

**30A02CH**

## Low-Frequency General-Purpose Amplifier Applications

### Applications

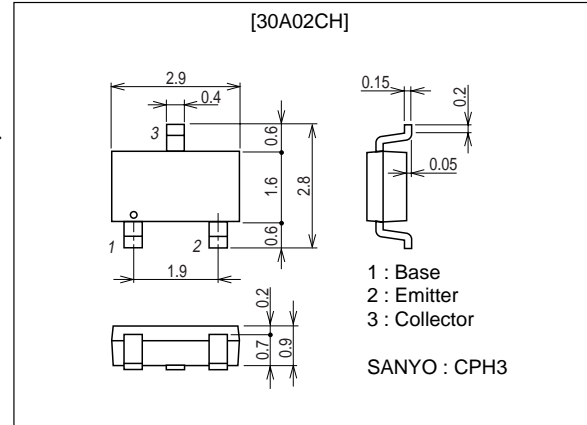
- Low-frequency Amplifier, high-speed switching, small motor drive.

### Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).  
 $R_{CE(sat)} \text{ typ} = 580\text{m}\Omega [I_C = 0.7\text{A}, I_B = 35\text{mA}]$ .
- Small ON-resistance ( $R_{on}$ ).

### Package Dimensions

unit : mm  
2150A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-30	V
Collector-to-Emitter Voltage	$V_{CEO}$		-30	V
Emitter-to-Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-700	mA
Collector Current (Pulse)	$I_{CP}$		-1.4	A
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	700	mW
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = -30\text{V}, I_E = 0$			-100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0$			-100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -10\text{mA}$	200		500	
Gain-Bandwidth Product	$f_T$	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$		520		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, f = 1\text{MHz}$		4.7		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -200\text{mA}, I_B = -10\text{mA}$		-110	-220	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -200\text{mA}, I_B = -10\text{mA}$		-0.9	-1.2	V

Marking : AL

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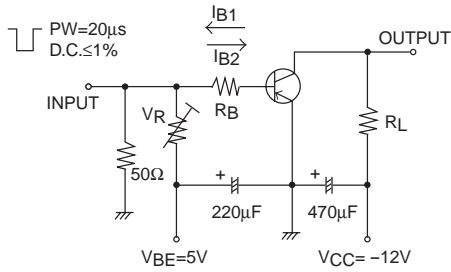
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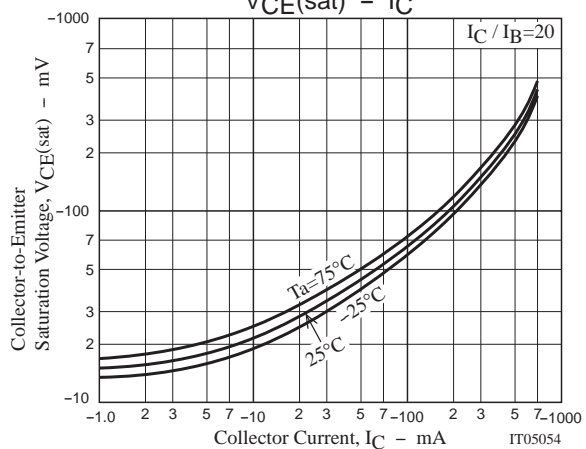
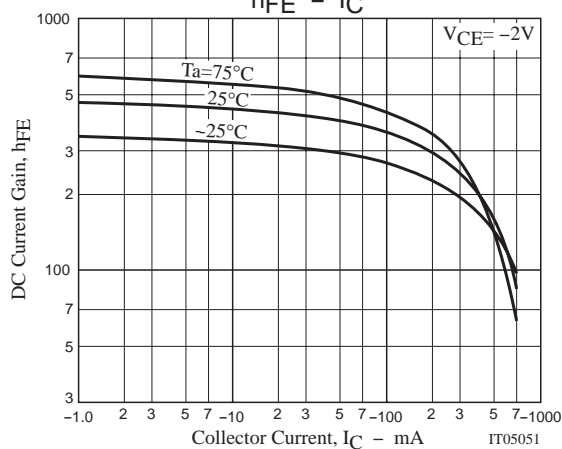
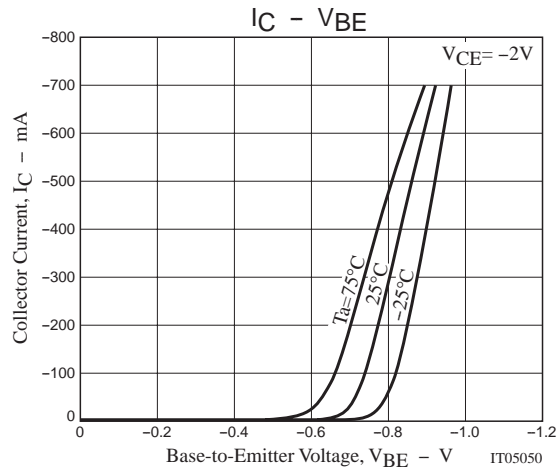
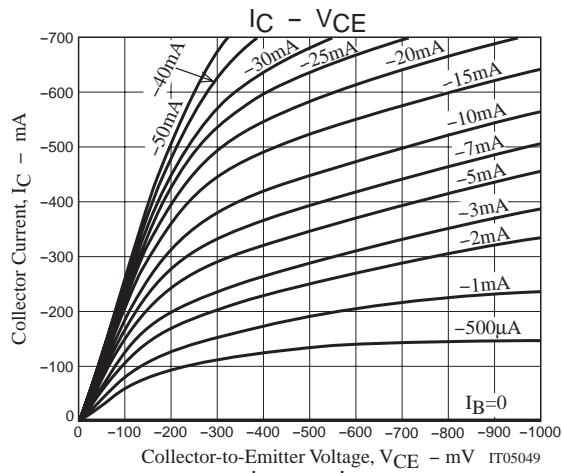
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		35		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		125		ns
Fall Time	$t_f$	See specified Test Circuit.		25		ns

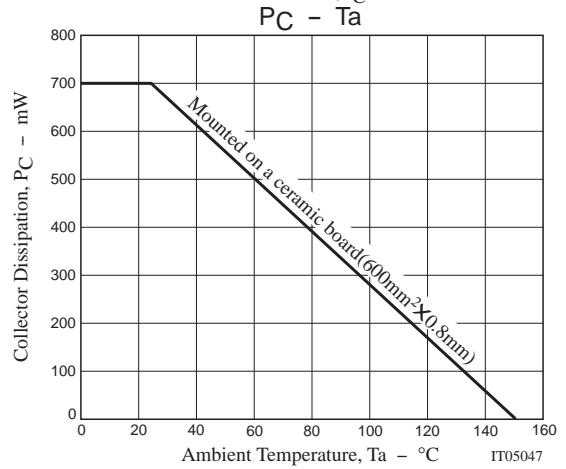
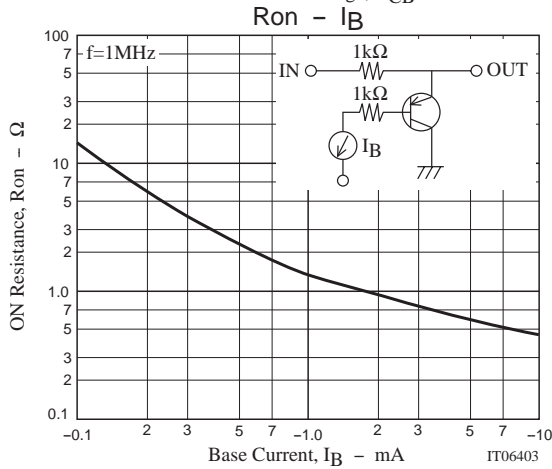
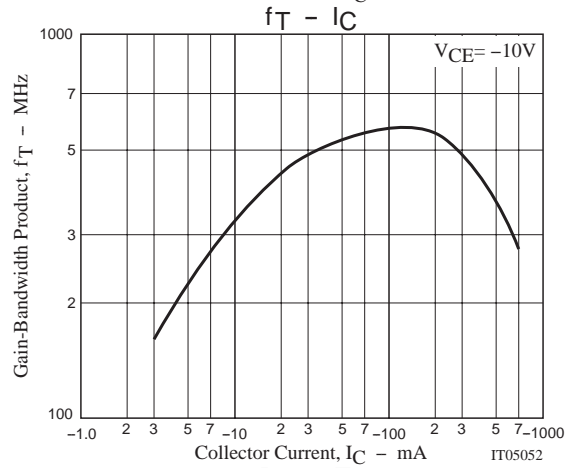
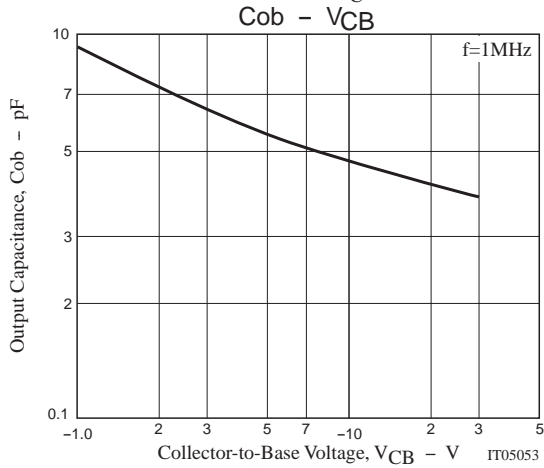
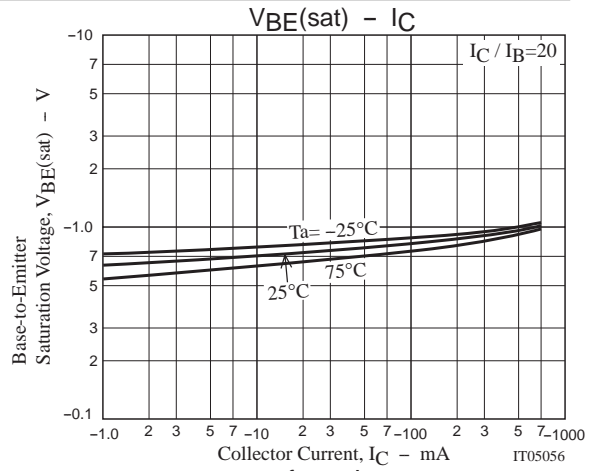
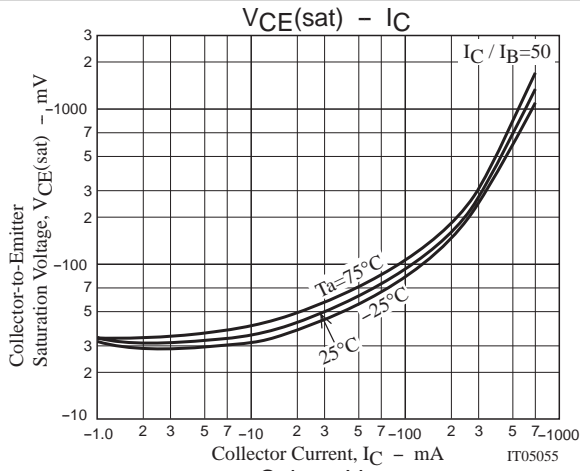
## Switching Time Test Circuit



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



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