

**12A01S**

## Low-Frequency General-Purpose Amplifier Applications

### Applications

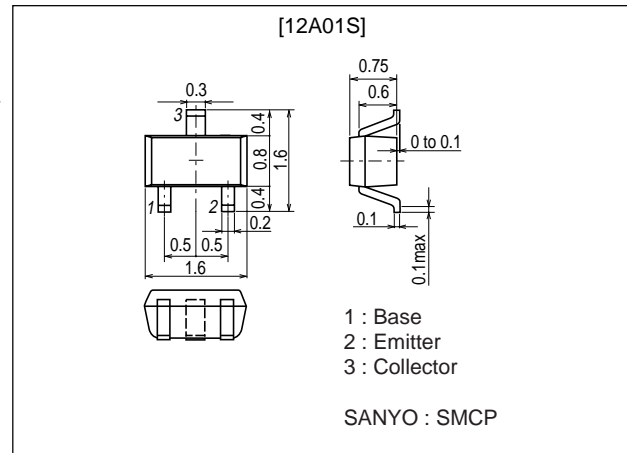
- Low-frequency Amplifier, muting circuit.

### Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).  
RCE (sat) typ.= $0.57\Omega$  [ $I_C=0.5A$ ,  $I_B=25mA$ ].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (Ron).

### Package Dimensions

unit : mm  
2106A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		-15	V
Collector-to-Emitter Voltage	$V_{CEO}$		-12	V
Emitter-to-Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-500	mA
Collector Current (Pulse)	$I_{CP}$		-1.0	A
Collector Dissipation	PC	Mounted on a glass-epoxy board (20X30X1.6mm)	200	mW
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	$I_{CBO}$	$V_{CB}=-12V$ , $I_E=0$			-0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4V$ , $I_C=0$			-0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=-2V$ , $I_C=-10mA$	300		700	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-2V$ , $I_C=-50mA$		490		MHz

Marking : XP

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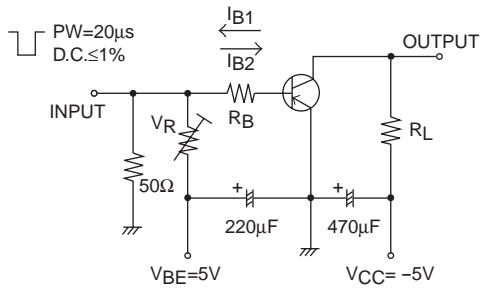
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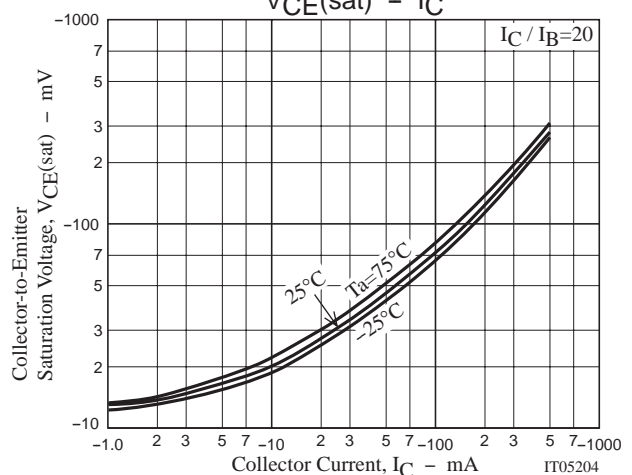
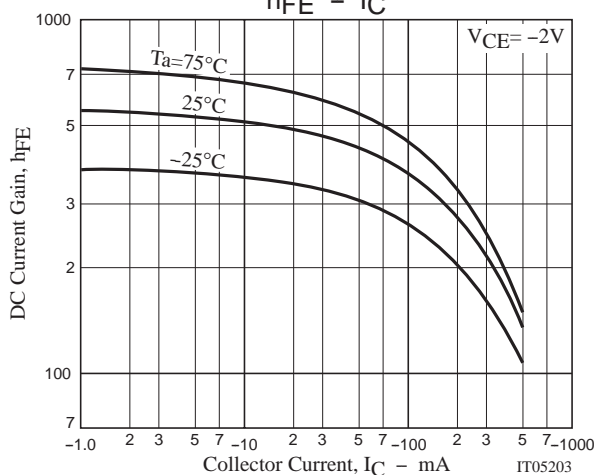
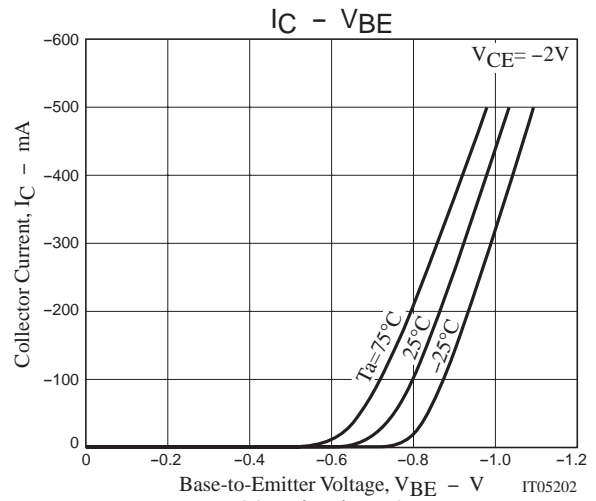
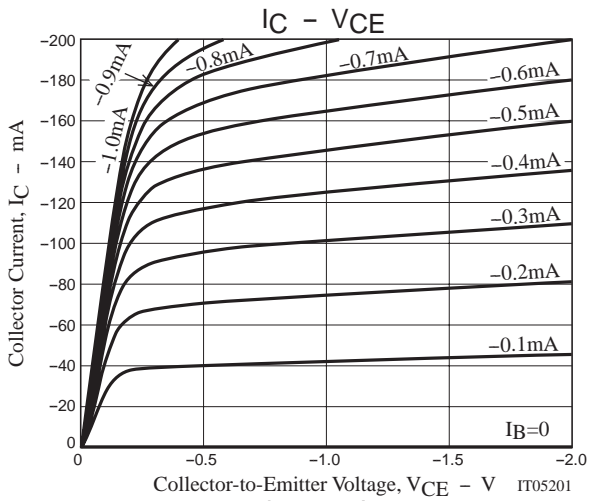
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	$C_{ob}$	$V_{CE} = -10V, f = 1MHz$		4		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -200mA, I_B = -10mA$		-150	-300	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -200mA, I_B = -10mA$		-0.9	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-12			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		57		ns
Fall Time	$t_f$	See specified Test Circuit.		30		ns

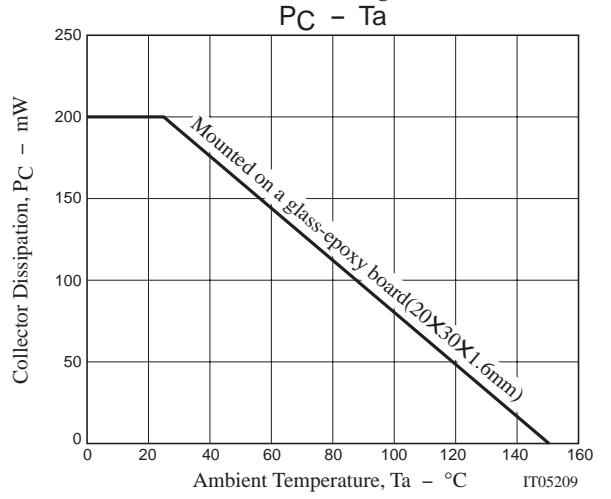
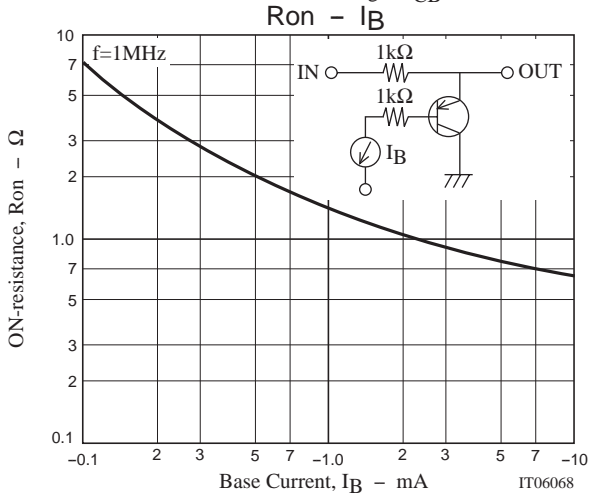
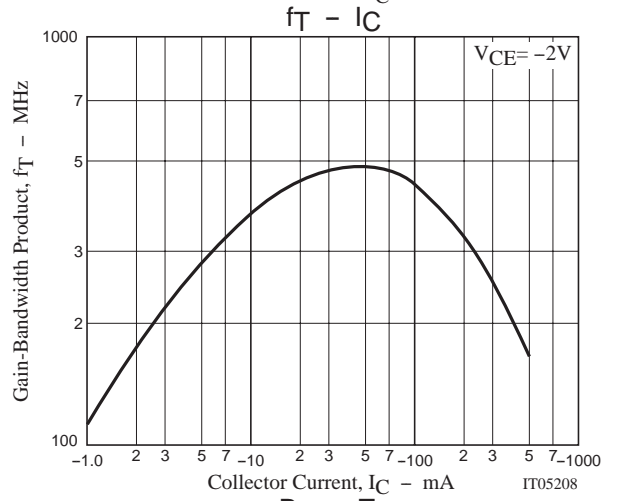
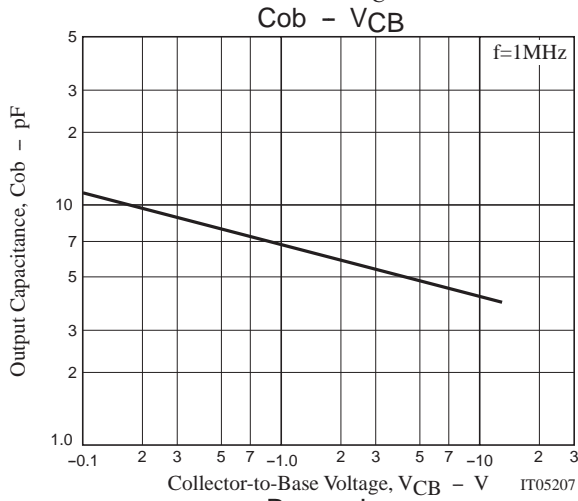
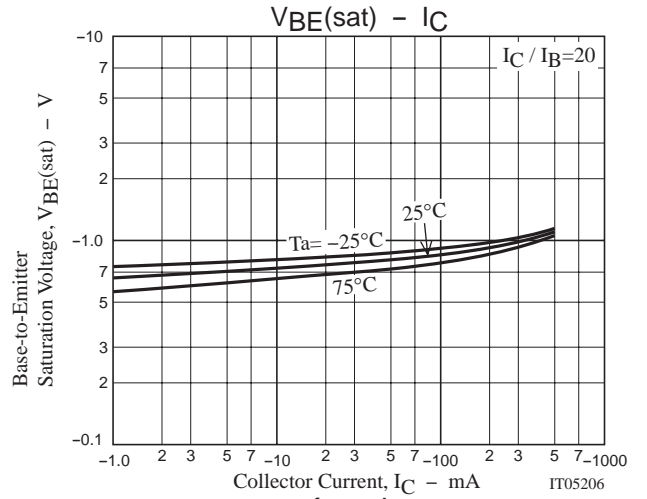
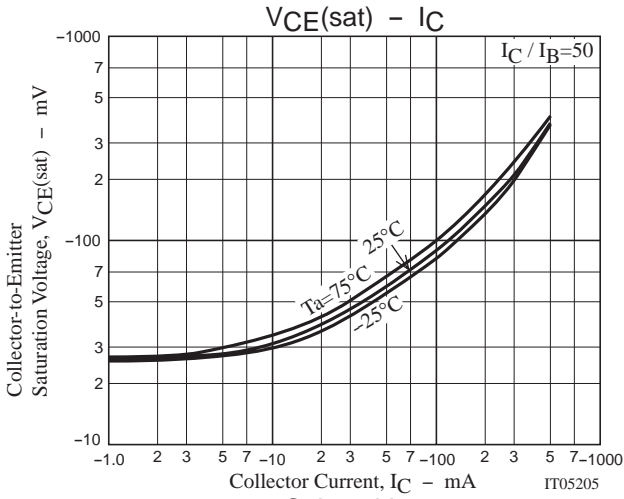
## Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = -400mA$$



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