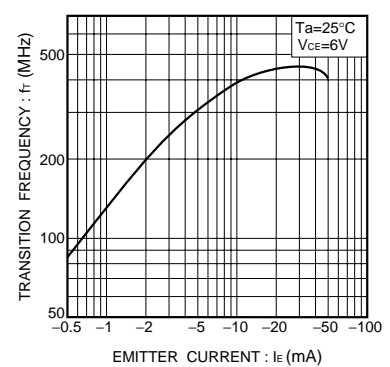


Fig.9 Gain bandwidth product vs. emitter current

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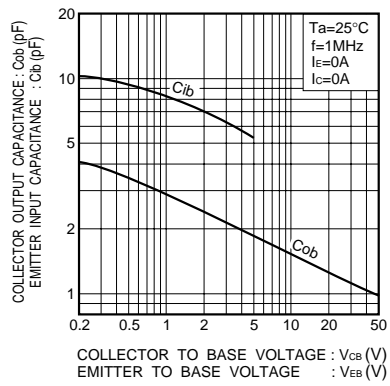


Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

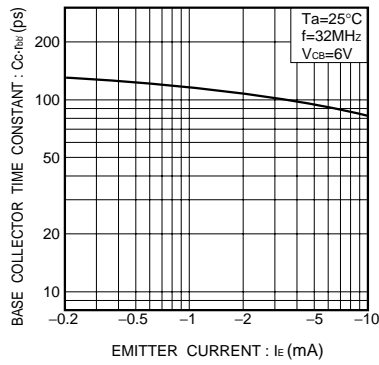


Fig.11 Base-collector time constant vs. emitter current

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