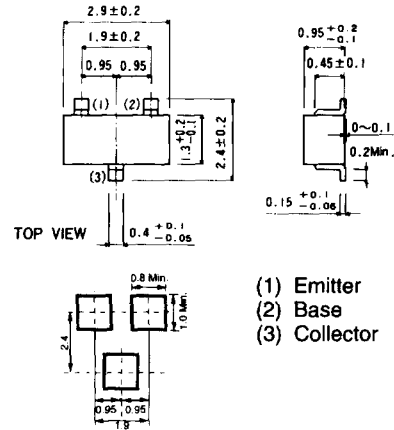


Features

- available in an SST3 (SST, SOT-23) package, see page 300
- collector-to-emitter breakdown voltage, $V_{CEO} = 40 \text{ V}$ (min) at $I_C = 1.0 \text{ mA}$
- excellent gain linearity from $100 \mu\text{A}$ to 100 mA
- high transition frequency, $f_T = 250 \text{ MHz}$ (min) at $I_C = 10 \text{ mA}$
- low noise, $NF = 3.0 \text{ dB}$ max at $I_C = 100 \mu\text{A}$, $f = 10 \text{ Hz}$ to 15.7 kHz

Dimensions (Units : mm)

SST3



Device types

Package	Part number	Part marking
SST3 (SOT-23)	SST6839 BC857B BC858B	RFQ G3F G3K

Applications

- low noise, high gain, general purpose transistor

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

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	50	V	
Collector-to-emitter voltage	V_{CEO}	40	V	
Emitter-to-base voltage	V_{EBO}	5	V	
Collector current	I_C	200	mA	DC
Power dissipation	P_C	200	mW	For derating, see derating curve following
Junction temperature	T_j	-55 ~ +150	$^\circ\text{C}$	

A-32 Transistors (US/European) PNP

Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CBO}	50			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	40			V	$I_C = 1.0 \text{ mA}$
Emitter-to-base breakdown voltage	BV_{EBO}	5			V	$I_E = 10 \mu\text{A}$
Collector cutoff current	I_{CBO}			10	nA	$V_{CB} = 35 \text{ V}$
Emitter cutoff current	I_{EBO}			50	nA	$V_{EB} = 5 \text{ V}$
DC current gain	h_{FE}	80	175	400		$I_C = 50 \mu\text{A}, V_{CE} = 5.0 \text{ V}$
		80	175	400		$I_C = 100 \mu\text{A}, V_{CE} = 5.0 \text{ V}$
		100	200	500		$I_C = 500 \mu\text{A}, V_{CE} = 5.0 \text{ V}$
		100	300	800		$I_C = 1 \text{ mA}, V_{CE} = 5.0 \text{ V}$
		100	300	800		$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$
		100	250	600		$I_C = 50 \text{ mA}, V_{CE} = 5.0 \text{ V}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$		0.08	0.15	V	$I_C/I_B = 10 \text{ mA}/1.0 \text{ mA}$
			0.18	0.30		$I_C/I_B = 50 \text{ mA}/5.0 \text{ mA}$
Base-to-emitter saturation voltage	$V_{BE(sat)}$		0.70	0.85	V	$I_C/I_B = 10 \text{ mA}/1.0 \text{ mA}$
				1.00		$I_C/I_B = 50 \text{ mA}/5.0 \text{ mA}$
AC current gain	h_{fe}	200	300	750		$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V}, f = 1 \text{ kHz}$
Collector output capacitance	C_{ob}		4.0	5.0	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Collector input capacitance	C_{ib}		16	20	pF	$V_{EB} = 0.5 \text{ V}, I_C = 0, f = 1 \text{ MHz}$
Transition frequency	f_T	250			MHz	$V_{EB} = 0.5 \text{ V}, I_C = 10 \text{ mA}, f = 100 \text{ MHz}$
Noise figure	NF		5	7	dB	$I_C = 100 \mu\text{A}, V_{CE} = 5.0 \text{ V},$ $R_S = 10 \text{ k}\Omega, f = 10 \text{ Hz},$ bandwidth = 1 Hz
			0.8	2		$I_C = 100 \mu\text{A}, V_{CE} = 5.0 \text{ V},$ $R_S = 10 \text{ k}\Omega, f = 1 \text{ kHz},$ bandwidth = 1 Hz
			0.8	2		$I_C = 100 \mu\text{A}, V_{CE} = 5.0 \text{ V},$ $R_S = 10 \text{ k}\Omega, f = 10 \text{ kHz},$ bandwidth = 1 Hz
			1	3		$I_C = 100 \mu\text{A}, V_{CE} = 5.0 \text{ V},$ $R_S = 10 \text{ k}\Omega, f = 10 \text{ Hz to } 15.7 \text{ kHz}$

Note: Minus sign for PNP transistor is omitted

Electrical characteristic curves

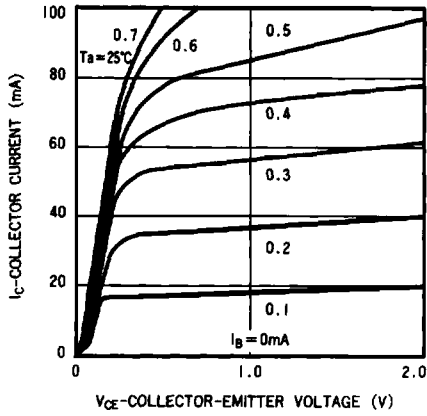


Figure 1

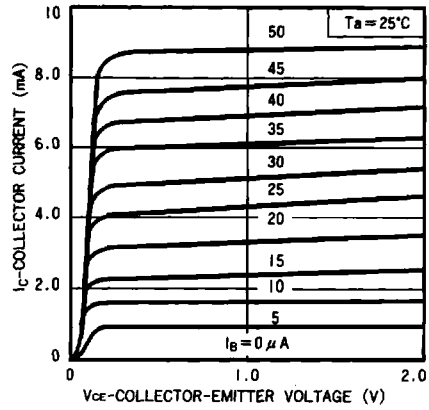


Figure 2

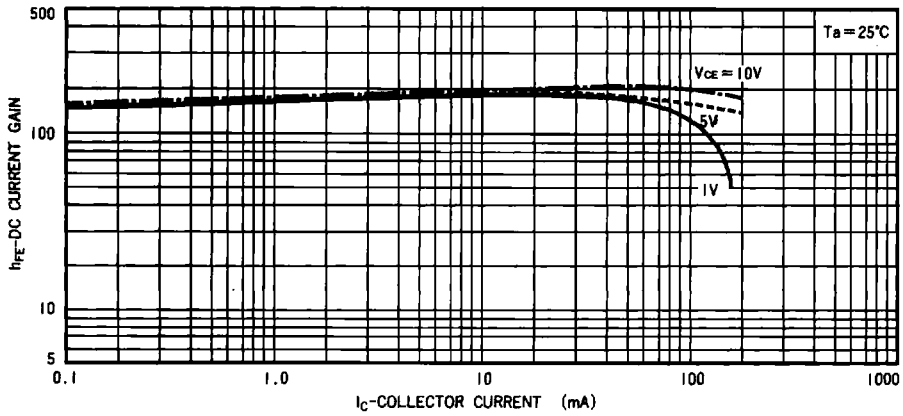


Figure 3

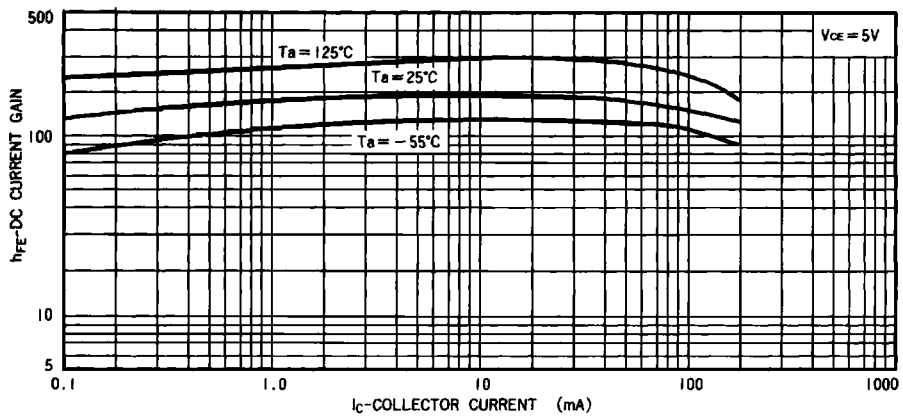


Figure 4

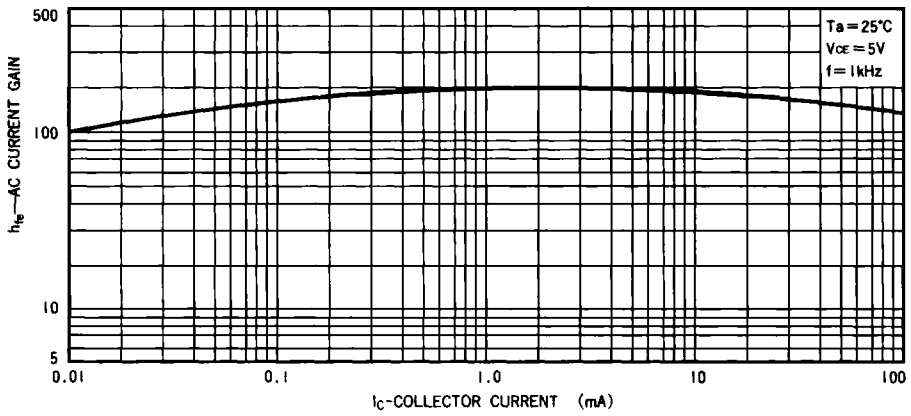


Figure 5

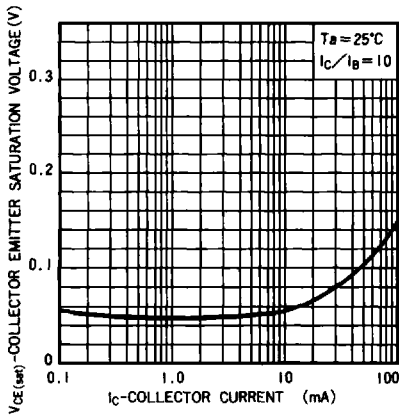


Figure 6

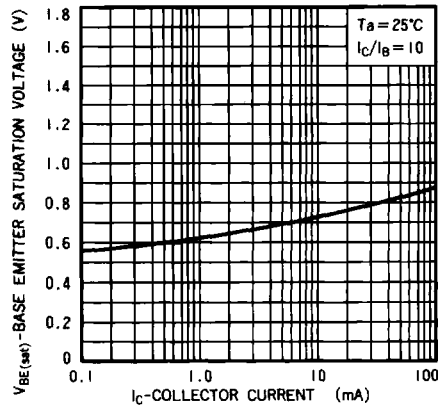


Figure 7

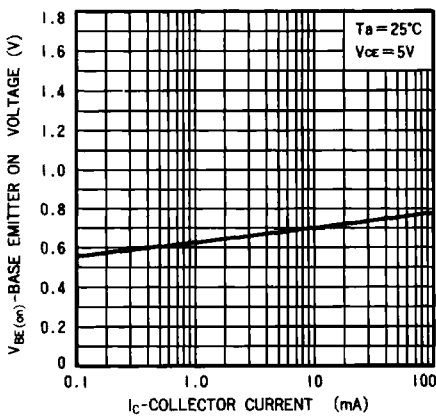


Figure 8

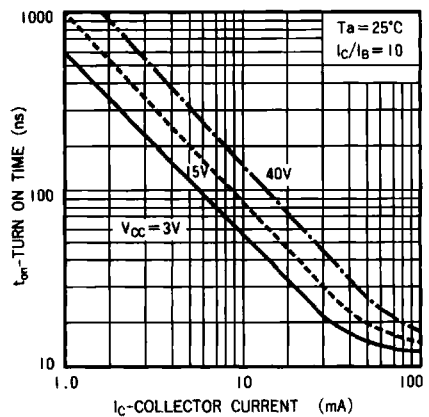


Figure 9

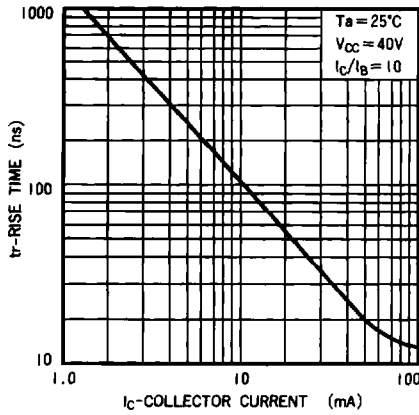


Figure 10

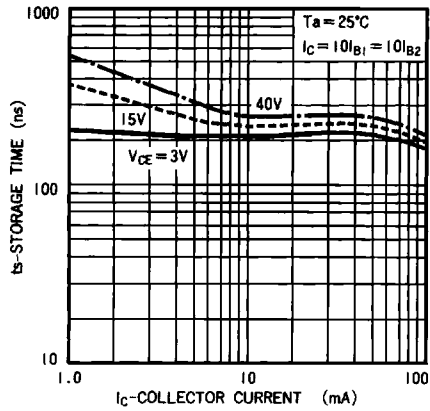


Figure 11

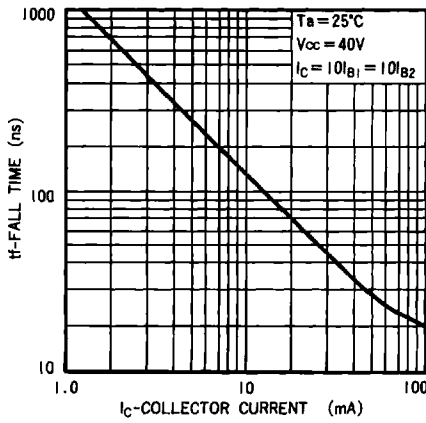


Figure 12

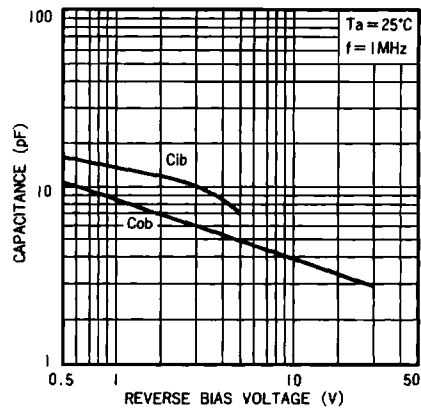


Figure 13

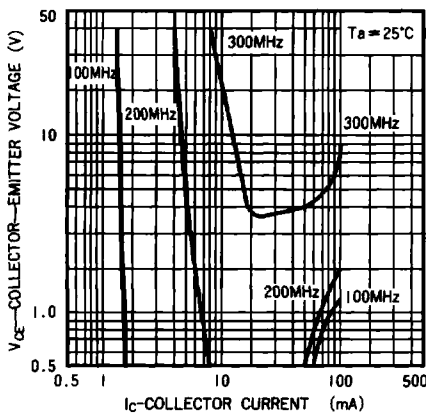


Figure 14

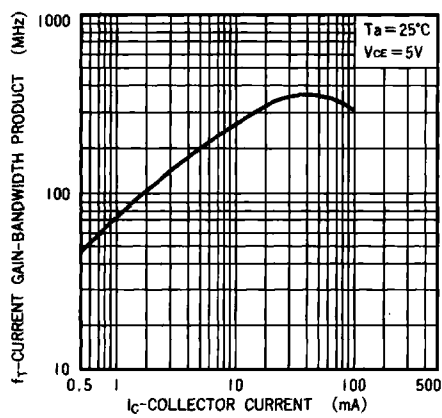


Figure 15

A-32 Transistors (US/European) PNP

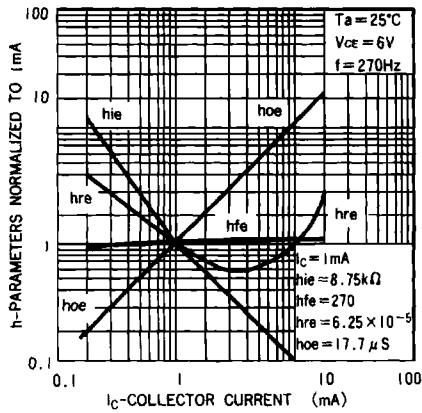


Figure 16

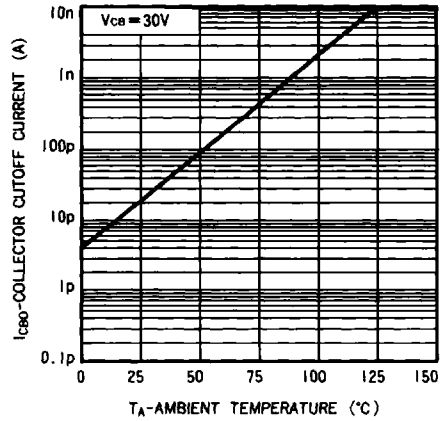


Figure 17

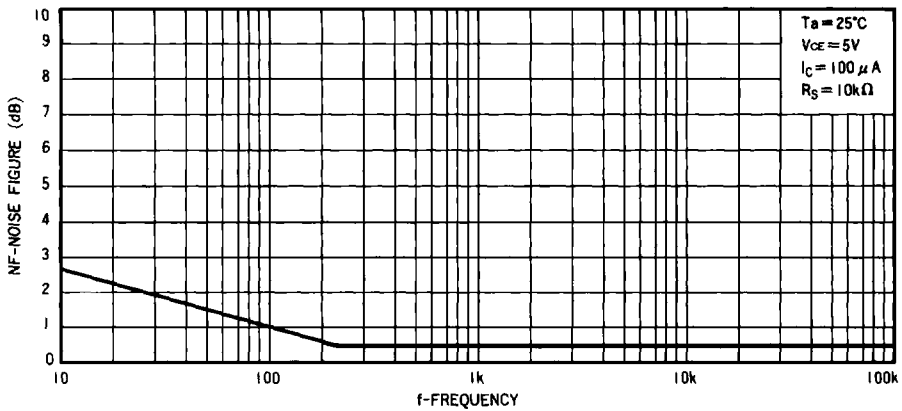


Figure 18

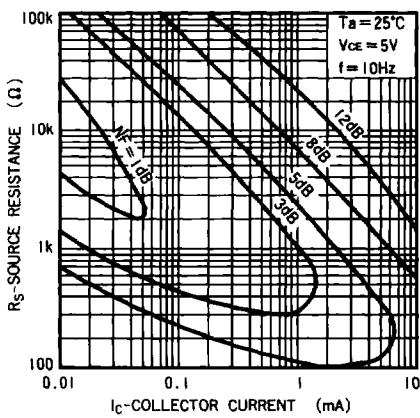


Figure 19

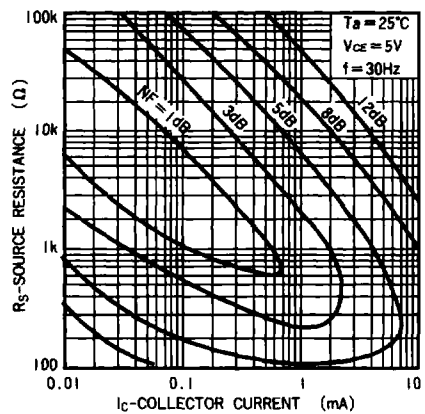


Figure 20

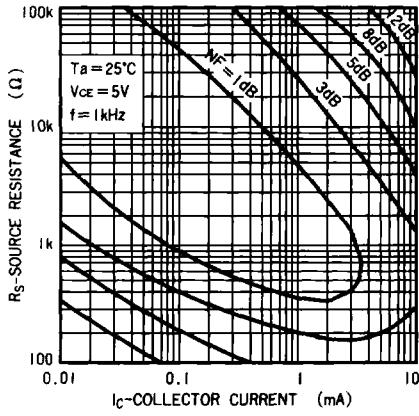


Figure 21

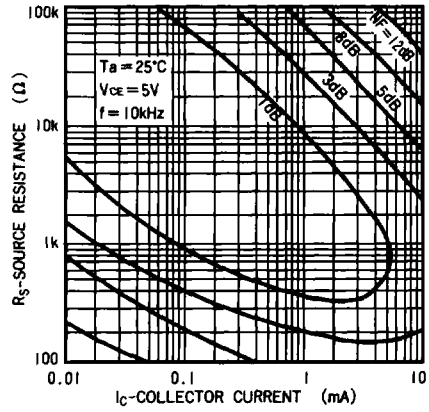


Figure 22

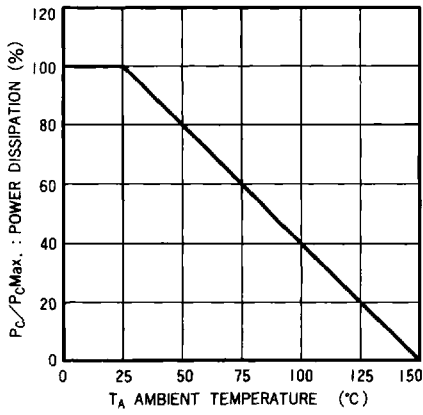


Figure 23