

50C02CH

Bipolar Transistor 50V, 0.5A, Low VCE(sat), NPN Single



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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)

Typical Applications

- Low-Frequency Amplifier
- High Speed Switching
- Small Motor Drive
- Muting Circuit

SPECIFICATIONS

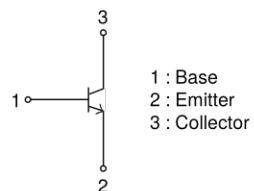
ABSOLUTE MAXIMUM RATING at Ta = 25°C (Note 1, 2)

Parameter	Symbol	Value	Unit
Collector to Base Voltage	VCBO	60	V
Collector to Emitter Voltage	VCEO	50	V
Emitter to Base Voltage	VEBO	5	V
Collector Current	IC	500	mA
Collector Current (Pulse)	ICP	1.0	A
Collector Dissipation (Note 2)	PC	700	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

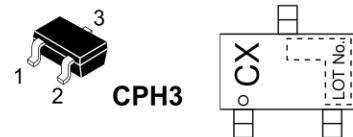
Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Note 2 : Surface mounted on ceramic substrate(600mm² × 0.8mm)

ELECTRICAL CONNECTION



MARKING



ORDERING INFORMATION

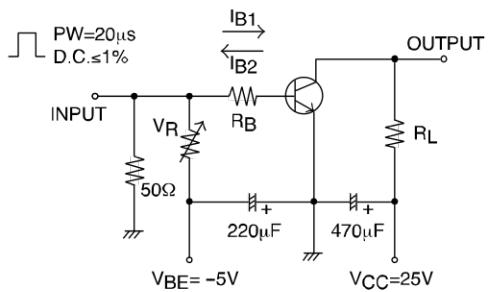
See detailed ordering and shipping information on page 5 of this data sheet.

ELECTRICAL CHARACTERISTICS at $T_a = 25^\circ\text{C}$ (Note 3)

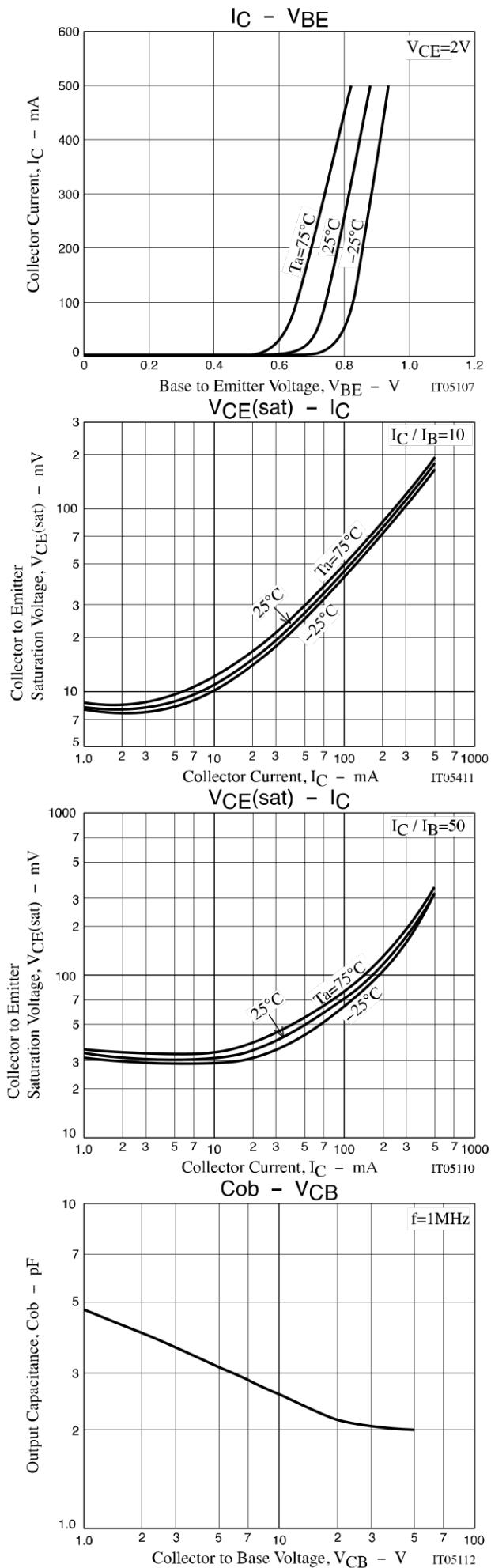
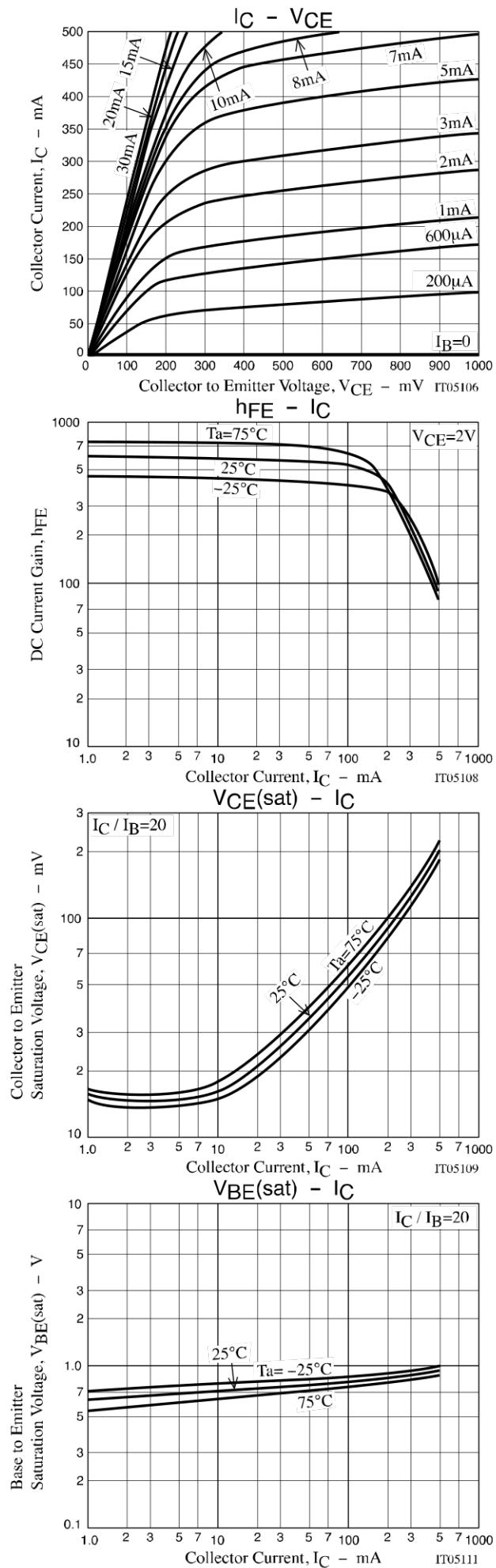
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}$, $I_E=0\text{A}$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0\text{A}$			100	nA
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}$, $I_C=10\text{mA}$	300		800	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}$, $I_C=50\text{mA}$		500		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $f=1\text{MHz}$		2.8		pF
Collector to Emitter Saturation Voltage	$V_{CE(\text{sat})}$	$I_C=100\text{mA}$, $I_B=10\text{mA}$		50	100	mV
Base to Emitter Saturation Voltage	$V_{BE(\text{sat})}$	$I_C=100\text{mA}$, $I_B=10\text{mA}$		0.9	1.2	V
Collector to Base Breakdown Voltage	$V_{(\text{BR})CBO}$	$I_C=10\mu\text{A}$, $I_E=0\text{A}$	60			V
Collector to Emitter Breakdown Voltage	$V_{(\text{BR})CEO}$	$I_C=1\text{mA}$, $R_{BE}=\infty$	50			V
Emitter to Base Breakdown Voltage	$V_{(\text{BR})EBO}$	$I_E=10\mu\text{A}$, $I_C=0\text{A}$	5			V
Turn-On Time	t_{on}	See specified Test Circuit		30		ns
Storage Time	t_{stg}			340		ns
Fall Time	t_f			55		ns

Note 3 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

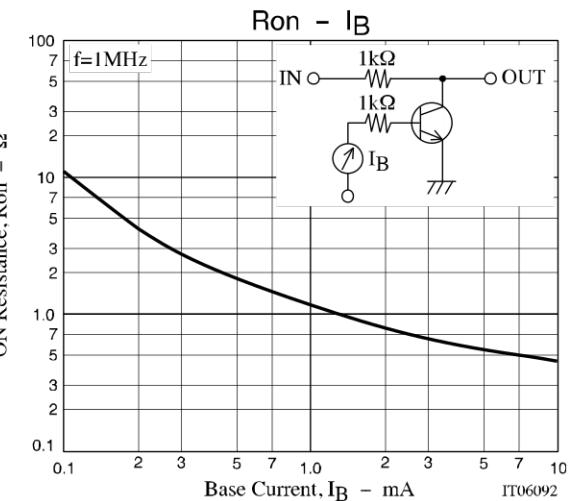
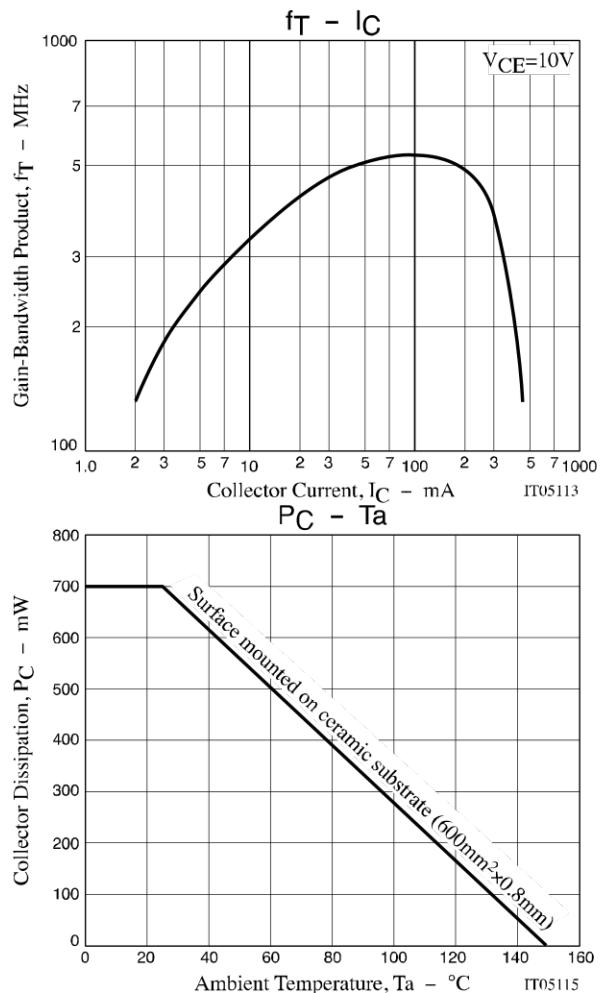
Switching Time Test Circuit



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



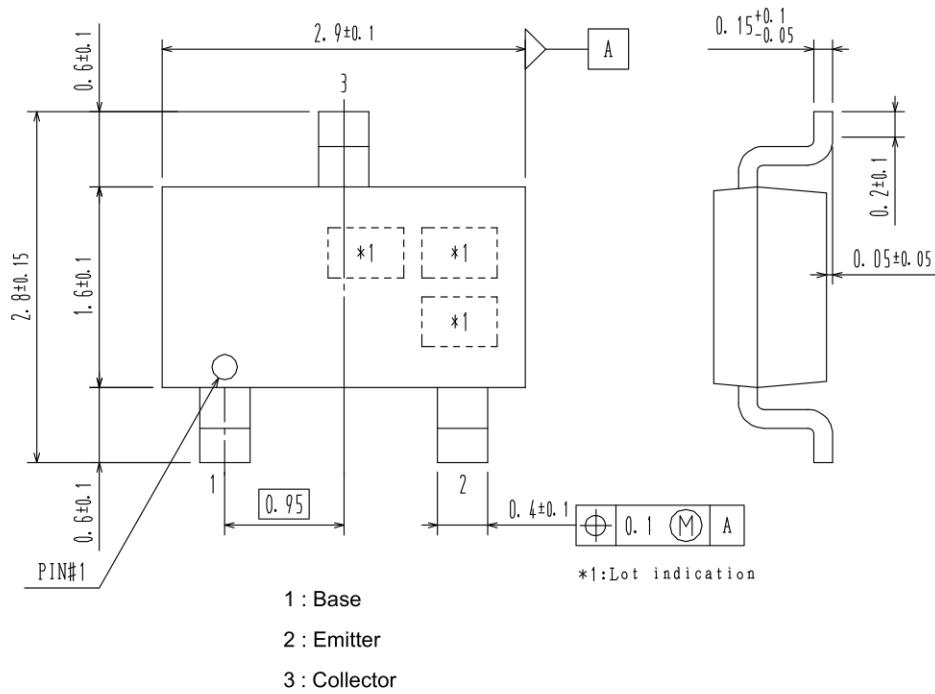
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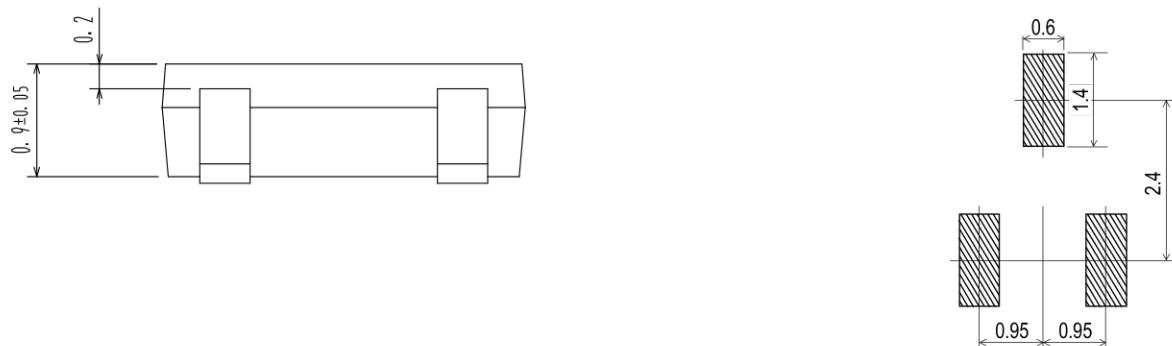
PACKAGE DIMENSIONS

unit : mm

CPH3
CASE 318BA
ISSUE O



Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)
50C02CH-TL-E	CX	CPH3 (Pb-Free)	3,000 / Tape & Reel

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

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