

Ordering number : ENN7518

NPN Epitaxial Planar Silicon Transistor

**SANYO****50C02SP****Low-Frequency  
General-Purpose Amplifier Applications****Applications**

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

**Features**

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).  
RCE(sat) typ=175mΩ [IC=0.5A, IB=50mA].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (Ron).

**Specifications****Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		60	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		50	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		5	V
Collector Current	I <sub>C</sub>		500	mA
Collector Current (Pulse)	I <sub>CP</sub>		1.0	A
Collector Dissipation	P <sub>C</sub>		400	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>CBO</sub>	V <sub>CB</sub> =40V, 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> =10mA	300		800	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA		500		MHz

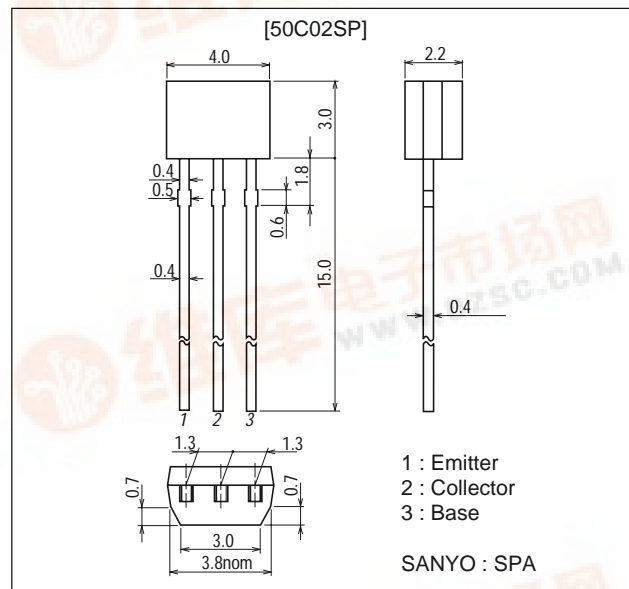
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**Package Dimensions**

unit : mm

2033A



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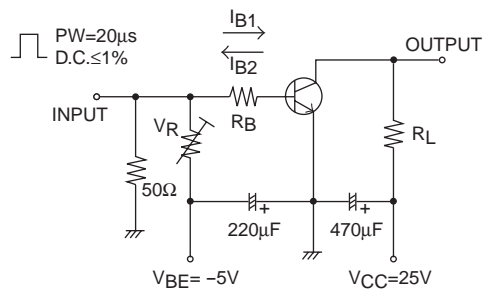
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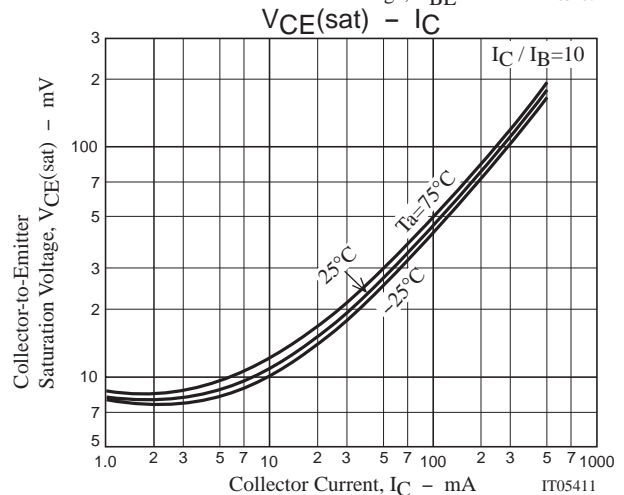
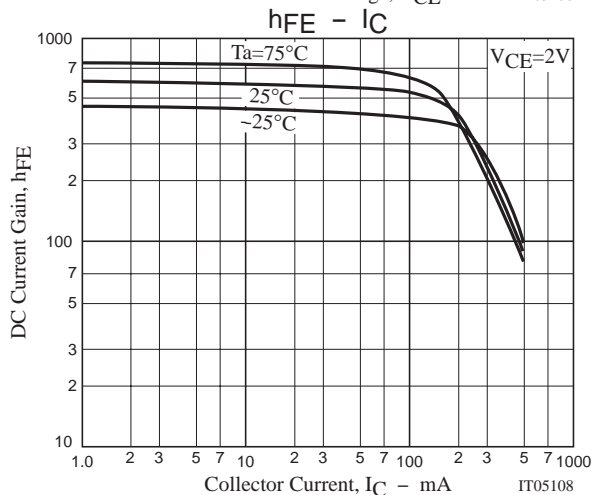
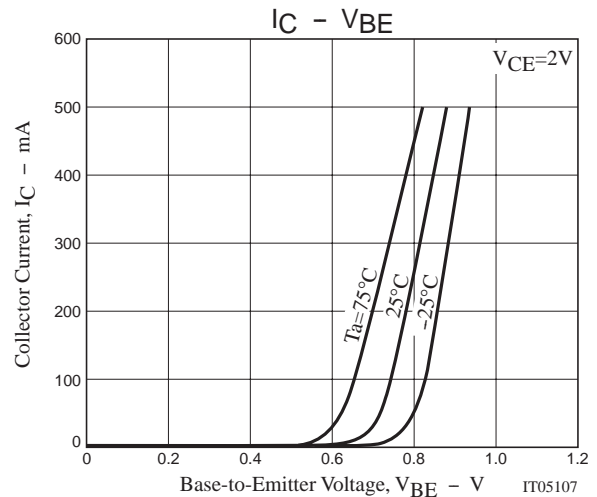
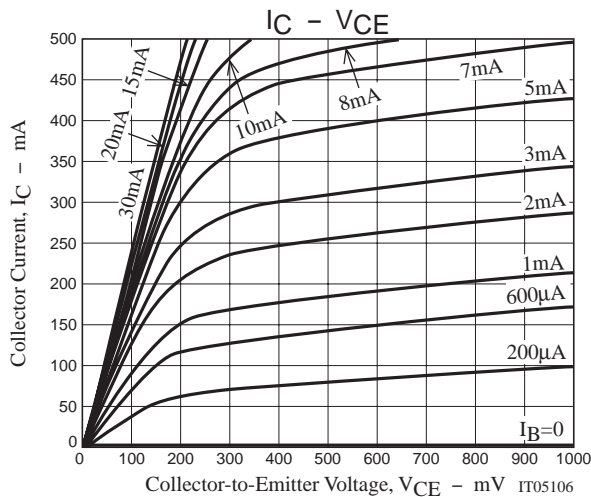
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V <sub>CB</sub> =10V, f=1MHz		2.8		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA		50	100	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =100mA, 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	60			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50			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.		30		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit.		340		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		55		ns

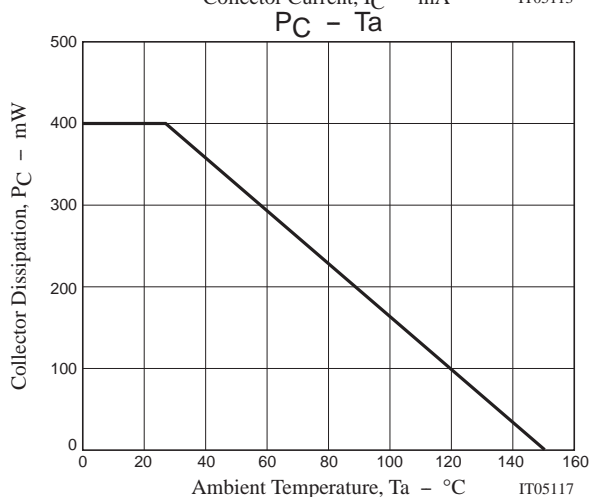
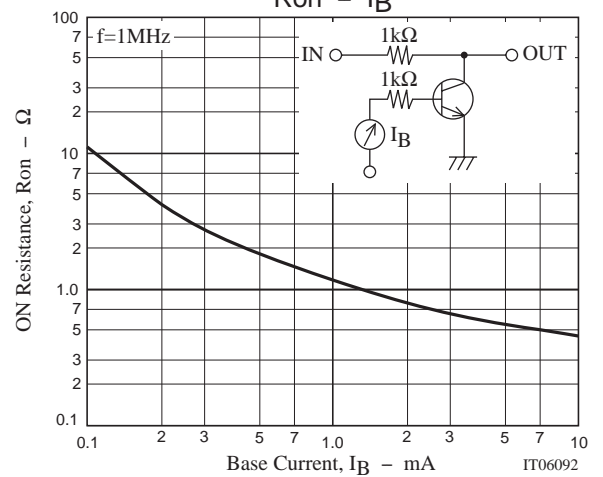
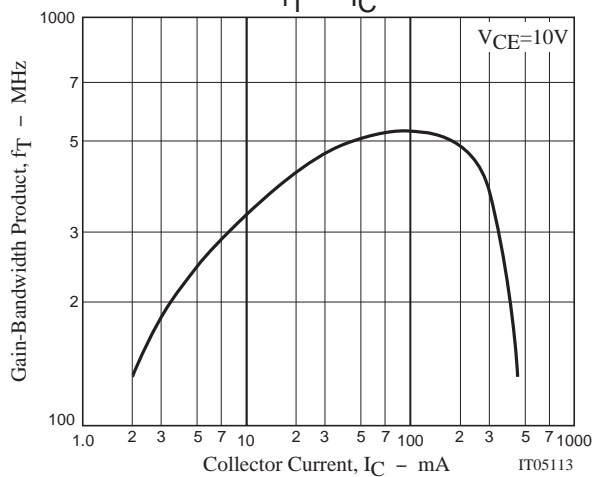
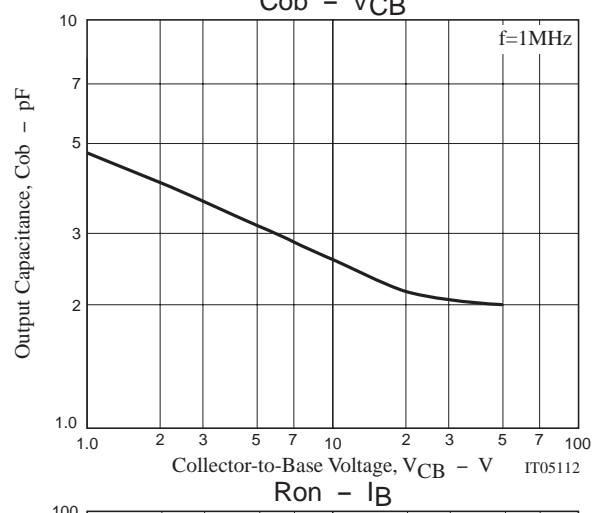
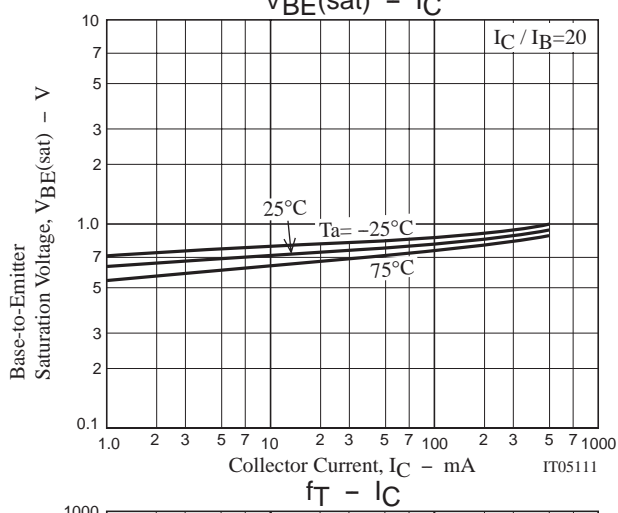
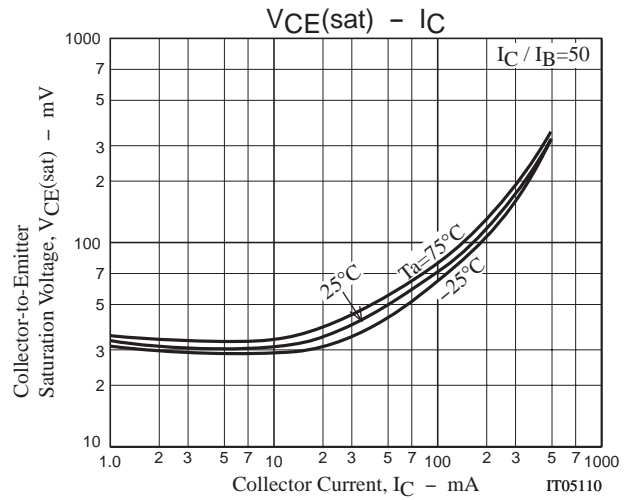
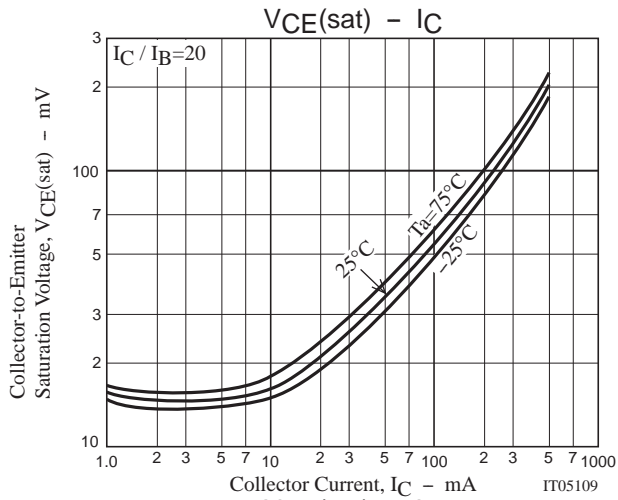
### Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = 200\text{mA}$$



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