

<b>SANYO</b>	No.5098	<b>2SA1969</b>
		PNP Epitaxial Planar Silicon Transistor High-Frequency Medium-Output Amplifier, Medium-Current Ultrahigh-Speed Switching Applications

**Features**

- High  $f_T$  ( $f_T = 1.7\text{GHz typ}$ ).
- Large current capacity ( $I_C = -400\text{mA}$ ).

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

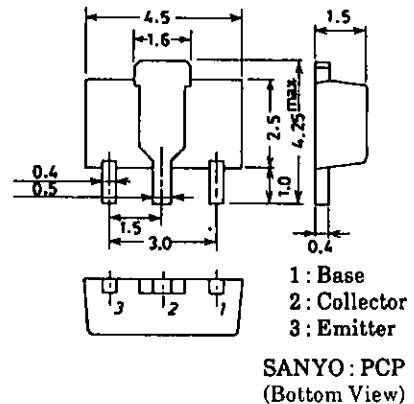
Collector-to-Base Voltage	$V_{CB0}$	-10	V	unit
Collector-to-Emitter Voltage	$V_{CE0}$	-10	V	
Emitter-to-Base Voltage	$V_{EB0}$	-2	V	
Collector Current	$I_C$	-400	mA	
Collector Current (Pulse)	$I_{CP}$	-800	mA	
Collector Dissipation	$P_C$	1.3	W	
		Mounted on ceramic board ( $250\text{mm}^2 \times 0.8\text{mm}$ )		
Junction Temperature	$T_j$	150	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

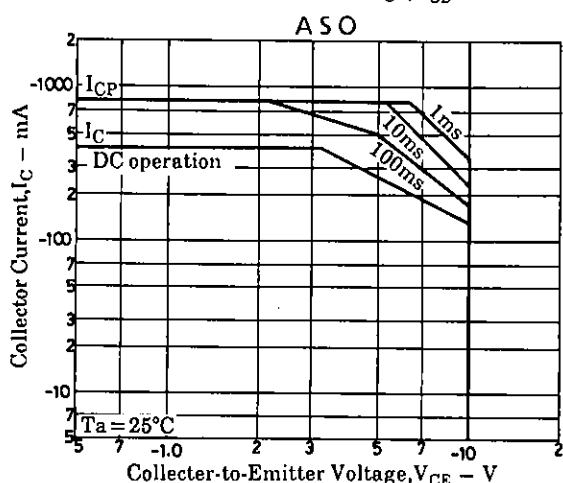
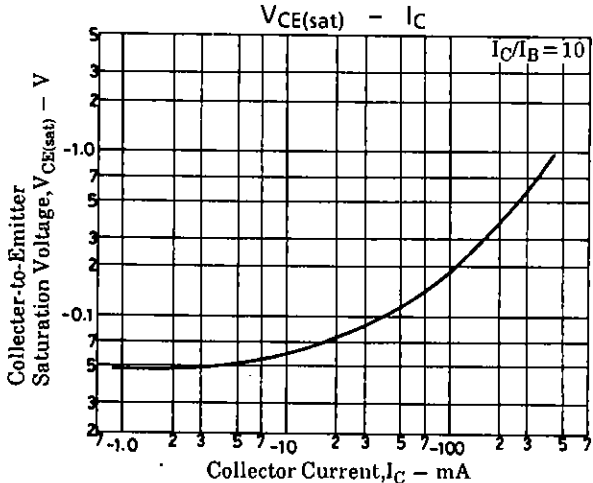
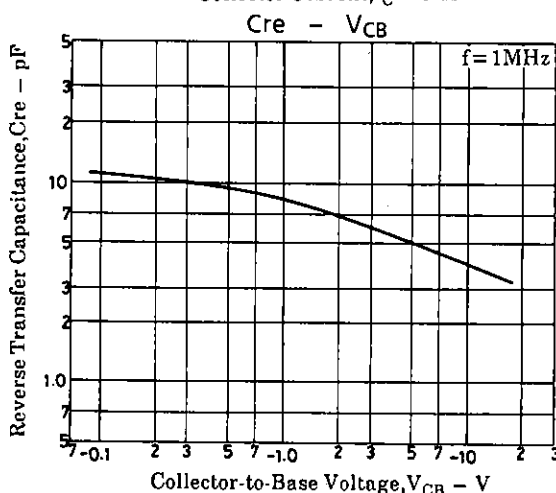
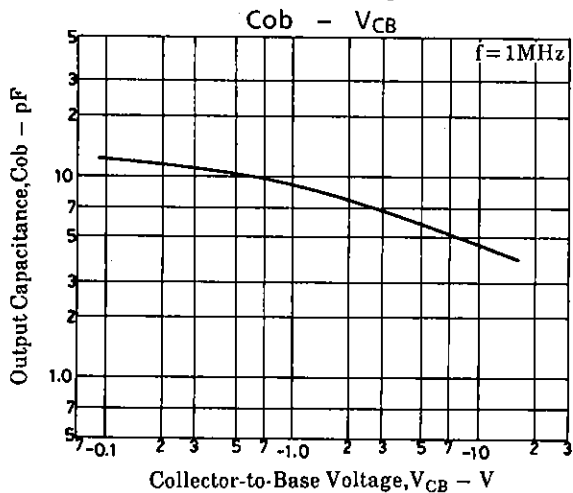
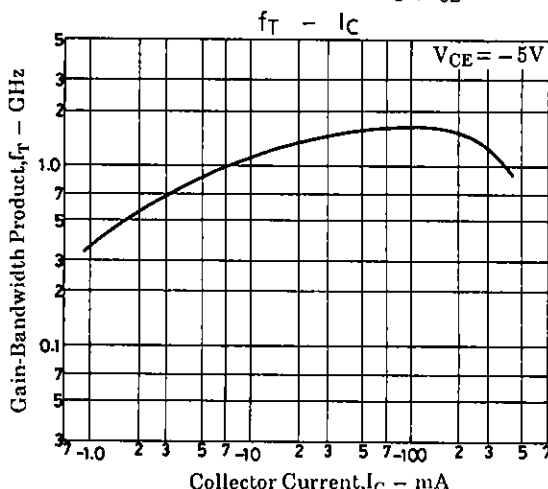
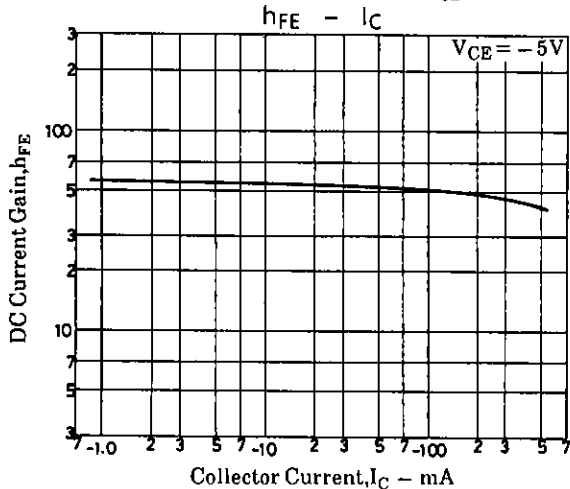
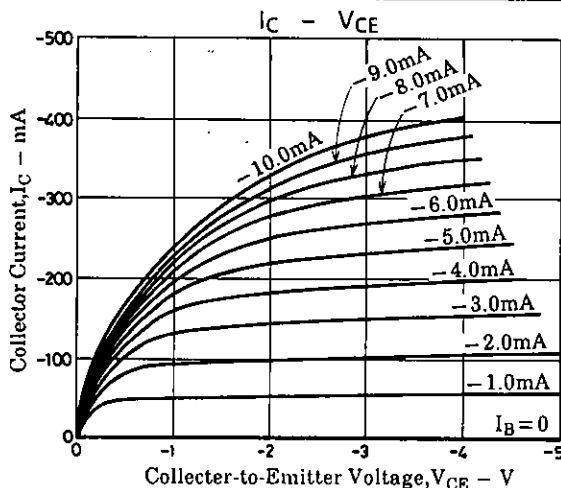
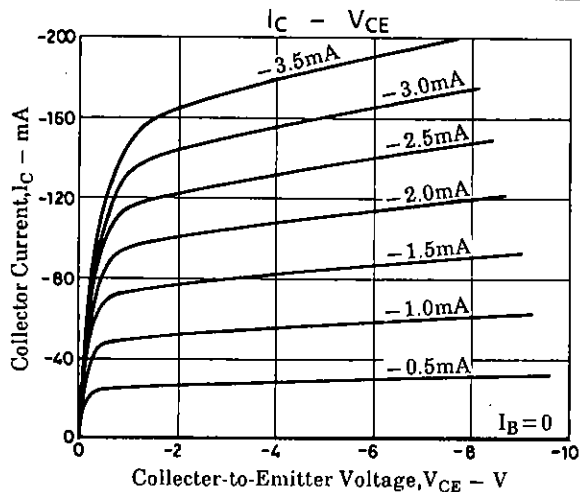
**Electrical Characteristics at  $T_a = 25^\circ\text{C}$**

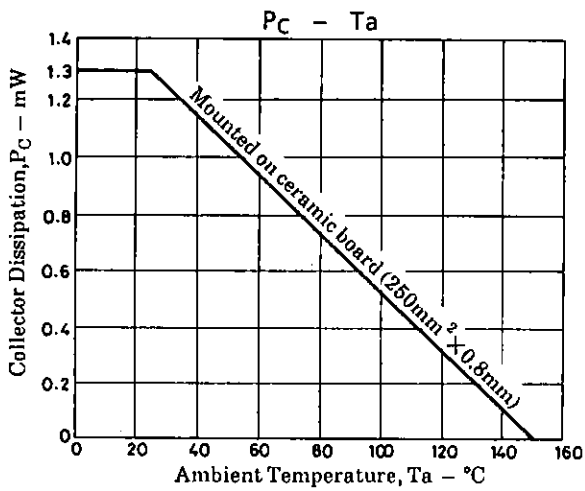
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -10\text{V}, I_E = 0$			-1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -1\text{V}, I_C = 0$			-10	$\mu\text{A}$
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -5\text{V}, I_C = -50\text{mA}$	20		120	
	$h_{FE(2)}$	$V_{CE} = -5\text{V}, I_C = -400\text{mA}$	5			
Gain-Bandwidth Product	$f_T$	$V_{CE} = -5\text{V}, I_C = -100\text{mA}$		1.7		GHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		4.7	7.0	pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		3.9		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = -200\text{mA}, I_B = -20\text{mA}$	-0.4	-1.0		V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = -200\text{mA}, I_B = -20\text{mA}$	-0.9	-1.2		V

Marking: AQ

**Package Dimensions 2038A**  
(unit: mm)

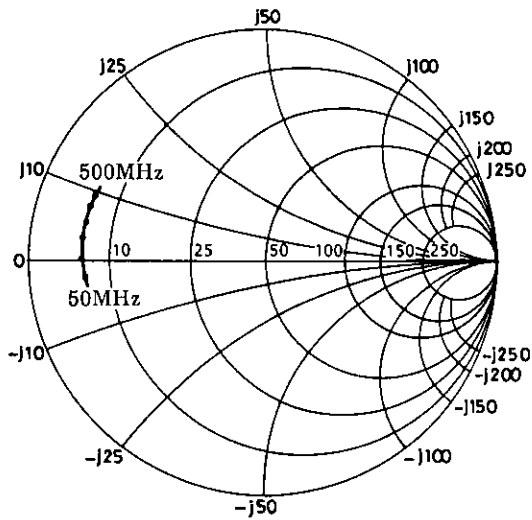






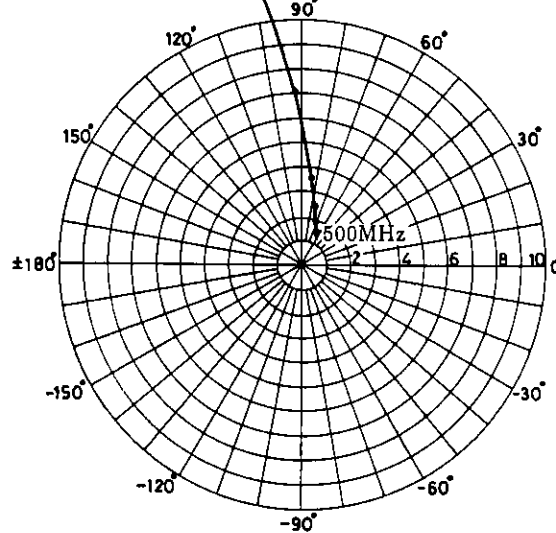
2SA1969 S11e

$V_{CE} = -5V$   
 $I_C = -100mA$   
 $f = 50MHz, 100 \text{ to } 500MHz (100MHz \text{ step})$



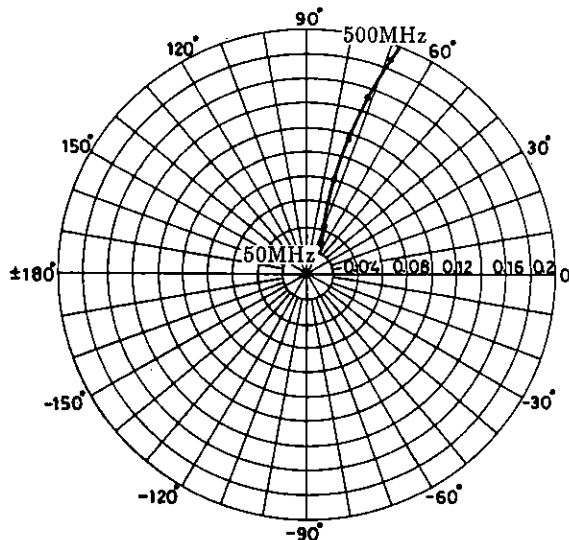
2SA1969 S21e

$V_{CE} = -5V$   
 $I_C = -100mA$   
 $f = 50MHz, 100 \text{ to } 500MHz (100MHz \text{ step})$



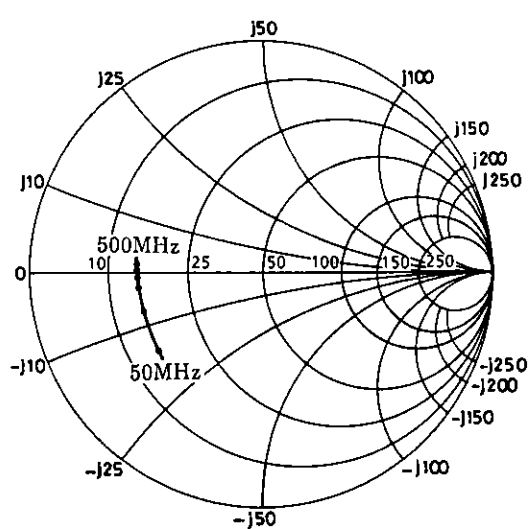
2SA1969 S12e

$V_{CE} = -5V$   
 $I_C = -100mA$   
 $f = 50MHz, 100 \text{ to } 500MHz (100MHz \text{ step})$



2SA1969 S22e

$V_{CE} = -5V$   
 $I_C = -100mA$   
 $f = 50MHz, 100 \text{ to } 500MHz (100MHz \text{ step})$



**S Parameter (Common emitter)** $V_{CE} = -5V, I_C = -100mA, Z_0 = 50\Omega$ 

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
50	0.758	-174.7	13.652	102.0	0.025	63.4	0.565	-143.6
100	0.770	179.3	7.077	92.4	0.042	70.7	0.548	-162.0
200	0.774	172.7	3.601	83.4	0.080	74.0	0.543	-173.2
300	0.771	167.3	2.449	77.1	0.116	73.1	0.542	-178.0
400	0.769	162.3	1.888	71.6	0.152	71.0	0.544	178.8
500	0.765	157.9	1.562	66.5	0.187	68.7	0.544	176.3

■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:

- ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
- ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provide information as of April, 1995. Specifications and information herein are subject to change without notice.