Ordering number : ENN7354A

NPN Epitaxial Planar Silicon Transistor

15C02MH

Low-Frequency General-Purpose Amplifier Applications

Applications

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

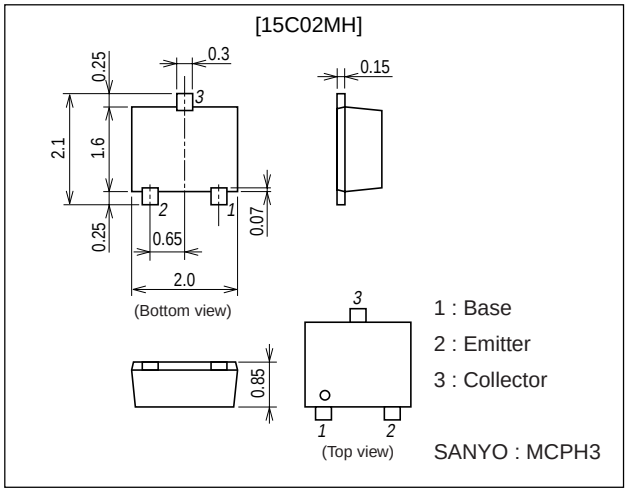
Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance). R_{CE}(sat) typ=300mΩ[I_C=1A, I_B=50mA].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (Ron).

Package Dimensions

unit : mm

2194A



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		1	A
Collector Current (Pulse)	I_{CP}		2	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm²×0.8mm)	600	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}=12V, 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}=2V, I_C=50mA		440		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		4		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=400mA, I_B=20mA		140	280	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=400mA, I_B=20mA		0.9	1.2	V

Marking : CK

Continued on next page.

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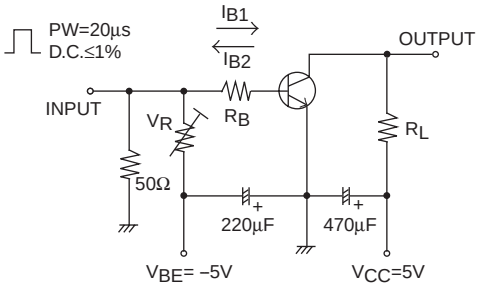
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SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

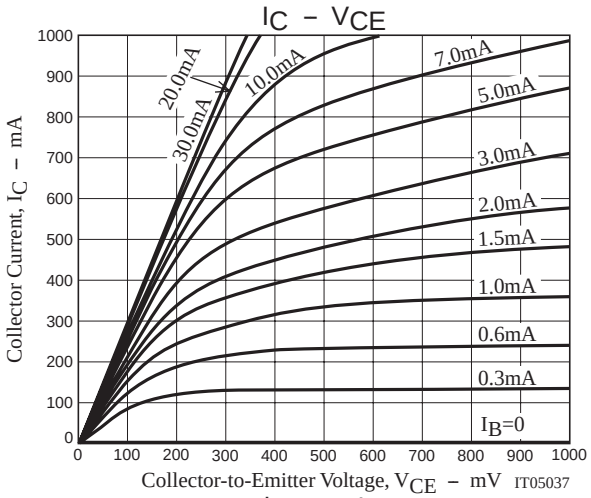
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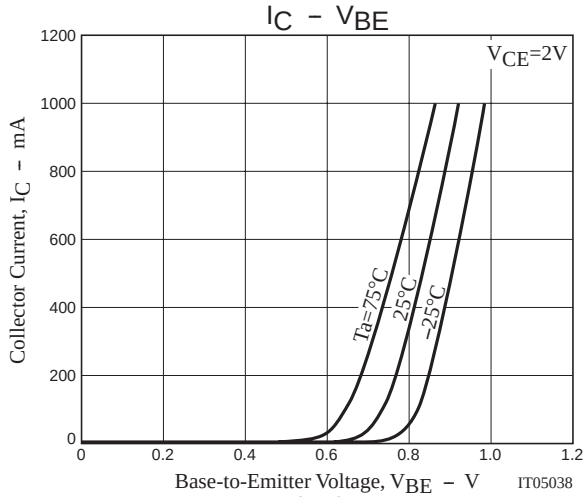
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Delay Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		165		ns
Turn-OFF Delay Time	t_f	See specified Test Circuit.		25		ns

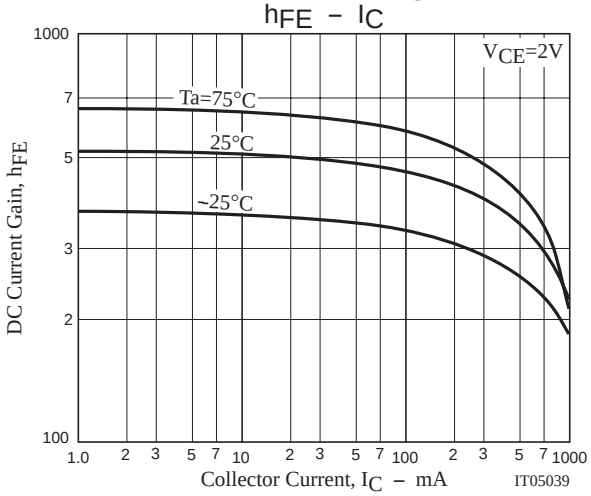
Switching Time Test Circuit

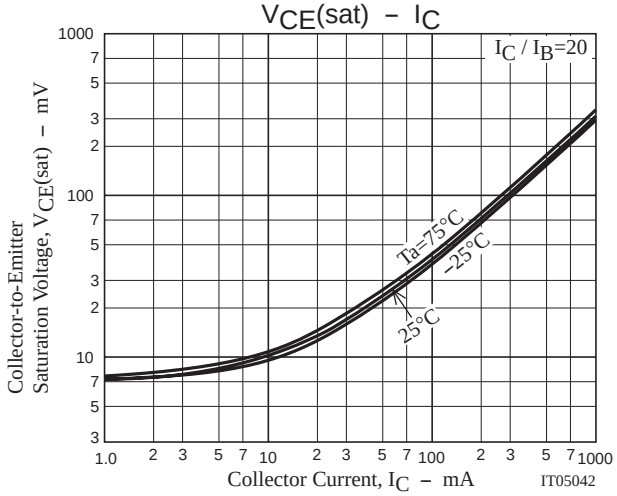


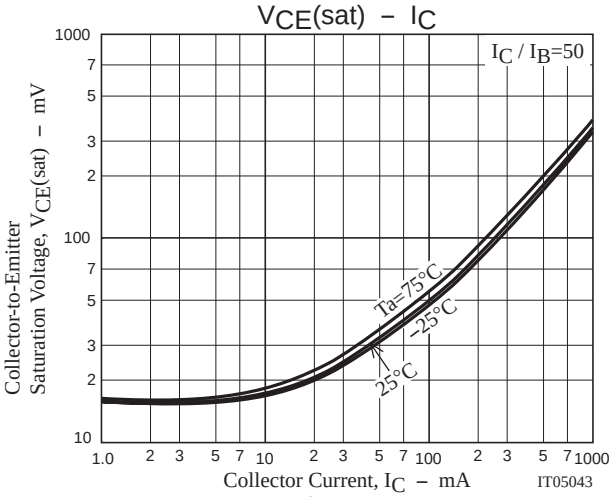
I_C=20I_{B1}= −20I_{B2}=400mA

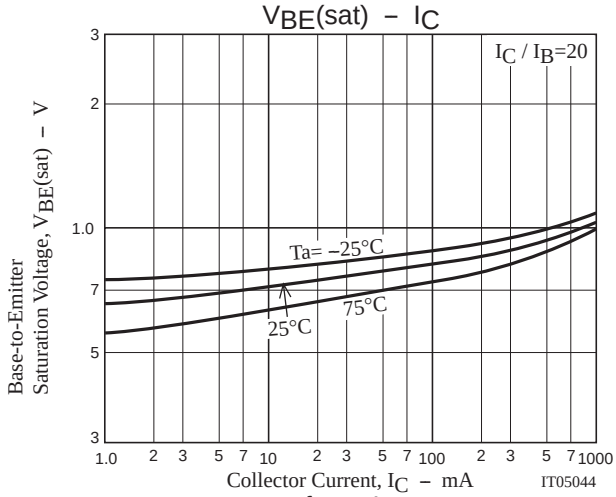


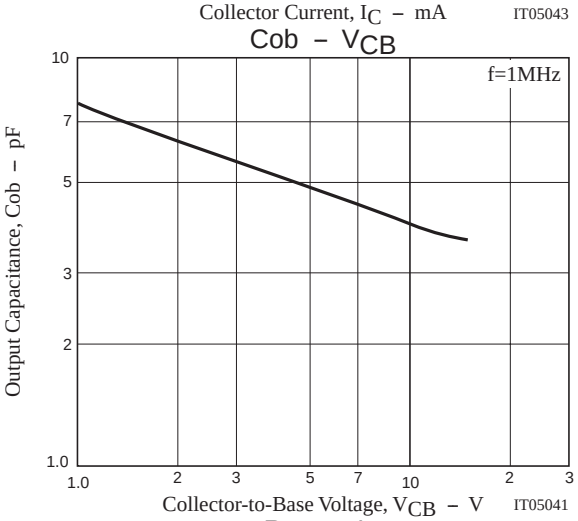


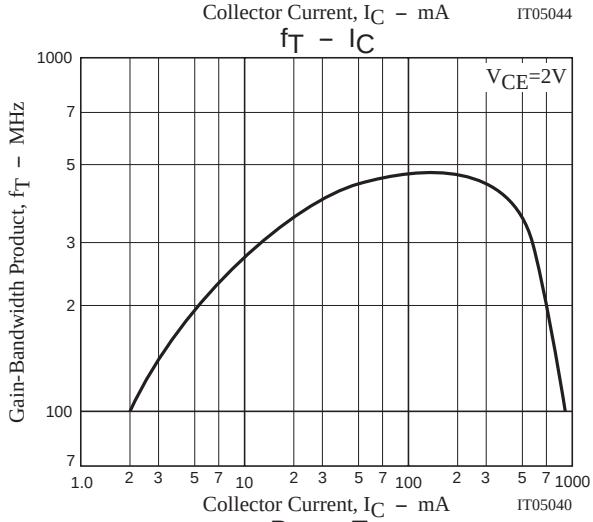


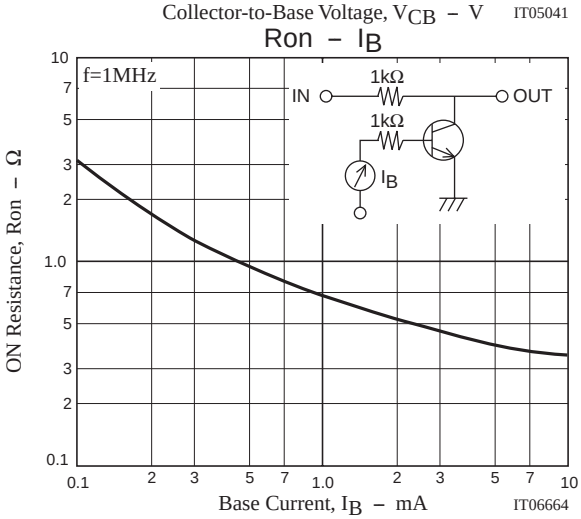


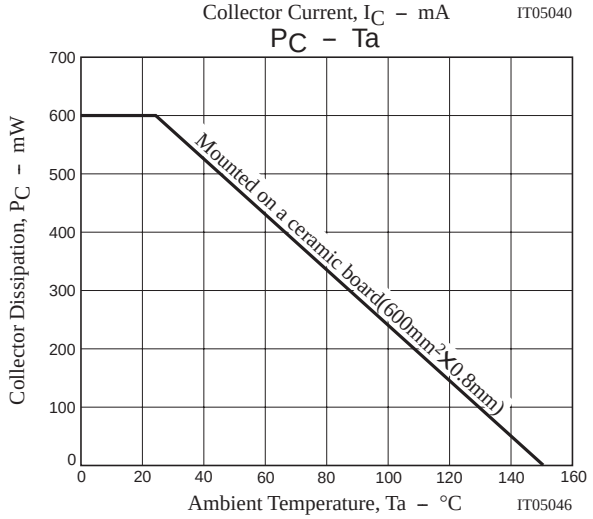

VCE(sat) – IC
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
IT05043


VBE(sat) – IC
IC / IB=20
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – mA
IT05044


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT05041


fT – IC
VCE=2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
IT05040


Ron – IB
f=1MHz
IN
1kΩ
1kΩ
OUT
IB
ON Resistance, Ron – Ω
Base Current, IB – mA
IT06664


PC – Ta
Mounted on a ceramic board(600mm2×0.8mm)
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
IT05046

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