

**2SC4204****High-h<sub>FE</sub>, AF Amplifier Applications****Applications**

- AF amplifier, various drivers.

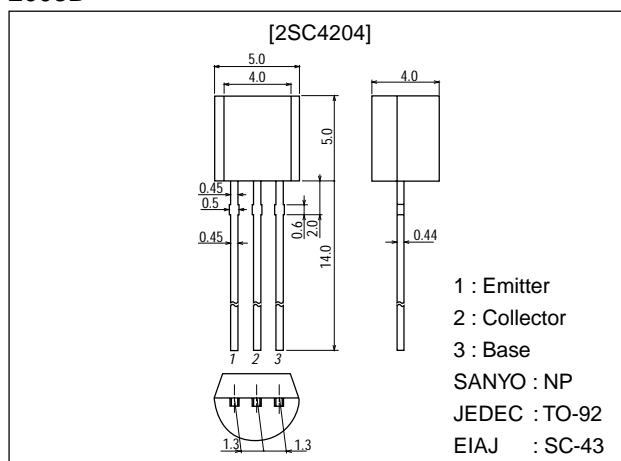
**Features**

- Adoption of MBIT process.
- High DC current gain ( $h_{FE}=800$  to 3200).
- Large current capacity ( $I_C=0.7A$ ).
- Low collector-to-emitter saturation voltage ( $V_{CE(sat)}\leq 0.5V$ ).
- High  $V_{EBO}$  ( $V_{EBO}\geq 15V$ ).

**Package Dimensions**

unit:mm

2003B

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		30	V
Collector-to-Emitter Voltage	$V_{CEO}$		25	V
Emitter-to-Base Voltage	$V_{EBO}$		15	V
Collector Current	$I_C$		0.7	A
Collector Current (Pulse)	$I_{CP}$		1.5	A
Collector Dissipation	$P_C$		0.6	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

**Electrical Characteristics at Ta = 25°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	$h_{FE1}$	$V_{CE}=5V, I_C=50mA$	800	1500	3200	
	$h_{FE2}$	$V_{CE}=5V, I_C=500mA$	600			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=50mA$		270		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		9		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=10mA$	0.15	0.50		V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500mA, I_B=10mA$	0.9	1.2		V

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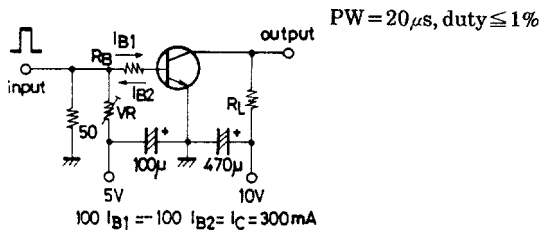
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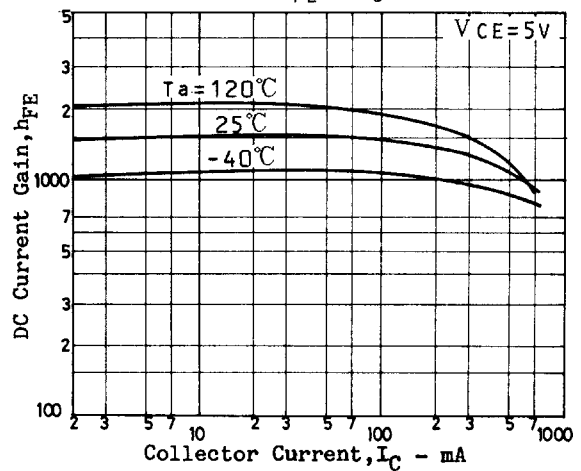
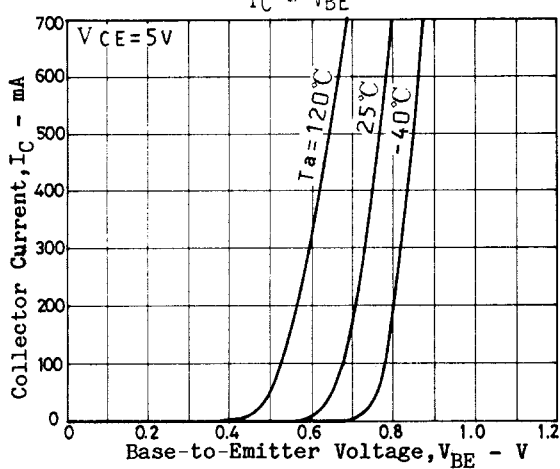
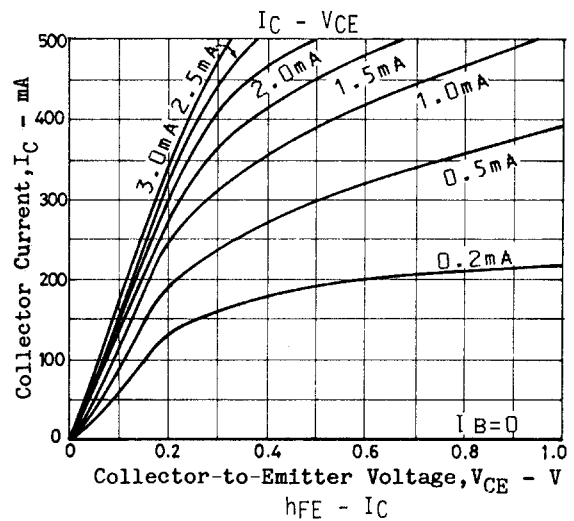
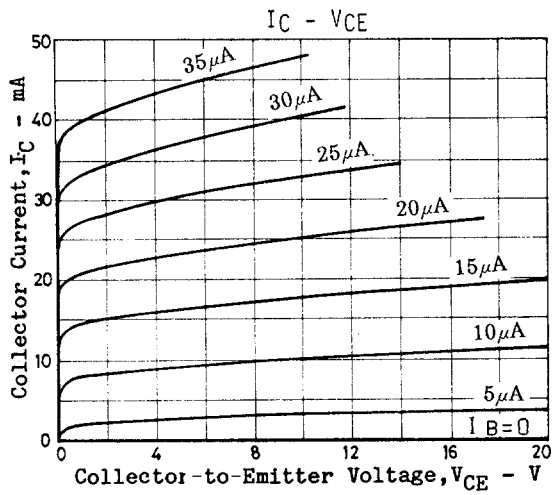
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	25			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	15			V
Turn-ON Time	$t_{on}$	See specified test circuit.		0.1		$\mu s$
Storage Time	$t_{stg}$	See specified test circuit.		0.6		$\mu s$
Fall Time	$t_f$	See specified test circuit.		0.06		$\mu s$

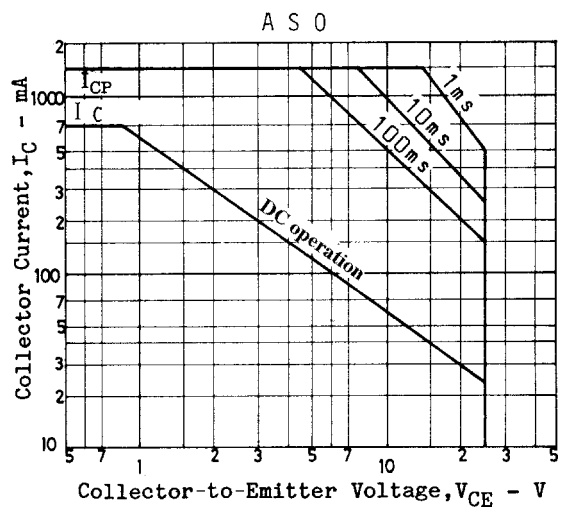
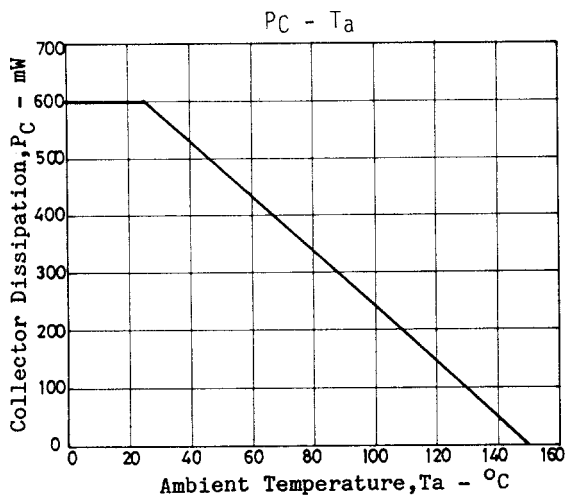
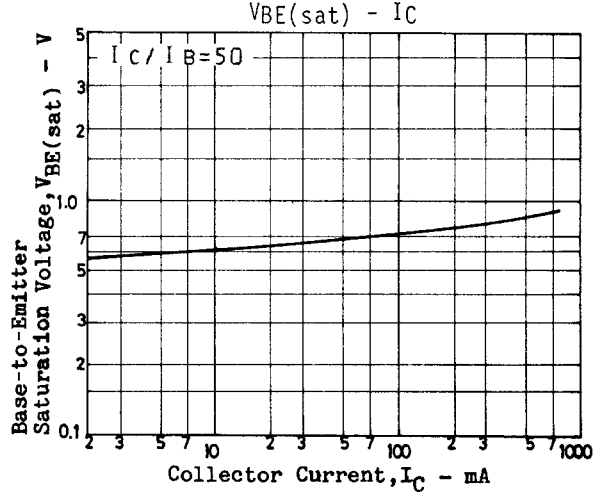
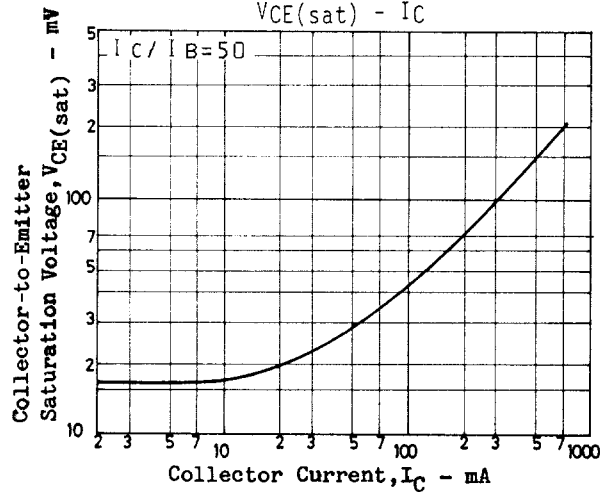
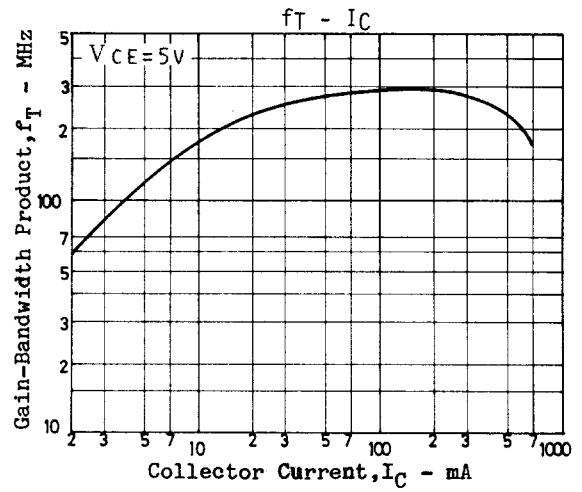
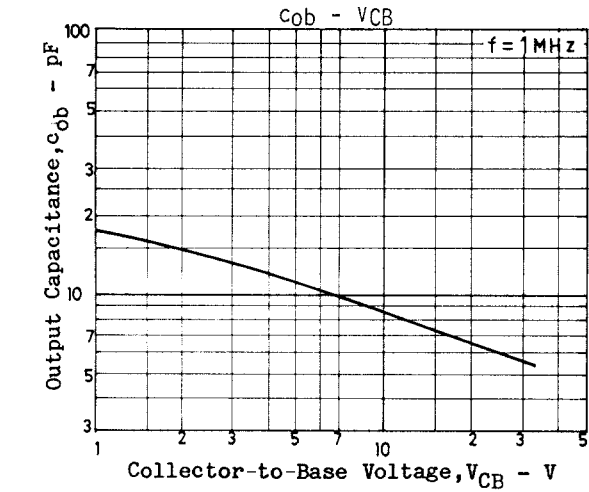
## Switching Time Test Circuit



Unit (resistance :  $\Omega$ , capacitance : F)



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