



2SA1687/2SC4446

Low-Frequency General-Purpose Amplifier Applications

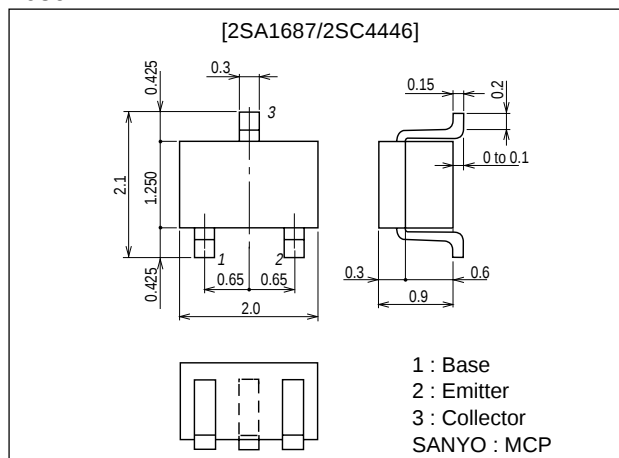
Features

- Ultrasmall-sized package permitting the 2SA1687/2SC4446-applied sets to be made small and slim.
- High V_{EBO} .

Package Dimensions

unit:mm

2059B



() : 2SA1687

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)15	V
Collector Current	I_C		(-)150	mA
Collector Current (Pulse)	I_{CP}		(-)300	mA
Base Current	I_B		(-)30	mA
Collector Dissipation	P_C		150	mW
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40\text{V}, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)10\text{V}, I_C=0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)6\text{V}, I_C=(-)1\text{mA}$	135*		600*	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)6\text{V}, I_C=(-)1\text{mA}$		130		MHz

* : The 2SA1687/2SC4446 are classified by 1mA h_{FE} as follows :

Marking : D (2SA1687)

H (2SC4446)

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 h_{FE} rank : 5, 6, 7

Rank	5	6	7
h_{FE}	135 to 270	200 to 400	300 to 600

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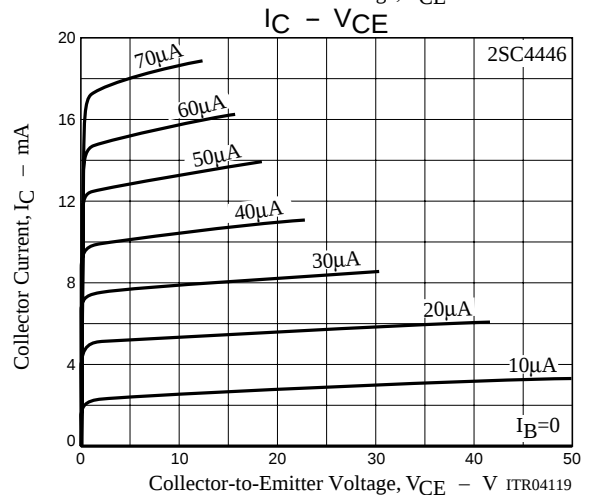
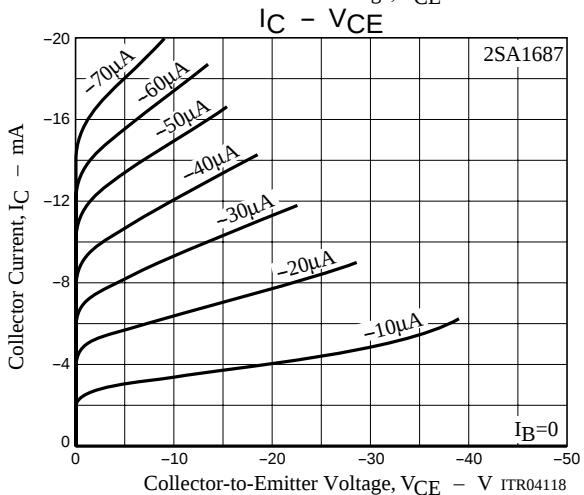
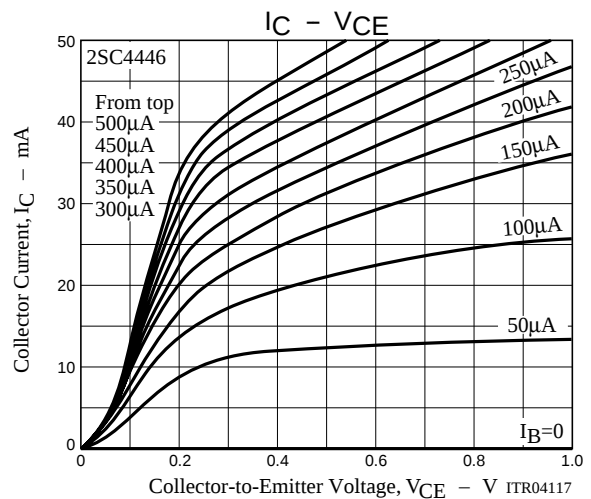
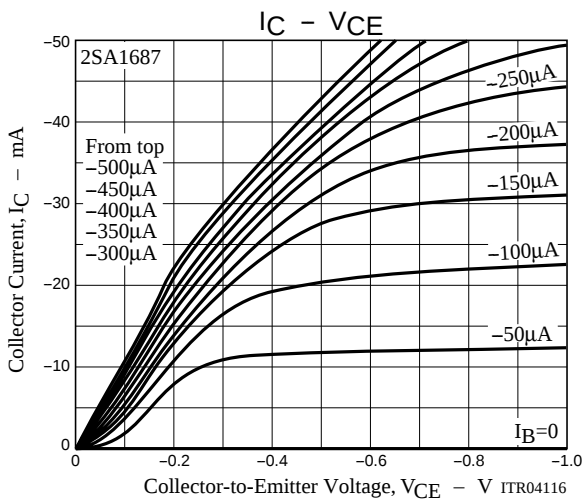
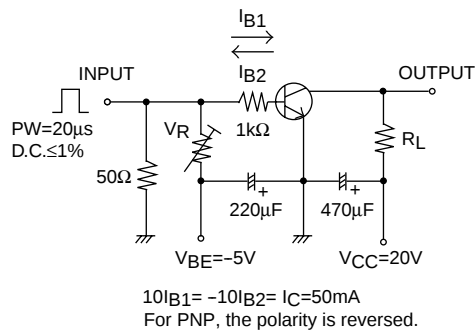
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2SA1687/2SC4446

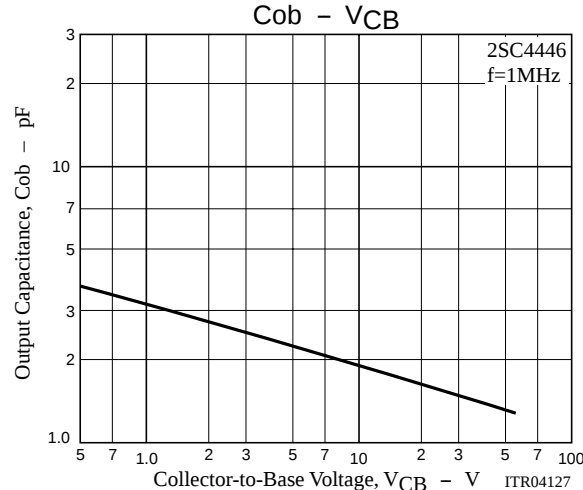
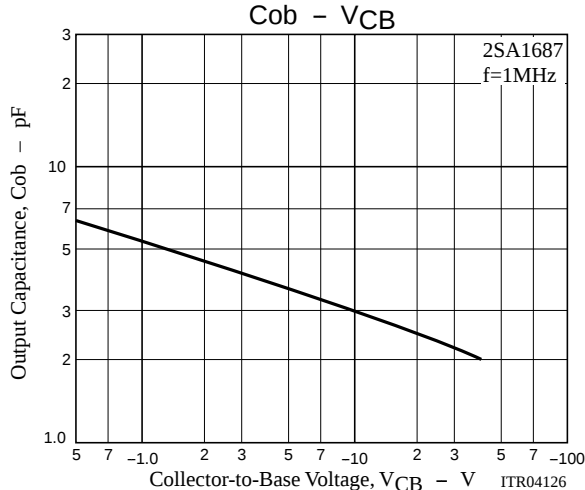
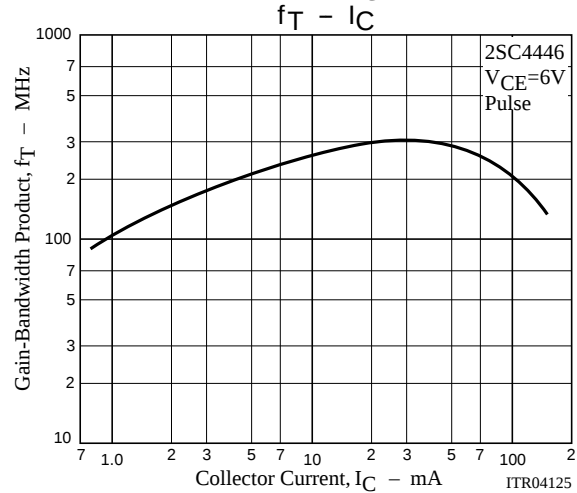
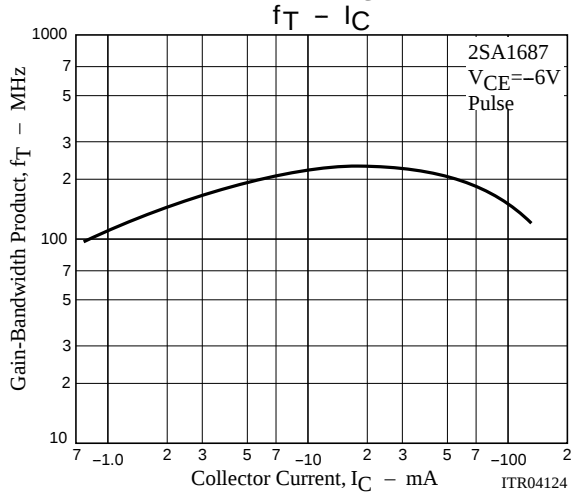
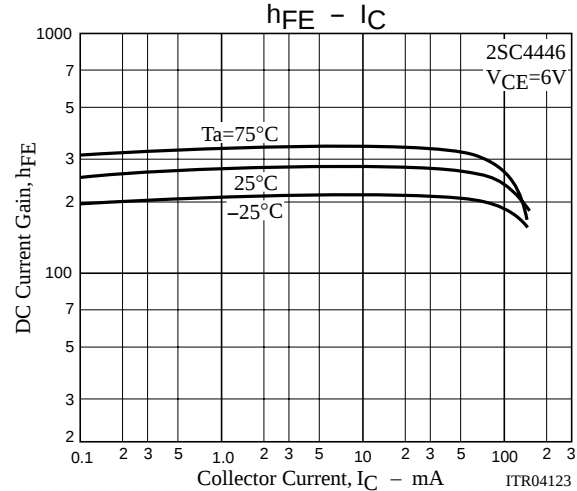
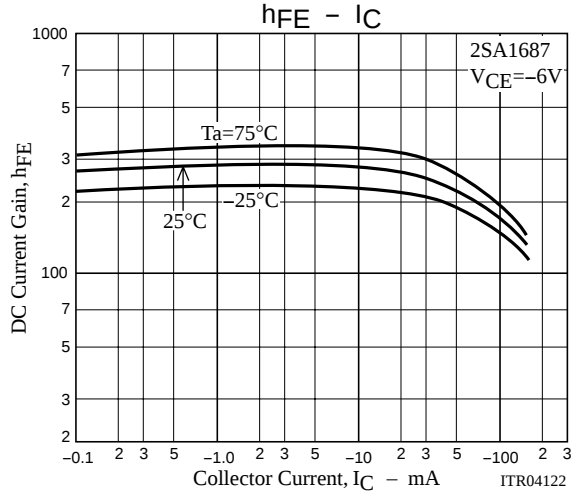
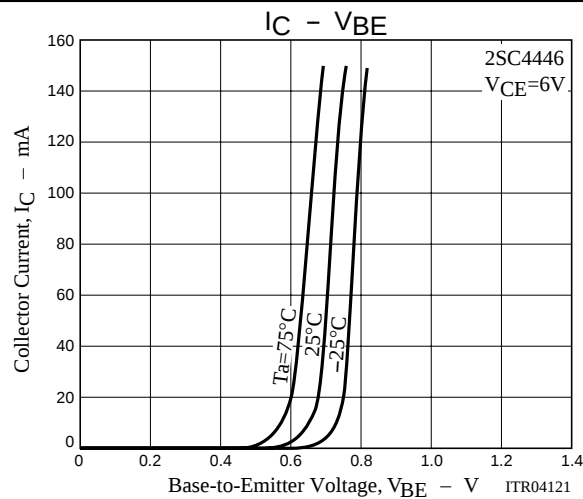
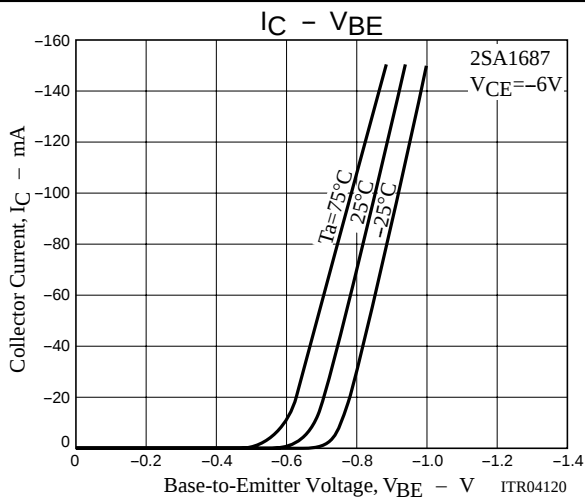
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)50\text{mA}$, $I_B=(-)5\text{mA}$		0.15	$(-)0.5$	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)50\text{mA}$, $I_B=(-)5\text{mA}$		$(-)0.25$		V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}$, $I_E=0$	$(-)60$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}$, $R_{BE}=\infty$	$(-)50$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}$, $I_C=0$	$(-)15$			V
Output Capacitance	C_{ob}	$V_{CB}=(-)6\text{V}$, $f=1\text{MHz}$		(3.5)		pF
				2.2		pF
Turn-ON Time	t_{on}	See specified Test Circuit		50		ns
Storage Time	t_{stg}	See specified Test Circuit		(460)		ns
				590		ns
Fall Time	t_f	See specified Test Circuit		(60)		ns
				110		ns

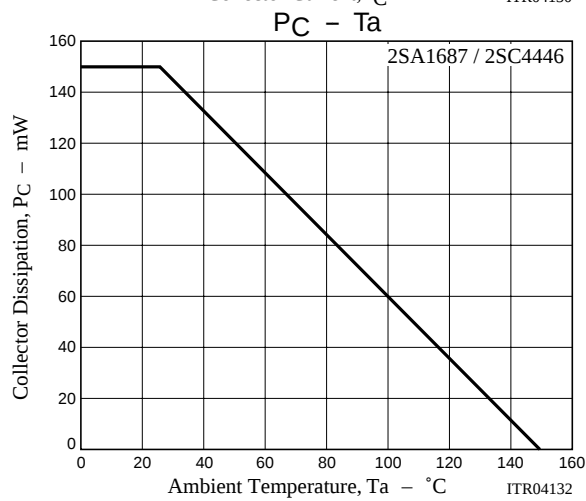
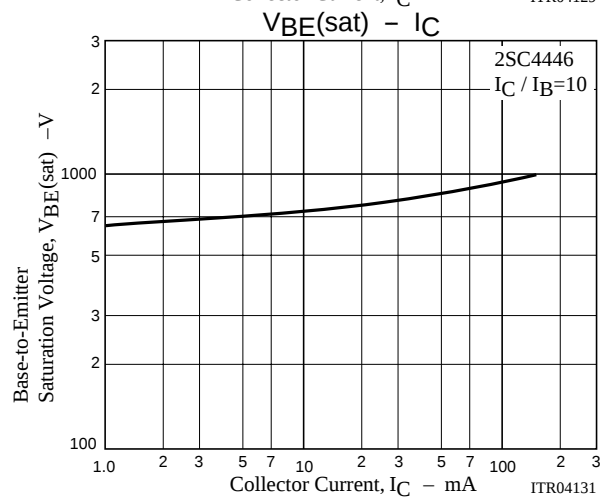
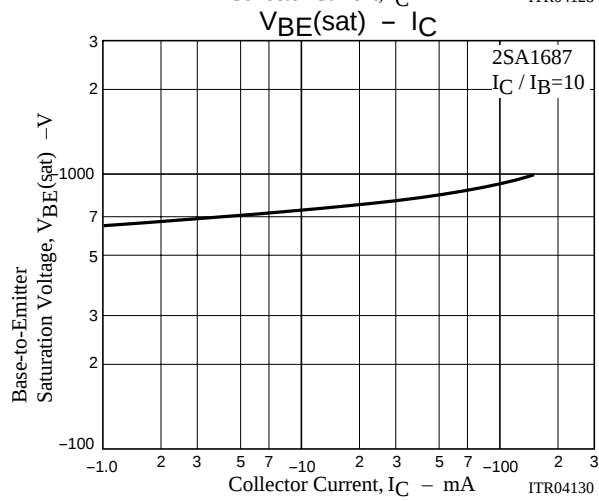
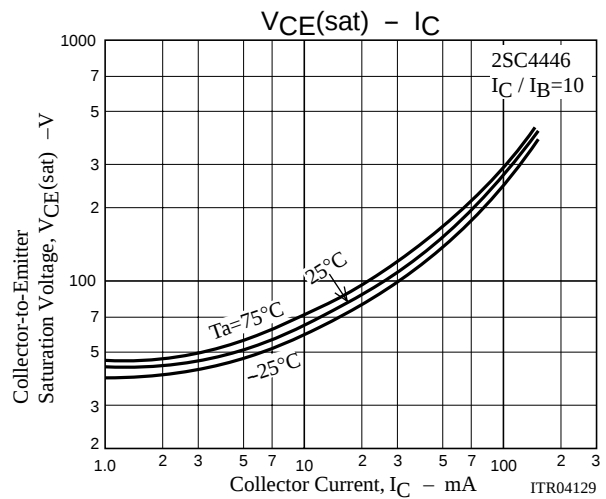
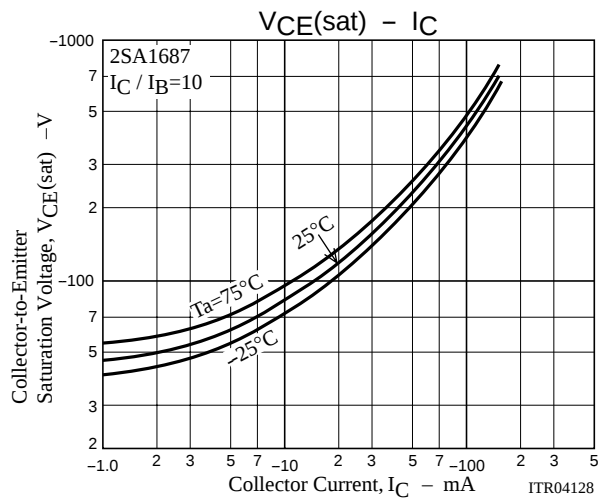
Switching Time Test Circuit



2SA1687/2SC4446



2SA1687/2SC4446



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