Ordering number:EN2018A

NPN Epitaxial Planar Silicon Transistor

2SC3807

High h_{FE}, Low-Frequency General-Purpose Amplifier Applications

Applications

· Low frequency general-purpose amplifiers, drivers.

Features

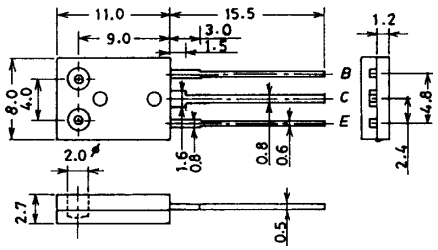
· Large current capacity (I_C=2A).
· Adoption of MBIT process.
· High DC current gain (h_{FE}=800 to 3200).
· Low collector-to-emitter saturation voltage ($V_{CE(sat)}$≤0.5V).
· High V_{EBO} (V_{EBO}≥15V).

Package Dimensions

unit:mm

2043A

[2SC3807]



B : Base
C : Collector
E : Emitter
SANYO : TO-126LP

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		30	V
Collector-to-Emitter Voltage	V_{CEO}		25	V
Emitter-to-Base Voltage	V_{EBO}		15	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		4	A
Collector Dissipation	P_C		1.2	W
		Tc=25˚C	15	W
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}=20V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=10V, I_C=0			0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=5V, I_C=500mA	800	1500	3200	
	$h_{FE}2$	V_{CE}=5V, I_C=1A	600			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=50mA		260		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		27		pF

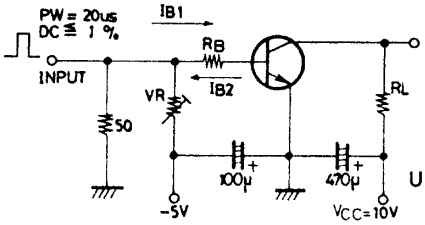
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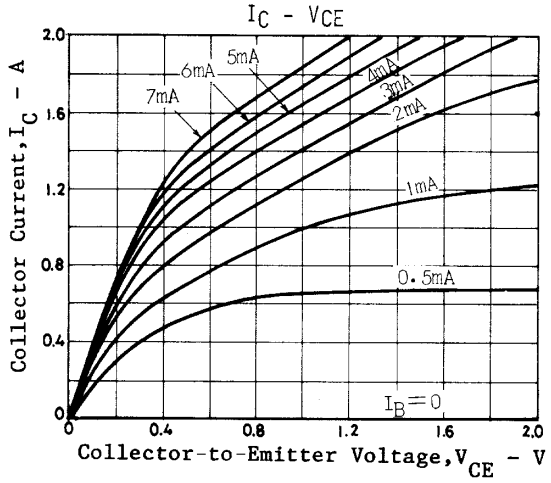
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=1A, I_B=20mA		0.15	0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=1A, I_B=20mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	25			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	15			V
Turn-ON Time	t_{on}	See specified test circuit.		0.14		μs
Storage Time	t_{stg}	See specified test circuit.		1.35		μs
Fall Time	t_f	See specified test circuit.		0.1		μs

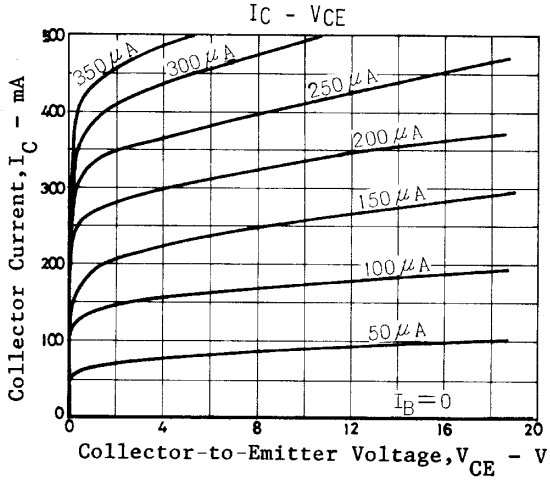
Switching Time Test Circuit

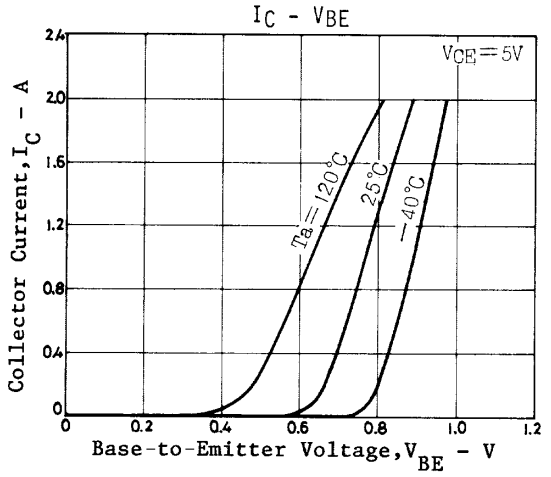


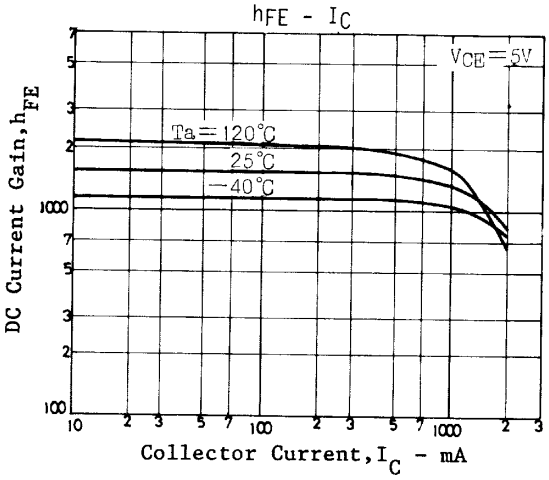
Unit (resistance: Ω, capacitance: F)

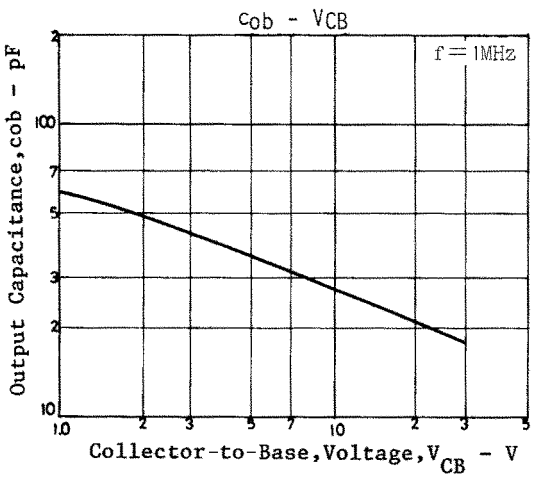
$7I_{B1} = -7I_{B2} = I_C = 700mA$

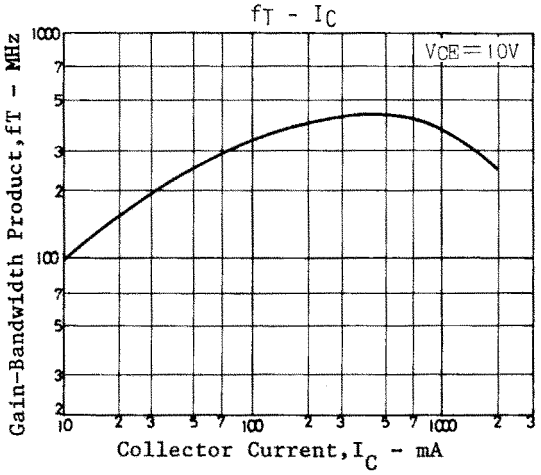


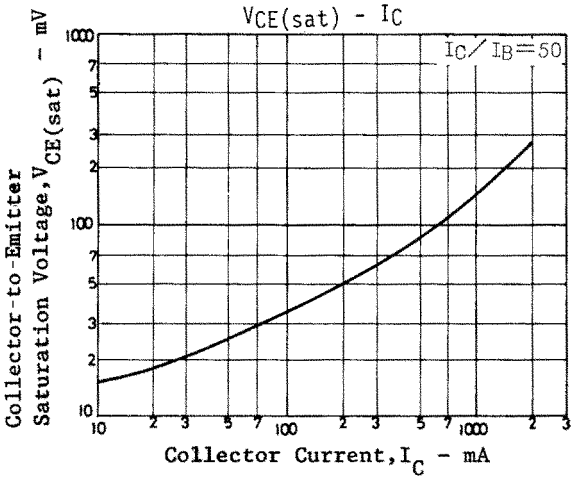


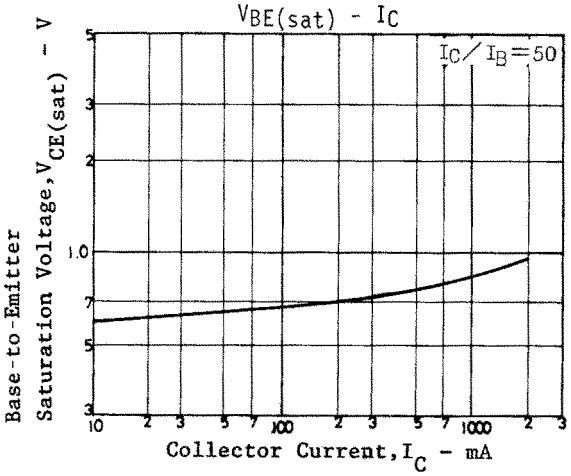


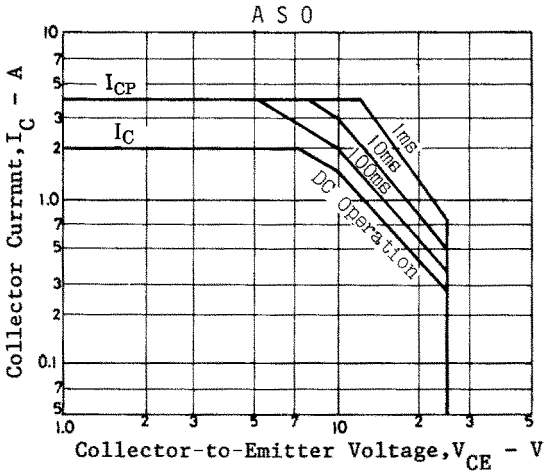


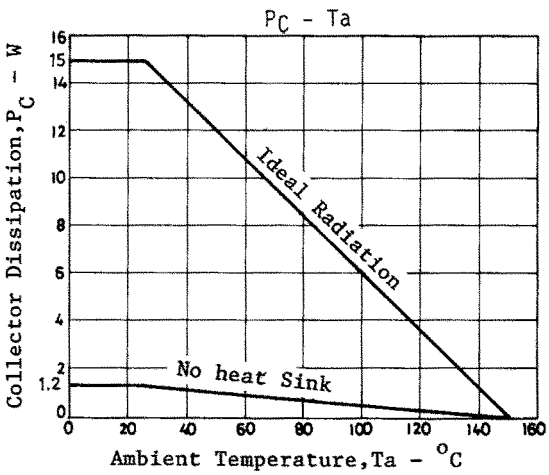

Cob - VCB
f=1MHz
Output Capacitance,cob - pF
Collector-to-Base,Voltage,VCB - V


fT - IC
VCE=10V
Gain-Bandwidth Product,fT - MHz
Collector Current,IC - mA


VCE(sat) - IC
IC/IB=50
Collector-to-Emitter Saturation Voltage,VCE(sat) - mV
Collector Current,IC - mA


VBE(sat) - IC
IC/IB=50
Base-to-Emitter Saturation Voltage,VCE(sat) - V
Collector Current,IC - mA


A S O
ICP
IC
1ms
10ms
100ms
DC Operation
Collector Currnut,IC - A
Collector-to-Emitter Voltage,VCE - V


PC - Ta
Ideal Radiation
No heat Sink
Collector Dissipation,PC - W
Ambient Temperature,Ta - °C

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