



SANYO Semiconductors

DATA SHEET

30C02MH — Low-Frequency General-Purpose Amplifier Applications

NPN Epitaxial Planar Silicon Transistor

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 (Ron).

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		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	When mounted on ceramic substrate (600mm ² ×0.8mm)	600	mW
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Marking : CL

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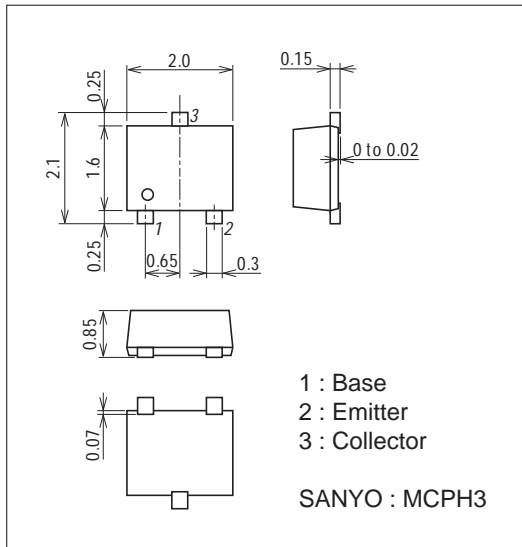
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0\text{A}$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0\text{A}$			100	nA
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}, I_C=50\text{mA}$	300		800	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}$		540		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		3.3		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=200\text{mA}, I_B=10\text{mA}$		85	190	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=200\text{mA}, I_B=10\text{mA}$		0.9	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	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

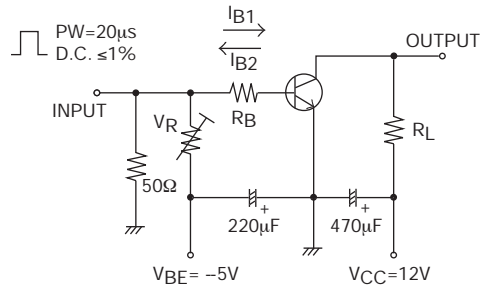
Package Dimensions

unit : mm (typ)

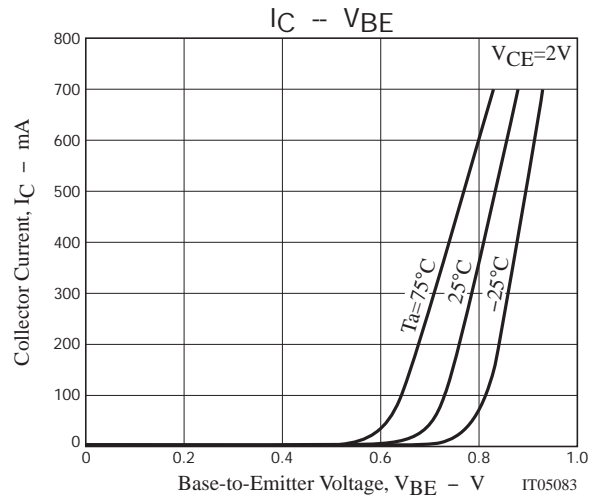
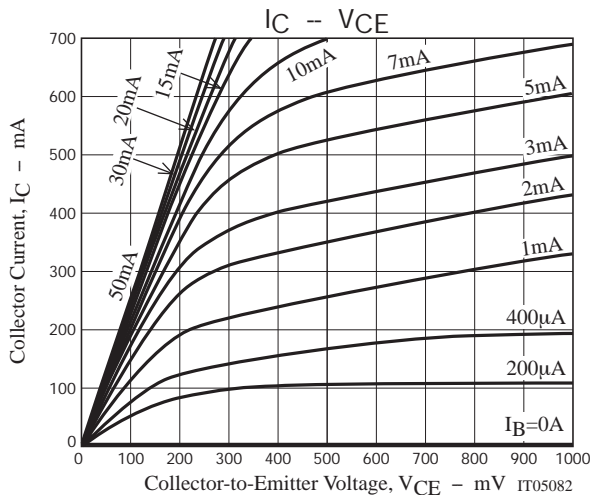
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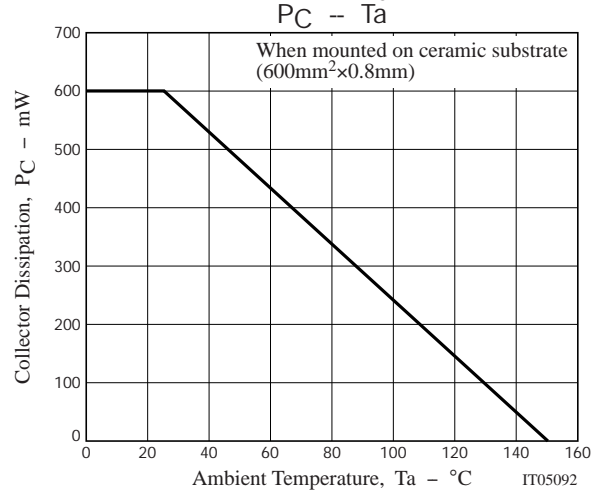
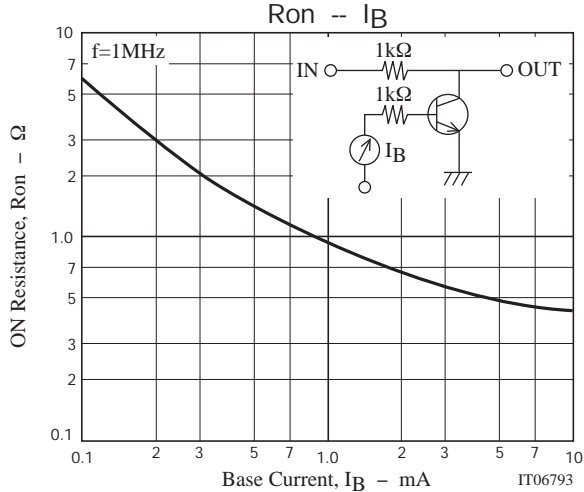
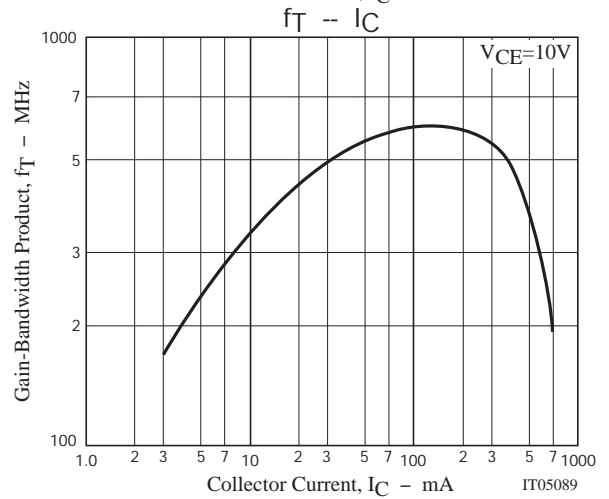
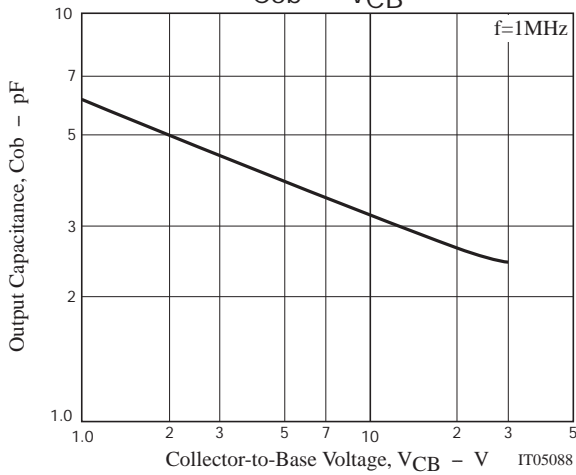
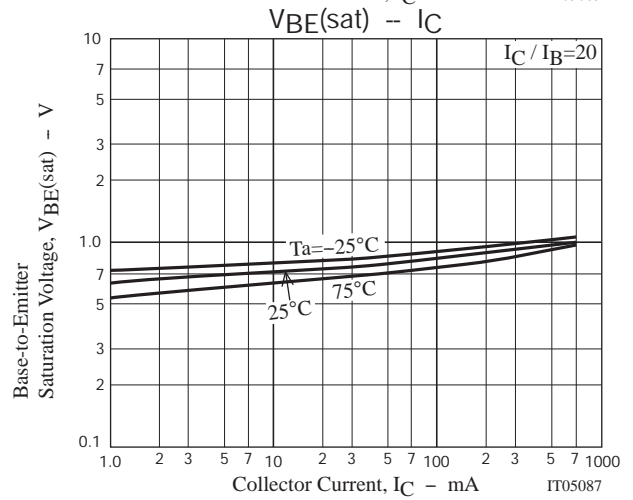
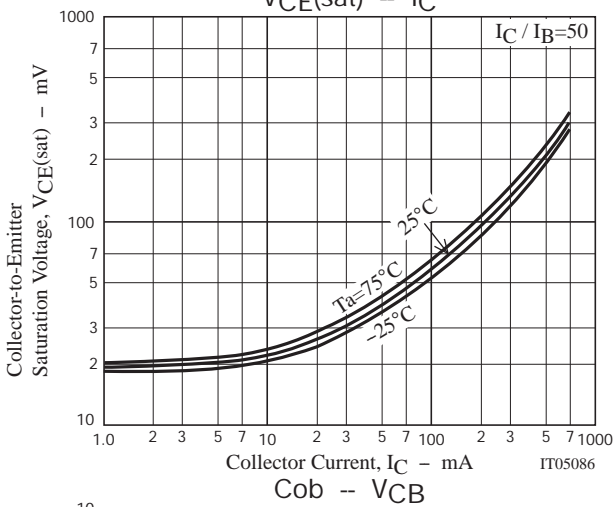
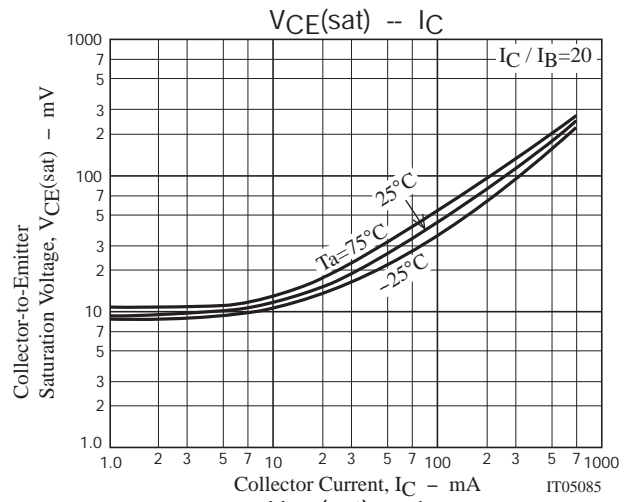
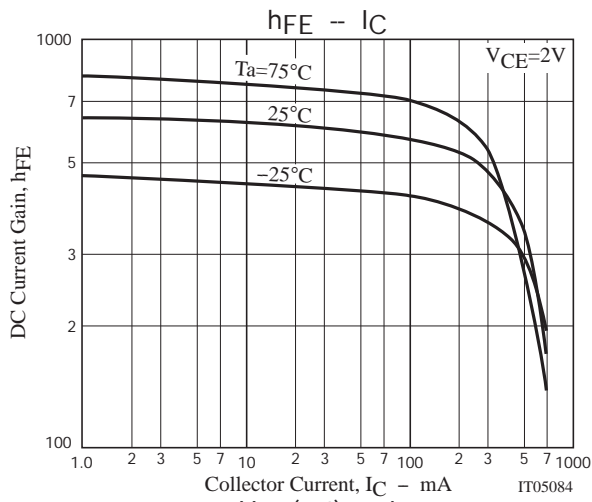
Switching Time Test Circuit



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



30C02MH



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