

**2SC3807**

## High $h_{FE}$ , Low-Frequency General-Purpose Amplifier Applications

### Applications

- Low frequency general-purpose amplifiers, drivers.

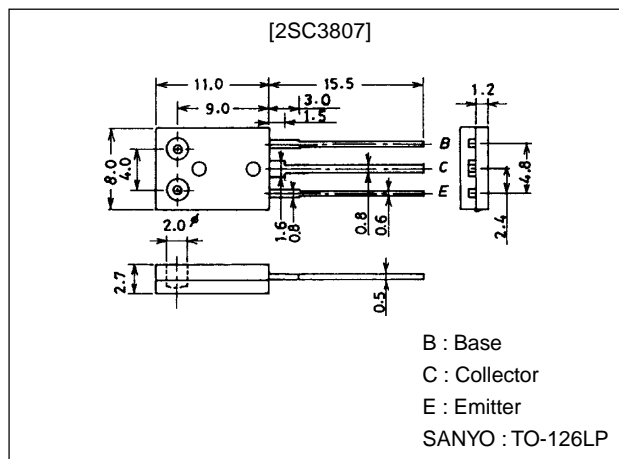
### Features

- Large current capacity ( $I_C=2A$ ).
- Adoption of MBIT process.
- High DC current gain ( $h_{FE}=800$  to  $3200$ ).
- Low collector-to-emitter saturation voltage ( $V_{CE(sat)} \leq 0.5V$ ).
- High  $V_{EBO}$  ( $V_{EBO} \geq 15V$ ).

### Package Dimensions

unit:mm

2043A



### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		30	V
Collector-to-Emitter Voltage	$V_{CEO}$		25	V
Emitter-to-Base Voltage	$V_{EBO}$		15	V
Collector Current	$I_C$		2	A
Collector Current (Pulse)	$I_{CP}$		4	A
Collector Dissipation	$P_C$		1.2	W
		$T_c=25^\circ C$	15	W
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

#### Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=20V, I_E=0$			0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=10V, I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE1}$	$V_{CE}=5V, I_C=500mA$	800	1500	3200	
	$h_{FE2}$	$V_{CE}=5V, I_C=1A$	600			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=50mA$		260		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		27		pF

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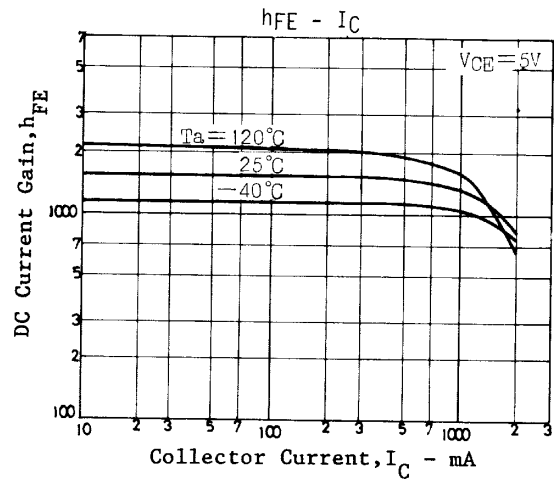
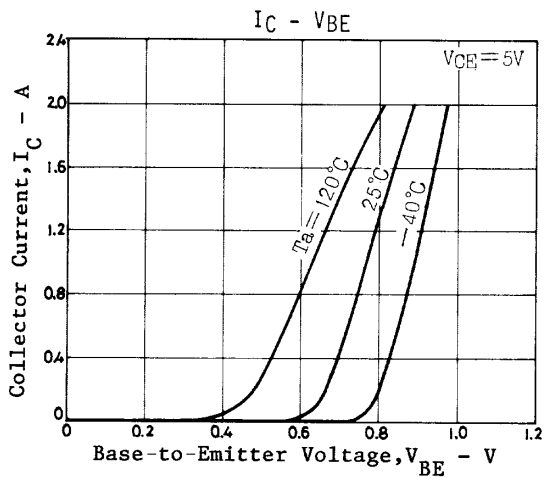
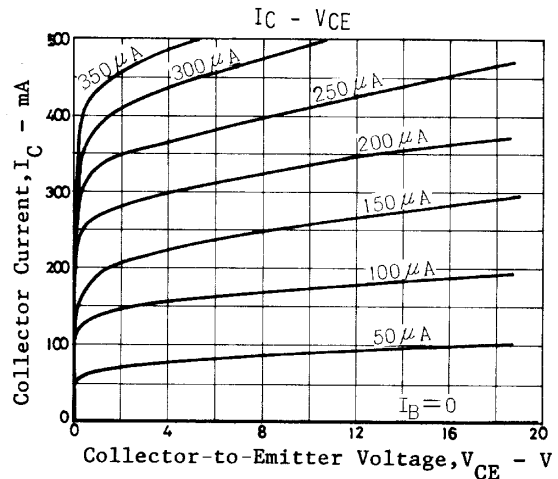
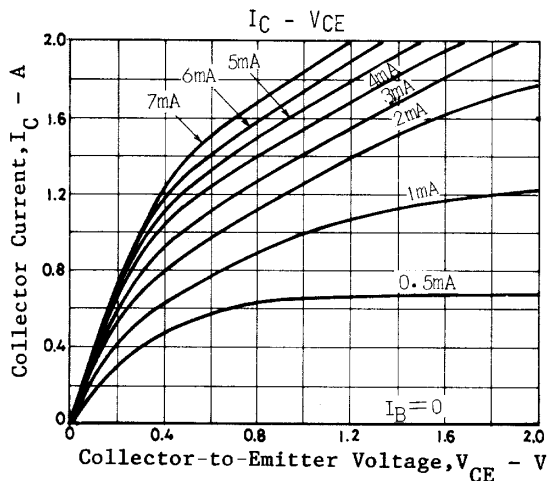
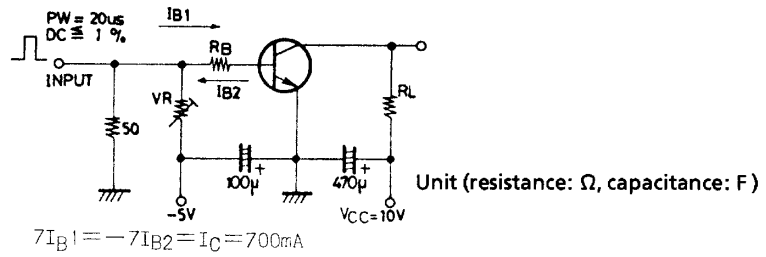
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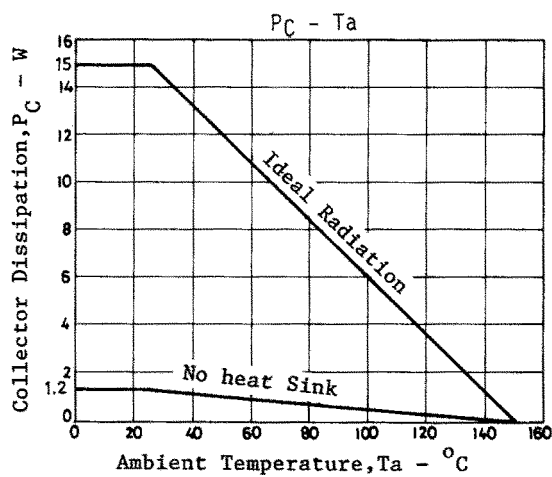
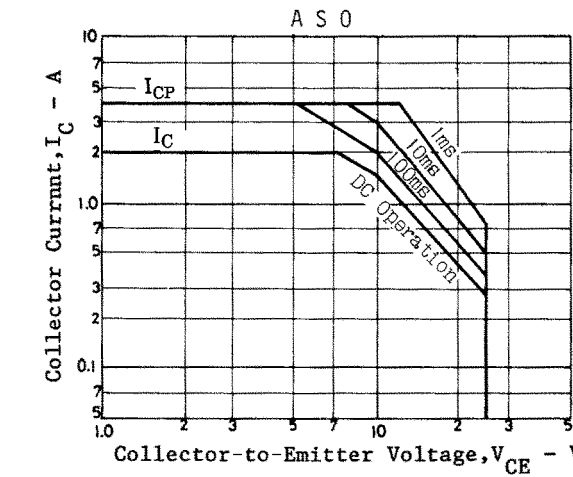
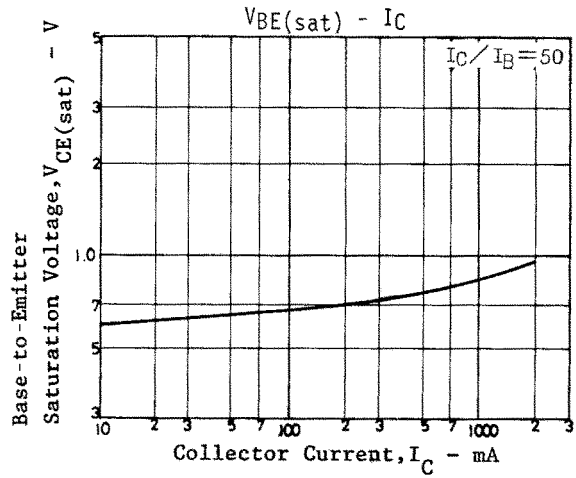
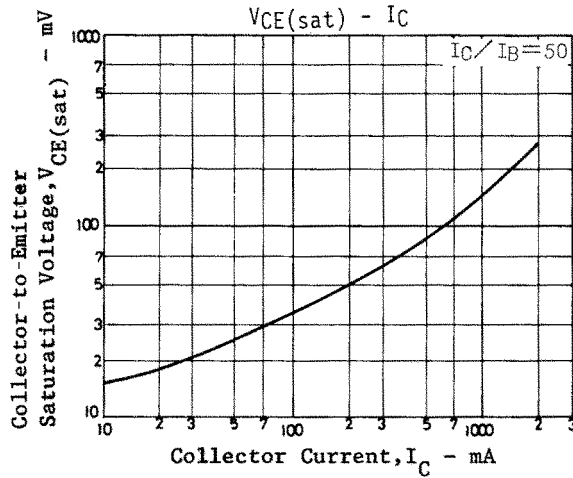
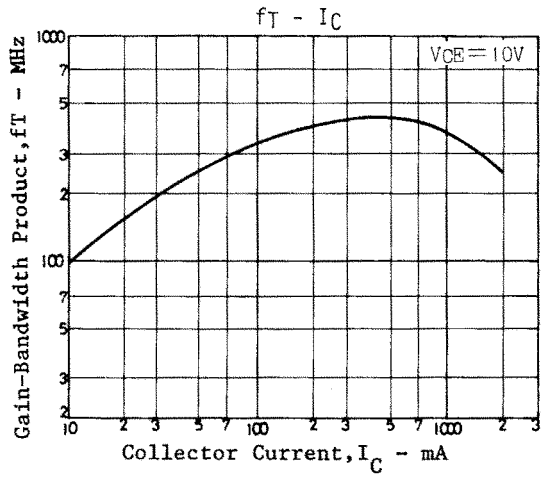
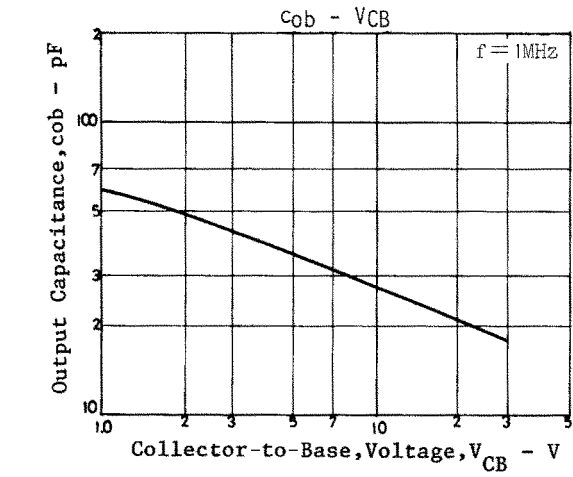
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A, I_B=20mA$		0.15	0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=20mA$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	25			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	15			V
Turn-ON Time	$t_{on}$	See specified test circuit.		0.14		$\mu s$
Storage Time	$t_{stg}$	See specified test circuit.		1.35		$\mu s$
Fall Time	$t_f$	See specified test circuit.		0.1		$\mu s$

## Switching Time Test Circuit



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