

**30C02SP**

Low-Frequency General-Purpose Amplifier Applications

An ON Semiconductor Company

Applications

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

Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).
 $R_{CE(sat)}$ typ=330m Ω [$I_C=0.7A$, $I_B=35mA$].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (R_{on}).

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		40	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		400	mW
Junction Temperature	T_J		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at $T_a=25^\circ C$

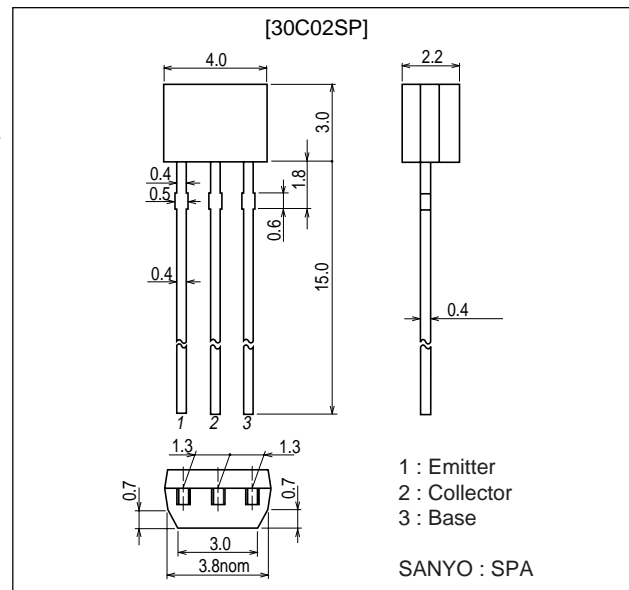
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=30V$, $I_E=0$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V$, $I_C=0$			100	nA
DC Current Gain	h_{FE}	$V_{CE}=2V$, $I_C=50mA$	300		800	
Gain-Bandwidth Product	f_T	$V_{CE}=10V$, $I_C=50mA$		540		MHz

Marking : YM

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Package Dimensions

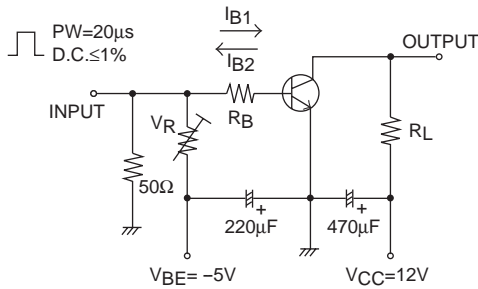
unit : mm
2033A

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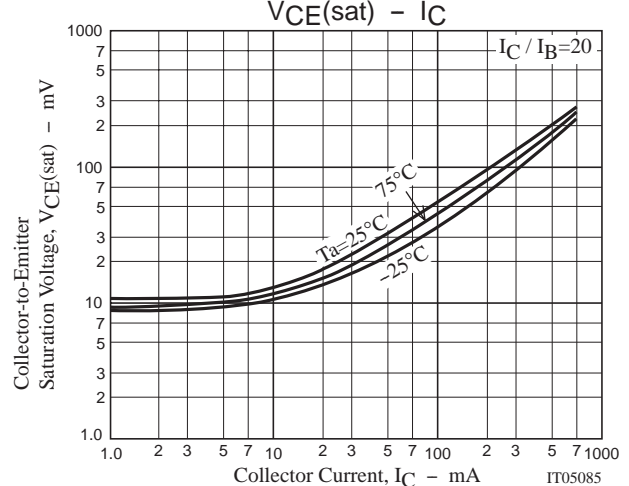
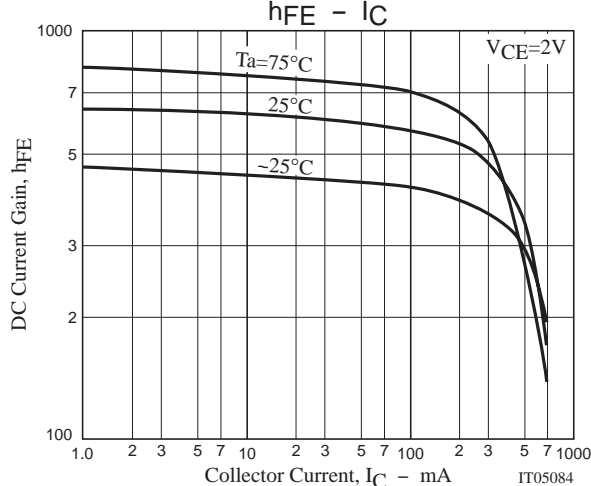
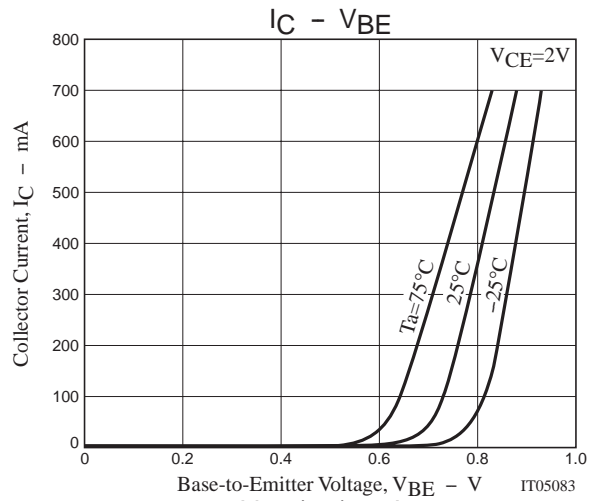
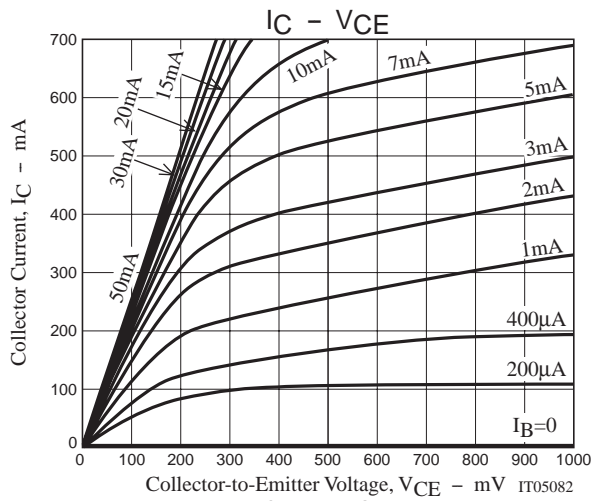
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V _{CB} =10V, f=1MHz		3.3		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =200mA, I _B =10mA		85	190	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}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

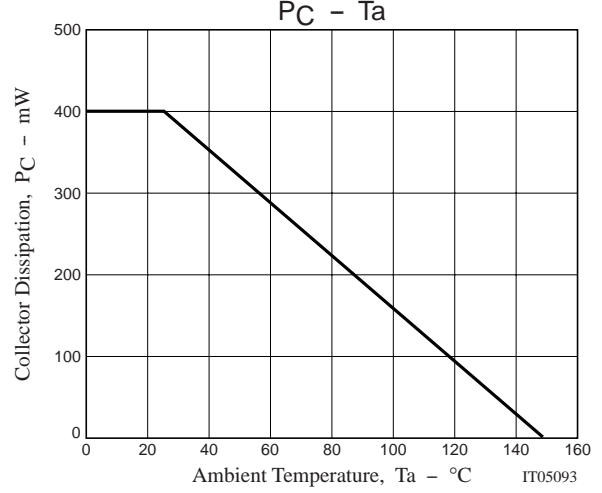
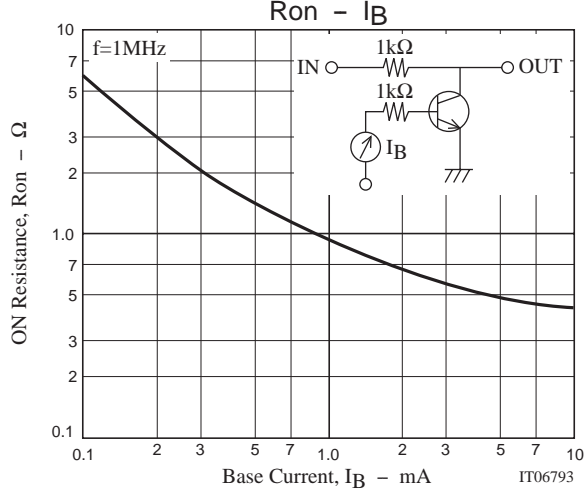
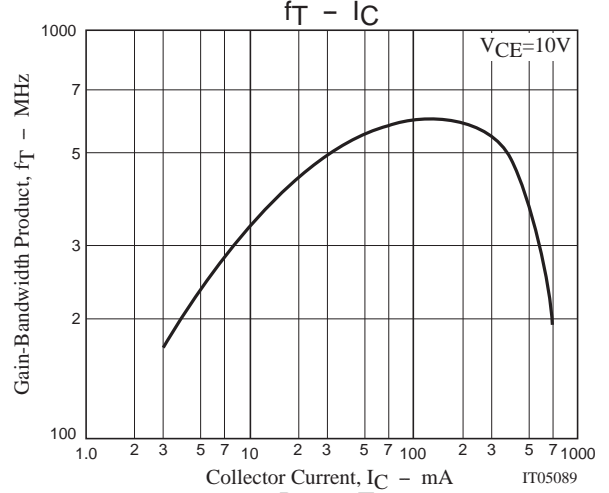
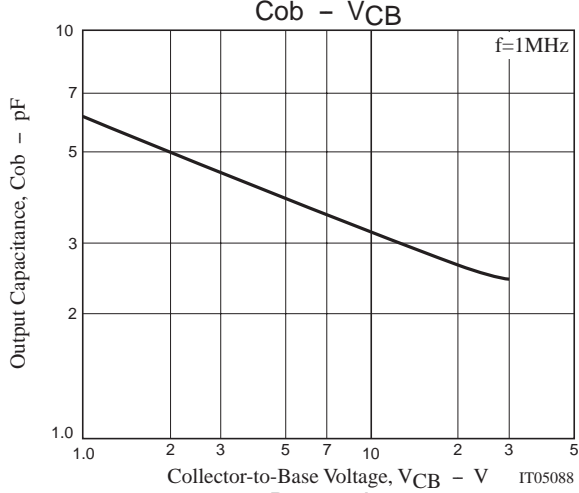
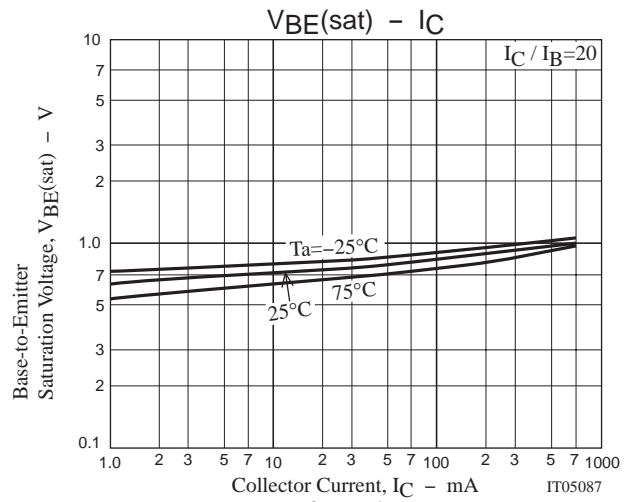
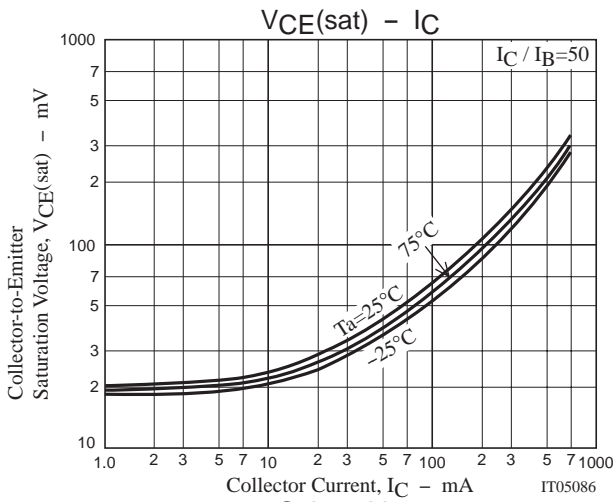
Switching Time Test Circuit



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



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