

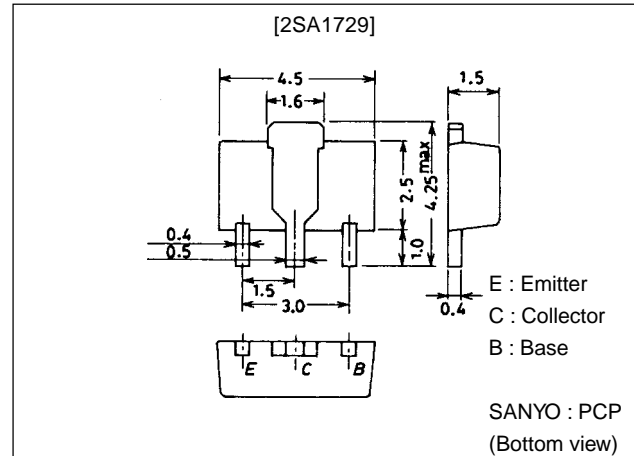
**2SA1729****High-Speed Switching Applications****Features**

- 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

**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 (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-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	$h_{FE1}$	$V_{CE}=-2V, I_C=-100mA$	70*		280*	
	$h_{FE2}$	$V_{CE}=-2V, I_C=-1.5A$	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 Saturation 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	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-50			V
Collector-to-Emitter Saturation Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-40			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-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

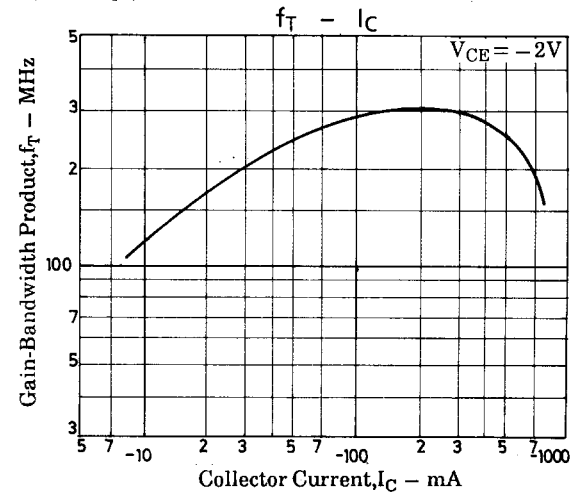
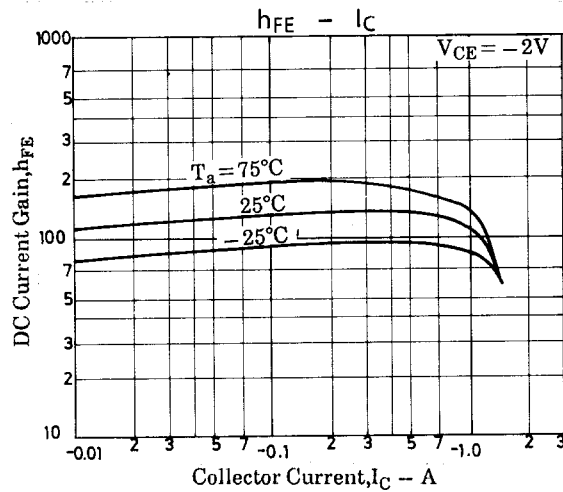
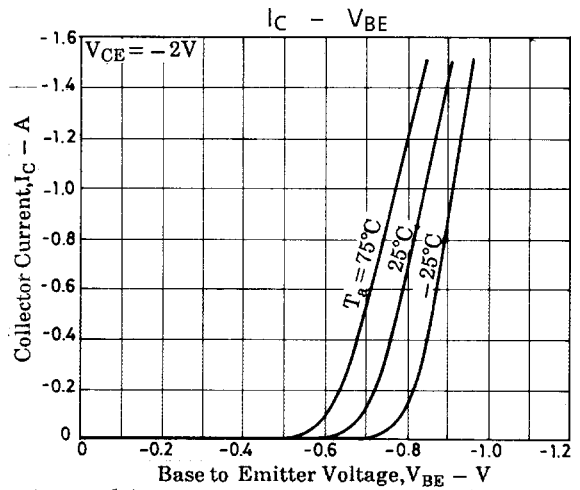
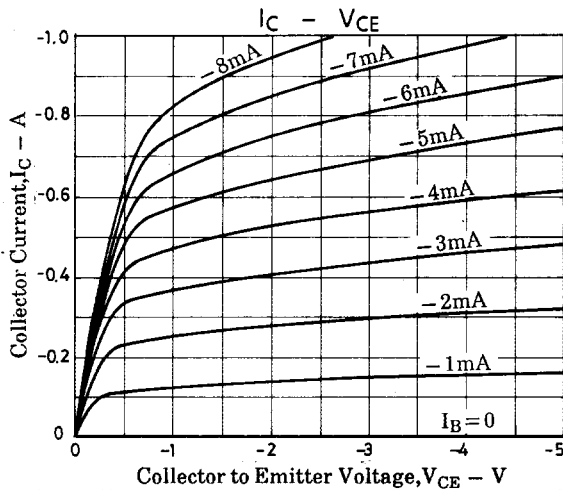
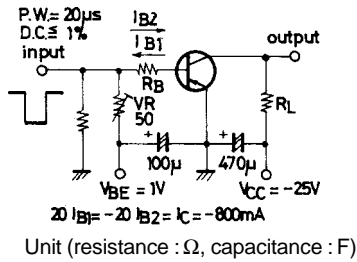
\* : The 2SA1729 is classified by 100mA  $h_{FE}$  as follows :

70	Q	140	100	R	200	140	S	280
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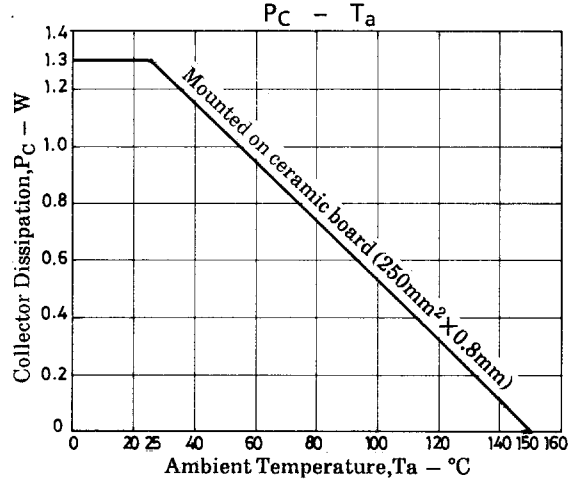
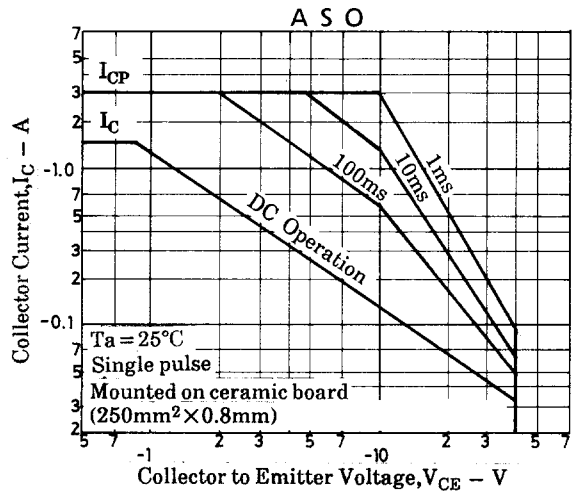
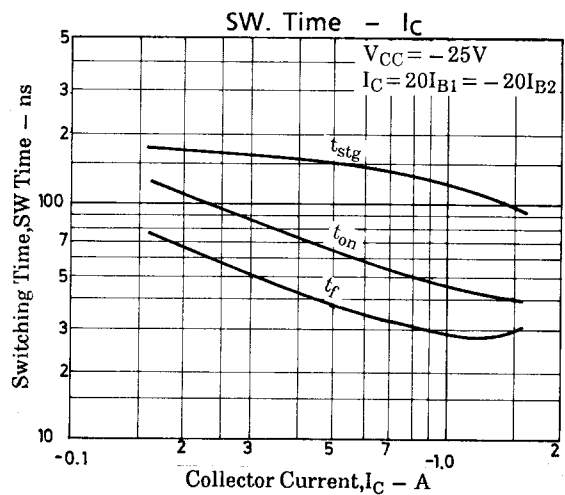
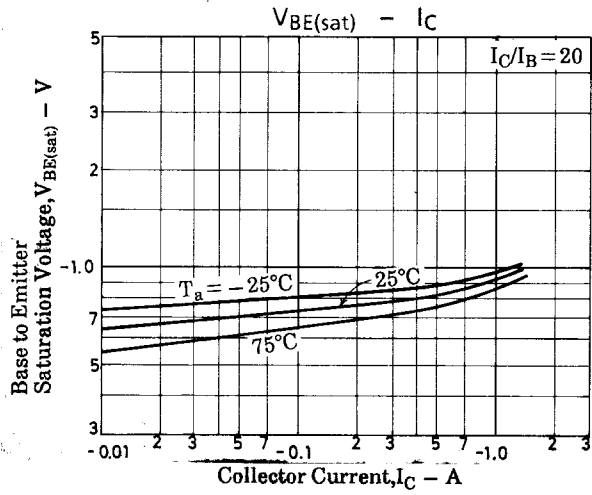
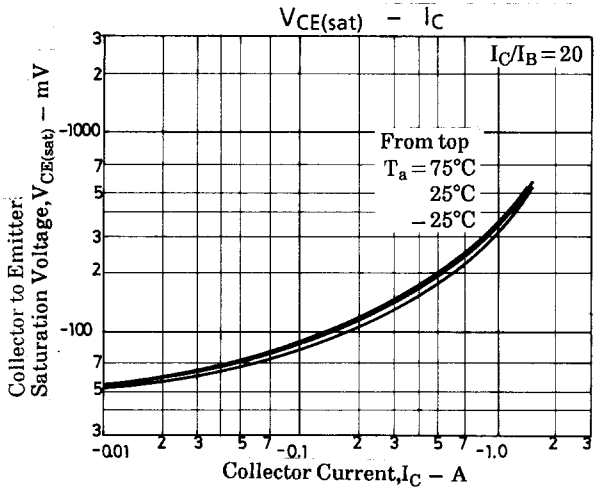
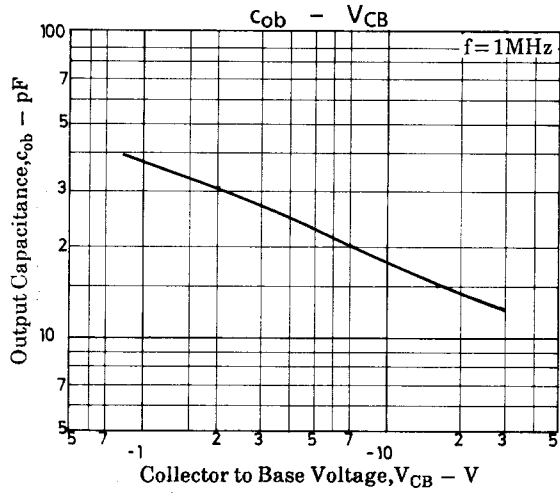
Marking : AG

$h_{FE}$  rank : Q, R, S

## Switching Time Test Circuit



# 2SA1729



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