



**30C02SS**

## Low-Frequency General-Purpose Amplifier Applications

### Applications

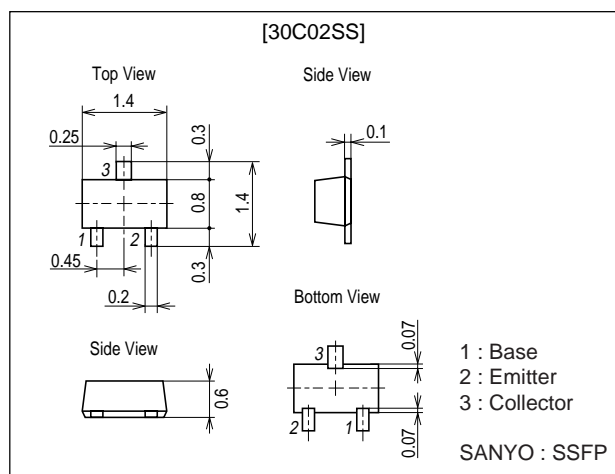
- Low-frequency Amplifier, high-speed switching, small motor drive.

### Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).  
R<sub>CE(sat)</sub> typ=330mΩ [I<sub>C</sub>=0.7A, I<sub>B</sub>=35mA].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (R<sub>on</sub>).

### Package Dimensions

unit : mm  
2159A



### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		40	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		30	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		5	V
Collector Current	I <sub>C</sub>		600	mA
Collector Current (Pulse)	I <sub>CP</sub>		1.2	A
Collector Dissipation	P <sub>C</sub>	Mounted on a glass-epoxy board (20X30X1.6mm)	200	mW
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =30V, I <sub>E</sub> =0			100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =50mA	300		800	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA		540		MHz

Marking : YM

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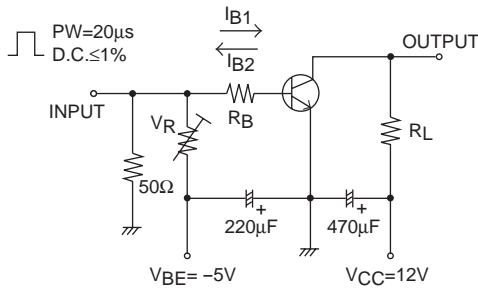
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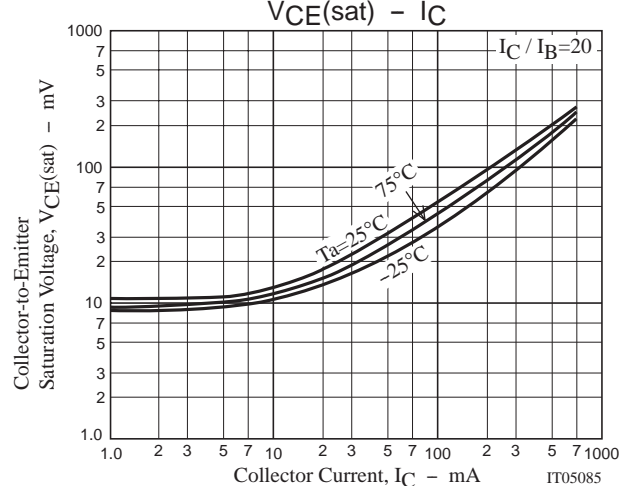
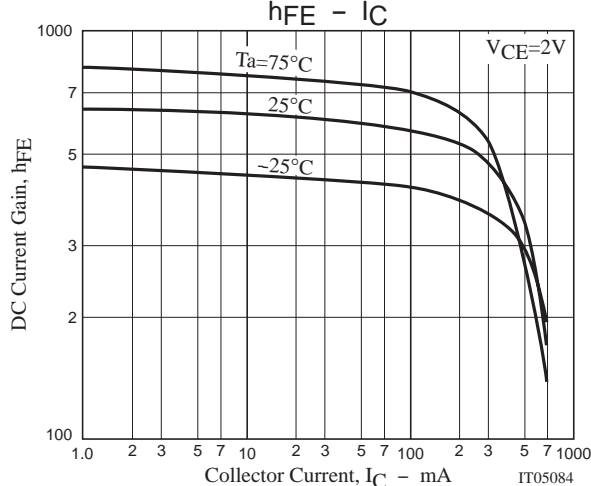
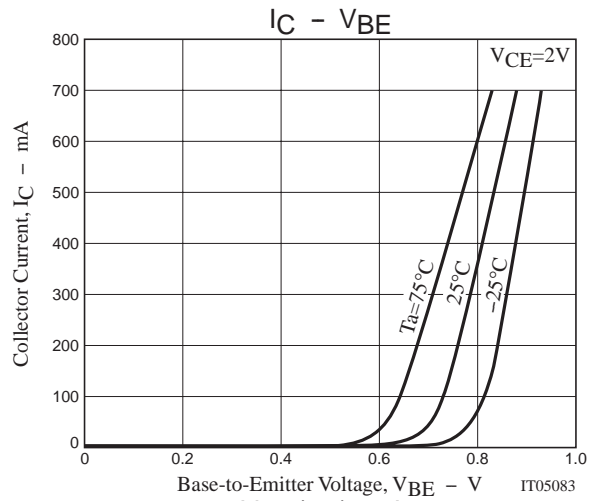
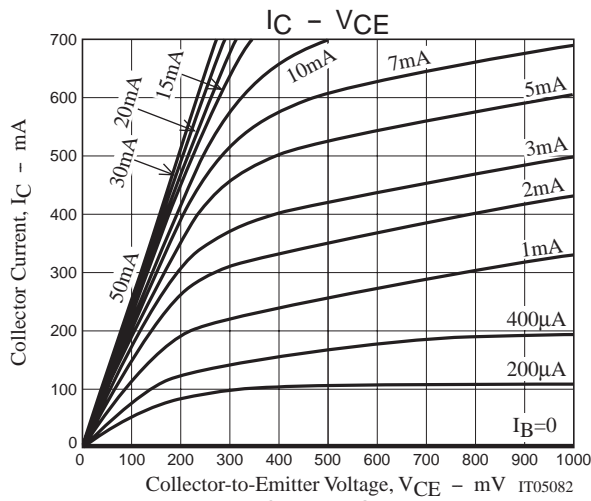
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V <sub>CE</sub> =10V, f=1MHz		3.3		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =200mA, I <sub>B</sub> =10mA		85	190	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =200mA, I <sub>B</sub> =10mA		0.9	1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	40			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	30			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	5			V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit.		35		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit.		255		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		45		ns

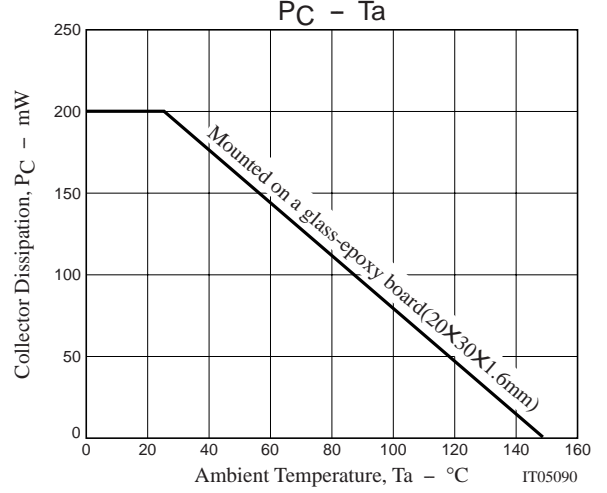
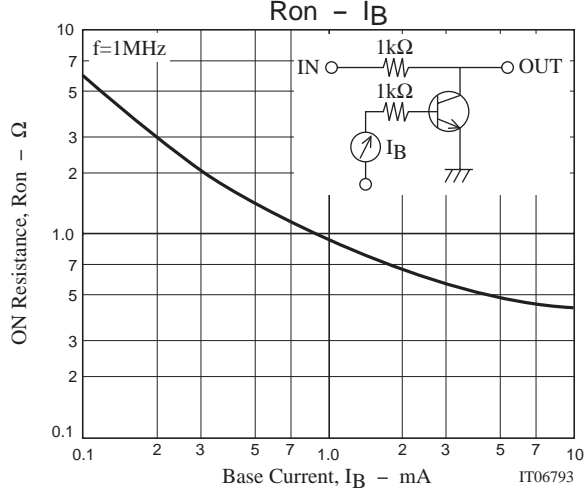
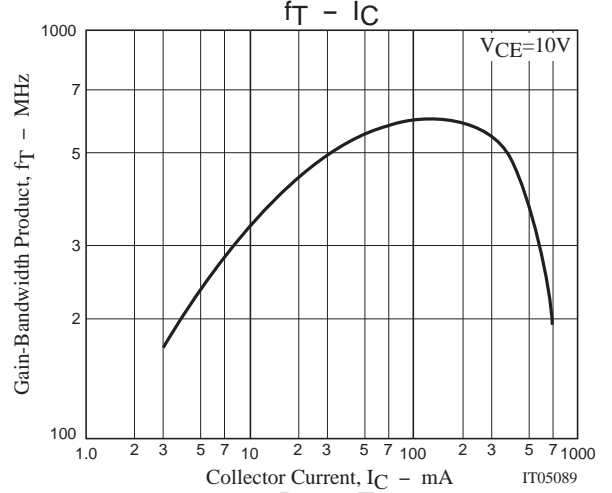
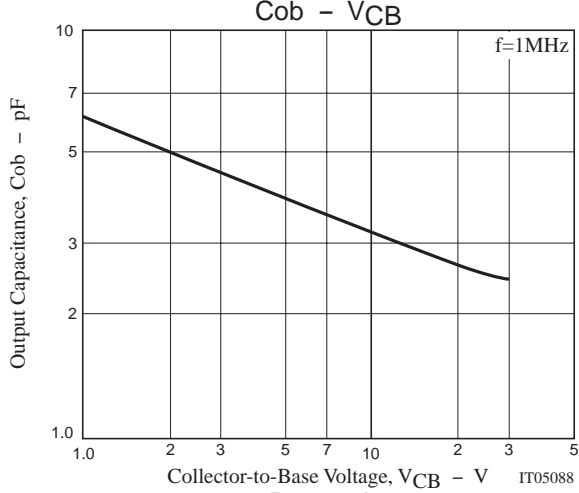
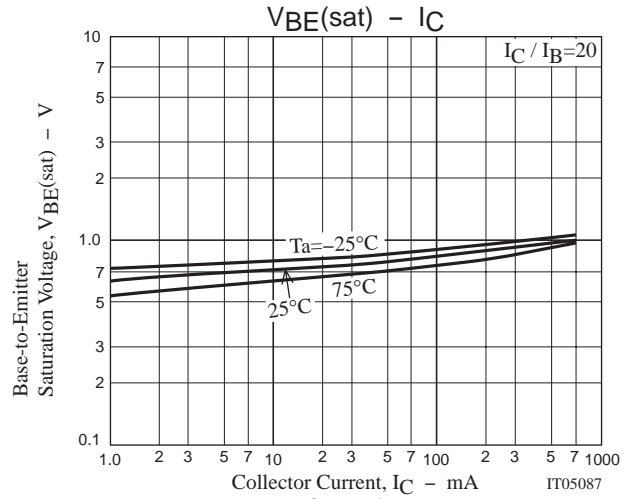
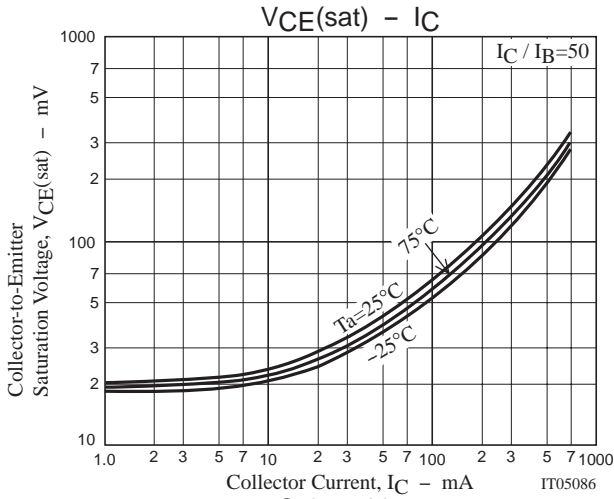
## Switching Time Test Circuit



$$20I_{B1} = -20I_{B2} = I_C = 300\text{mA}$$



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