Ordering number : ENN7504

NPN Epitaxial Planar Silicon Transistor

15C01C

Low-Frequency General-Purpose Amplifier Applications

Applications

- Low-frequency Amplifier, muting circuit.

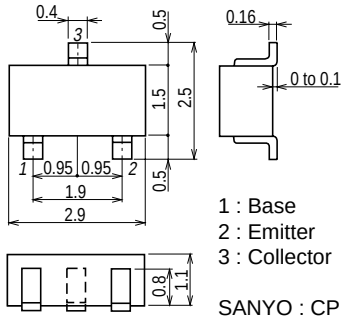
Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance). R_{CE} (sat) typ.=0.58Ω [I_C=0.7A, I_B=35mA].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (Ron).

Package Dimensions

unit : mm
2018B

[15C01C]



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		20	V
Collector-to-Emitter Voltage	V_{CEO}		15	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 glass epoxy board (20×30×1.6mm)	300	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=15V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=10mA	300		800	
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=50mA		330		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		3.2		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=200mA, I_B=10mA		150	300	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=200mA, I_B=10mA		0.9	1.2	V

Marking : YP

Continued on next page.

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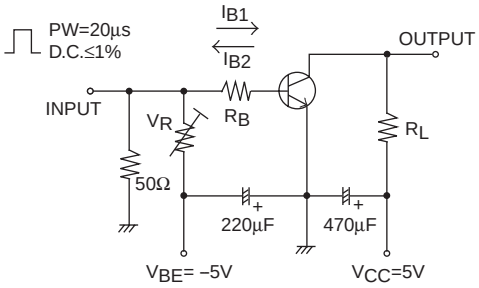
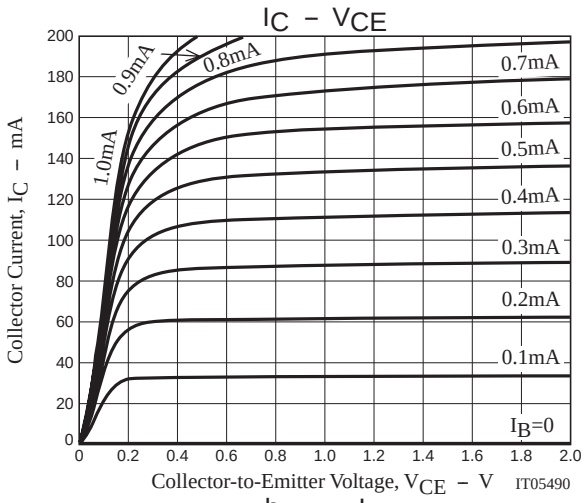
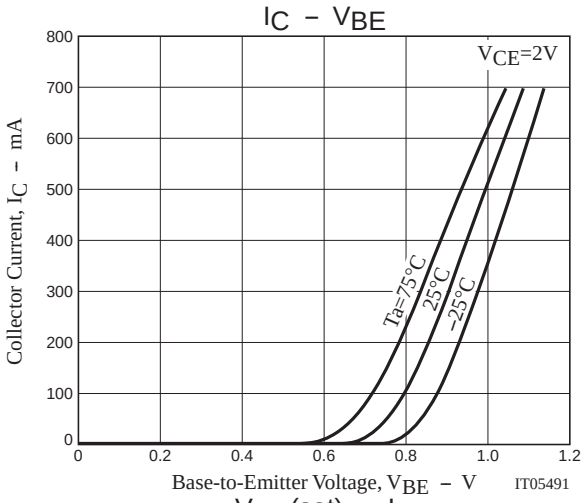
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		77		ns
Fall Time	t_f	See specified Test Circuit.		40		ns

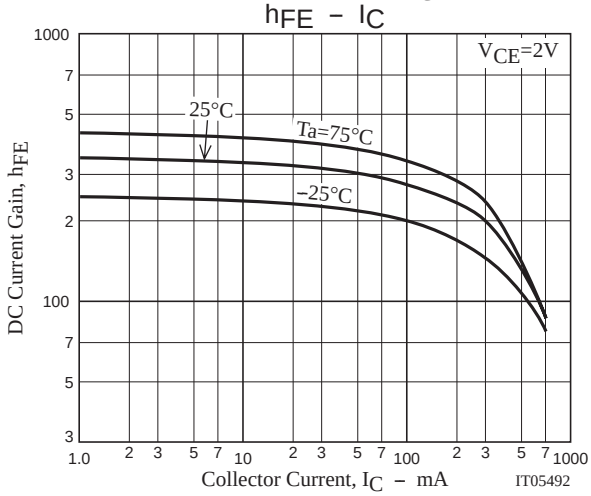
Switching Time Test Circuit

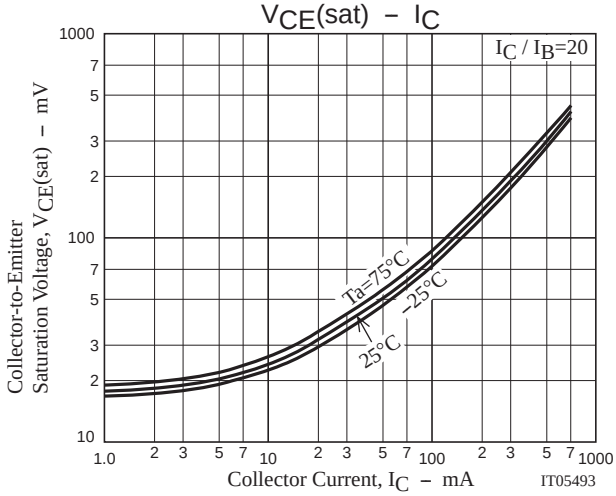


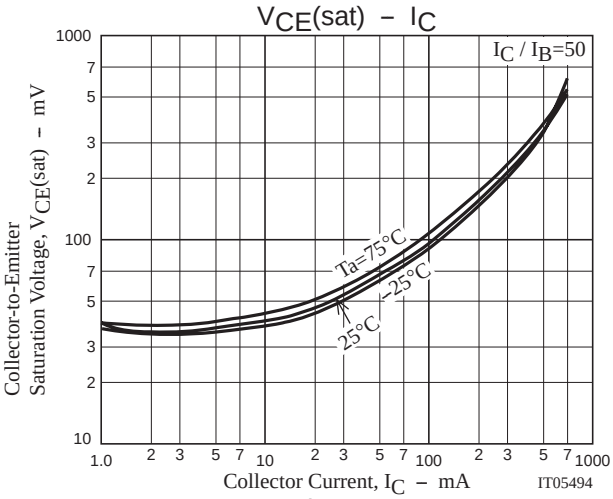
I_C=20I_{B1}= −20I_{B2}=500mA

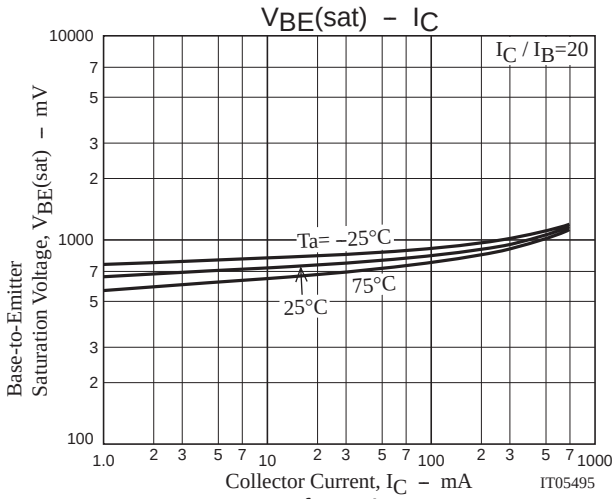


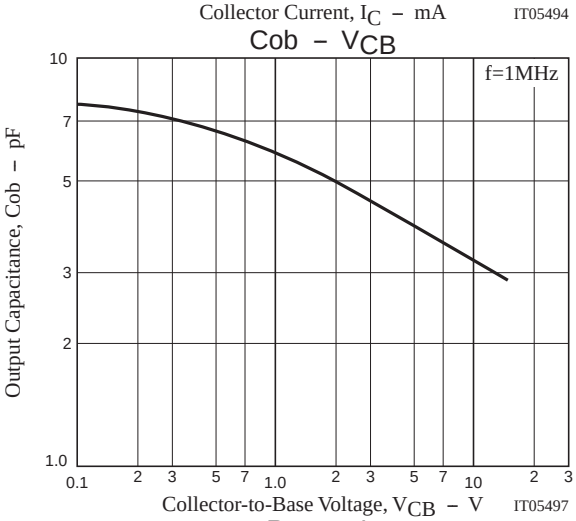


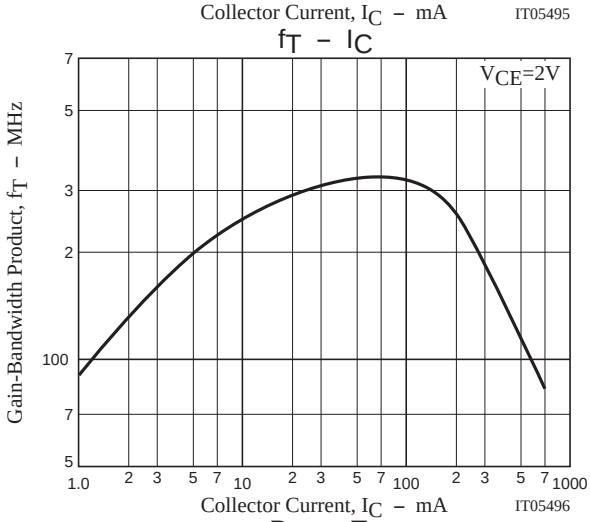


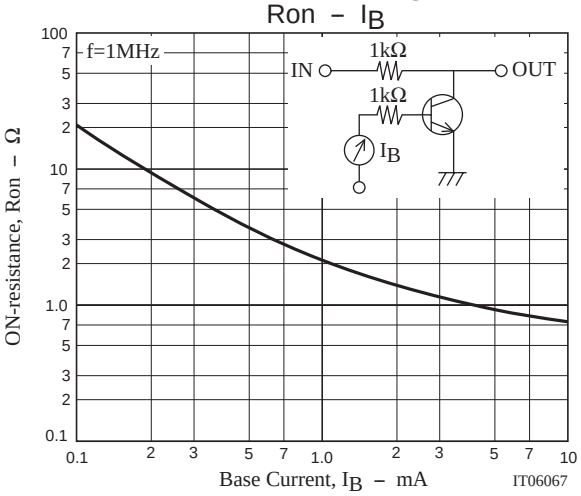


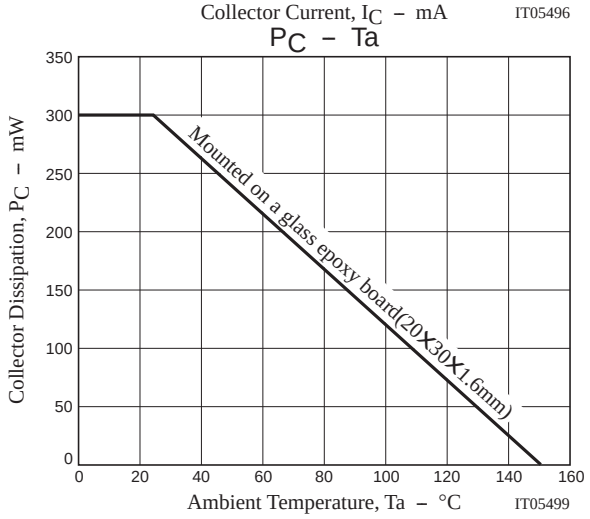

VCE(sat) – IC
IC / IB=50
Ta=75°C
25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
IT05494


VBE(sat) – IC
IC / IB=20
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – mA
IT05495


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT05497


fT – IC
VCE=2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
IT05496


Ron – IB
f=1MHz
IN
1kΩ
OUT
1kΩ
IB
ON-resistance, Ron – Ω
Base Current, IB – mA
IT06067


PC – Ta
Mounted on a glass epoxy board(20x30x1.6mm)
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
IT05499