Ordering number:EN3133

PNP Epitaxial Planar Silicon Transistor

2SA1729

High-Speed Switching Applications

Features

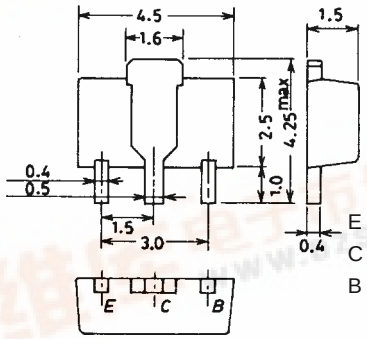
- Adoption of FBET, MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.
- Small-sized package.

Package Dimensions

unit:mm

2038

[2SA1729]



E : Emitter
C : Collector
B : Base

SANYO : PCP
(Bottom view)

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–50	V
Collector-to-Emitter Voltage	V_{CEO}		–40	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–1.5	A
Collector Current (Pulse)	I_{CP}		–3	A
Collector Dissipation	P_C	Mounted on ceramic board (250mm²×0.8mm)	1.3	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}=–40V, I_E=0			–1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–3V, I_C=0			–1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–100mA	70*		280*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–1.5A	25			
Gain-Bandwidth Product	f_T	V_{CE}=–2V, I_C=–100mA		300		MHz
Output Capacitance	C_{ob}	V_{CB}=–10V, f=1MHz		18		pF
Collector-to-Emitter Saturatin Voltage	$V_{CE(sat)}$	I_C=–800mA, I_B=–40mA		–0.3	–0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–800mA, I_B=–40mA		–0.9	–1.3	V

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2SA1729

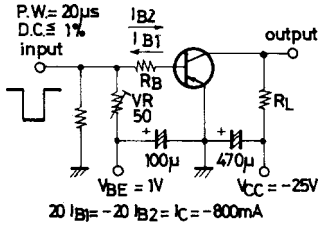
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–50			V
Collector-to-Emitter Saturation Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–40			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit		50	100	ns
Storage Time	t_{stg}	See specified Test Circuit		120	220	ns
Turn-OFF Time	t_{off}	See specified Test Circuit		150	300	ns

* : The 2SA1729 is classified by 100mA h_{FE} as follows :

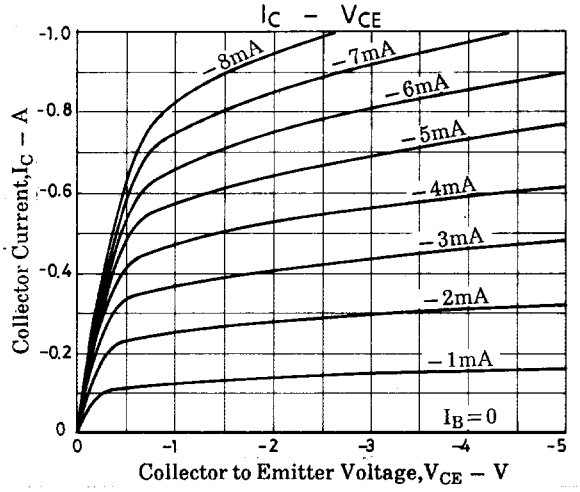
70 Q 140	100 R 200	140 S 280

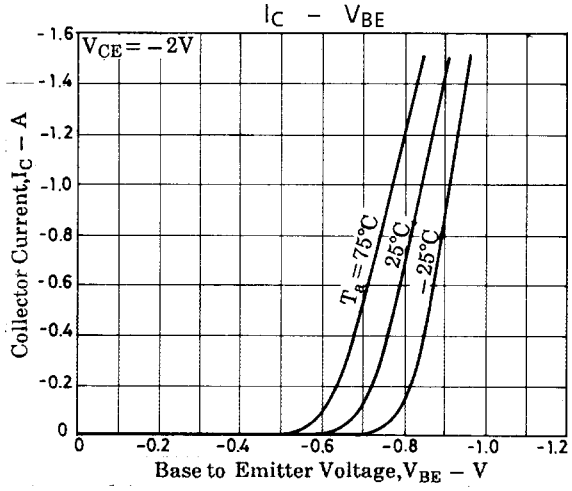
Marking : AG
h_{FE} rank : Q, R, S

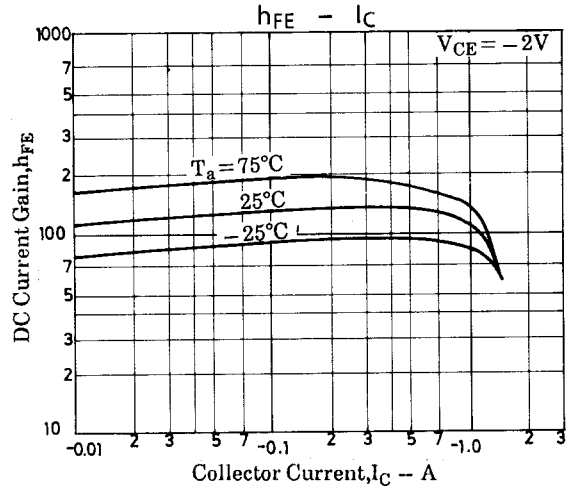
Switching Time Test Circuit

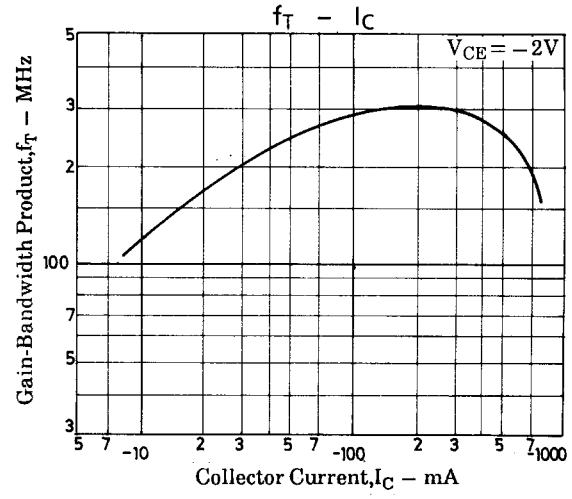


Unit (resistance : Ω, capacitance : F)

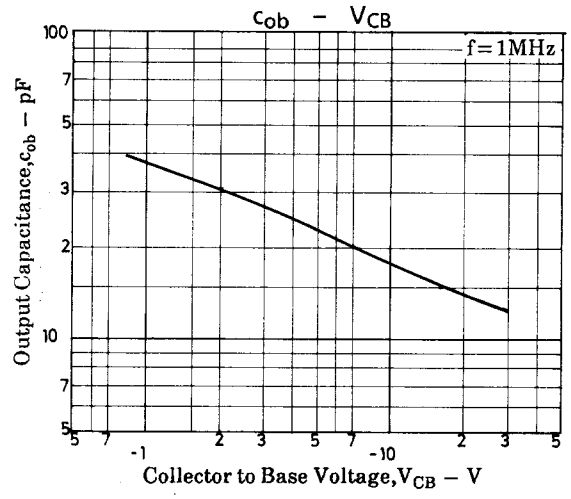


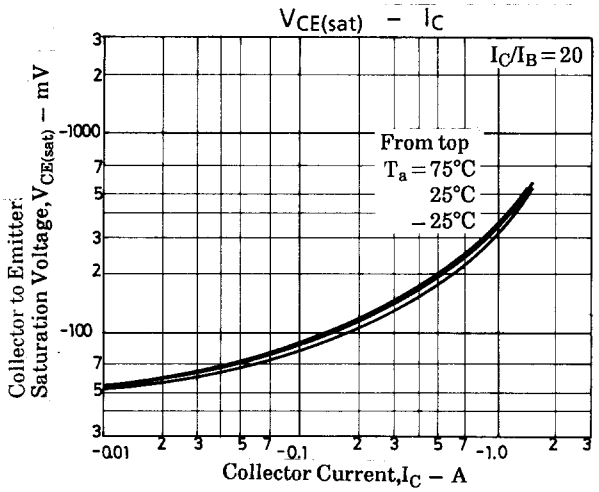


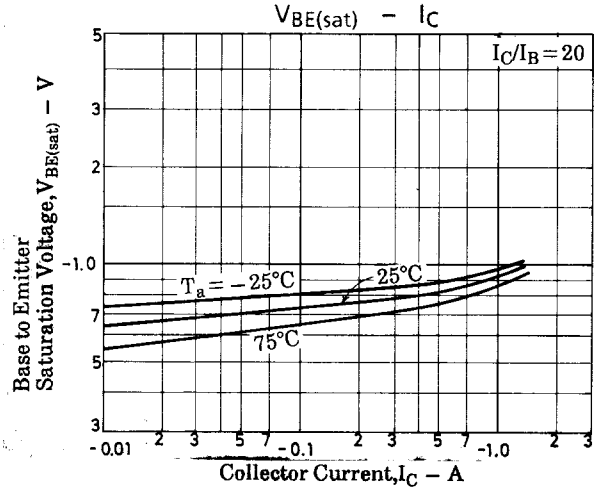


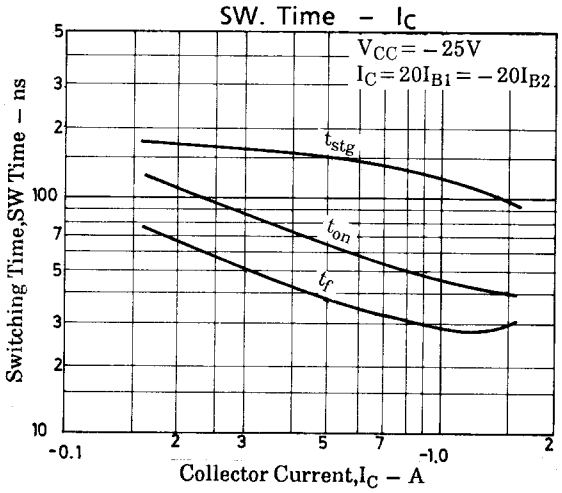


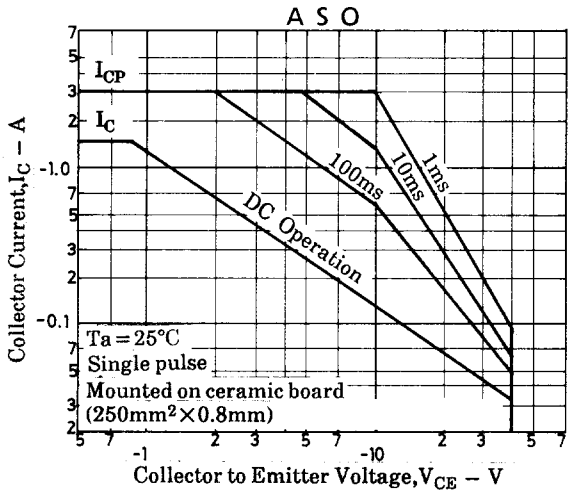
2SA1729

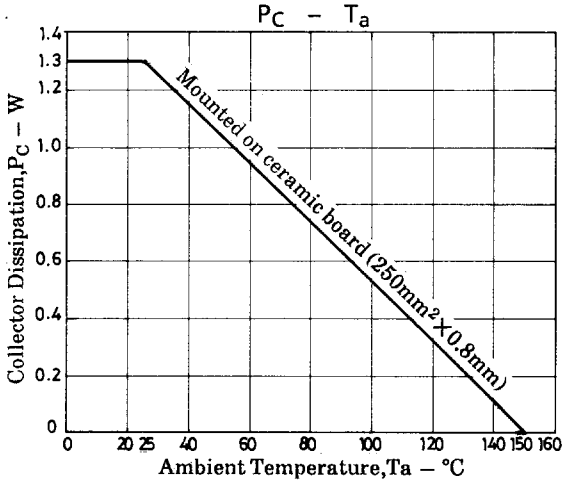

Cob – VCB
f=1MHz
Output Capacitance,Cob – pF
Collector to Base Voltage,VCB – V


VCE(sat) – IC
IC/IB=20
From top
Ta=75°C
25°C
–25°C
Collector to Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – A


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


SW. Time – IC
VCC=–25V
IC=20IB1=–20IB2
tstg
ton
tf
Switching Time,SW Time – ns
Collector Current,IC – A


A S O
ICP
IC
100ms
10ms
1ms
DC Operation
Ta=25°C
Single pulse
Mounted on ceramic board
(250mm²×0.8mm)
Collector Current,IC – A
Collector to Emitter Voltage,VCE – V


PC – Ta
Mounted on ceramic board (250mm²×0.8mm)
Collector Dissipation,PC – W
Ambient Temperature,Ta – °C