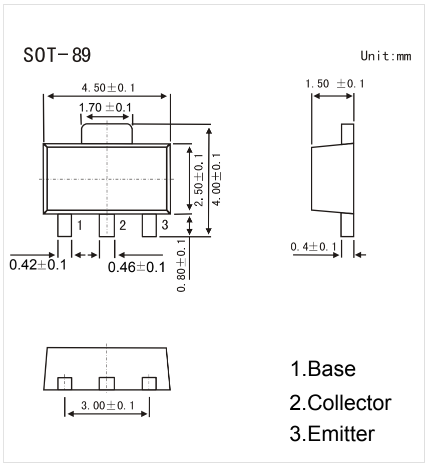
PNP Transistors

2SA1417



■ Features

- ● Adoption of FBET, MBIT Processes
- ● High Breakdown Voltage and Large Current Capacity
- ● Complementary to 2SC3647

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-120	V
Collector - Emitter Voltage	V_{CEO}	-100	
Emitter - Base Voltage	V_{EBO}	-6	
Collector Current - Continuous	I_C	-2	A
Collector Current - Pulsed	I_{CP}	-3	
Collector Power Dissipation	P_C	500	mW
Junction Temperature	T_J	150	℃
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= -100 μA， I_E=0	-120			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= -1 mA， R_{BE}=∞	-100			
Emitter - base breakdown voltage	V_{EBO}	I_E= -100 μ A， I_C=0	-6			
Collector-base cut-off current	I_{CBO}	V_{CB}= -100 V , I_E=0			-0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}= -4V , I_C=0			-0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-1A, I_B=- 100mA		-0.22	-0.6	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=-1A, I_B=- 100mA		-0.85	-1.2	
DC current gain	h_{FE}	V_{CE}= -5V, I_C= -100mA	100		400	
Turn-on time	t_{on}	See Test Circuit.		80		ns
Storage time	t_s			750		
Fall time	t_f			40		
Output capacitance	C_{ob}	V_{CB}= -10V, I_E= 0,f=1MHz		25		pF
Transition frequency	f_T	V_{CE}= -10V, I_E= -100mA		120		MHz

■ Classification of h_{fe}

Marking	ACR*	ACS*	ACT*
Range	100-200	140-280	200-400

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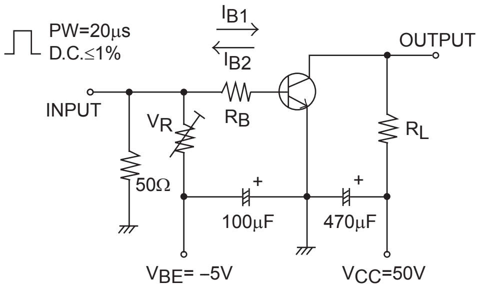
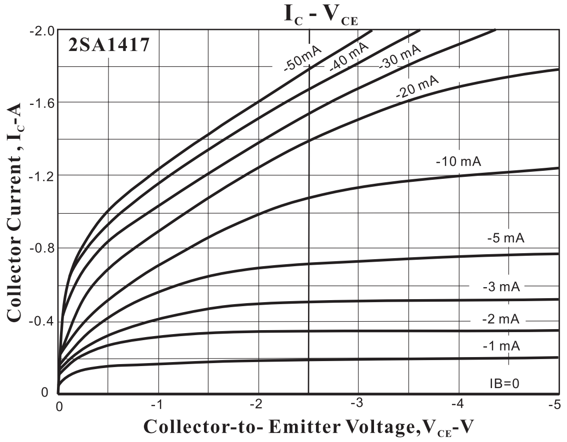
■ Test Circuit

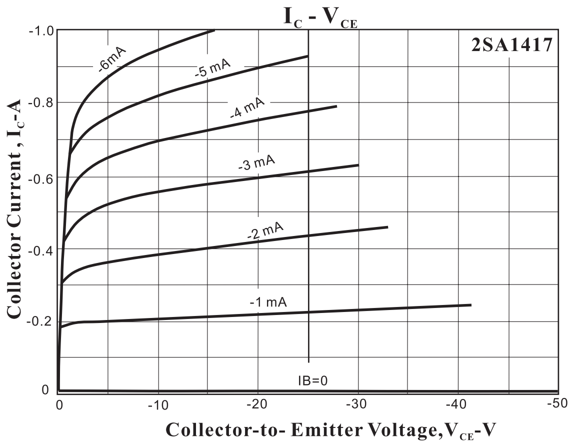


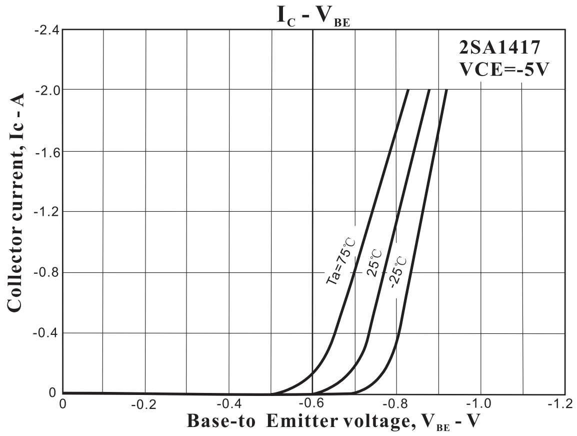
$10I_{B1} = -10I_{B2} = I_C = 0.7A$

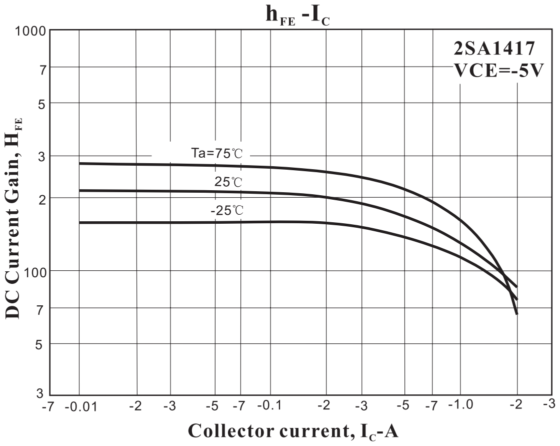
For PNP, the polarity is reversed.

■ Typical Characterisitics









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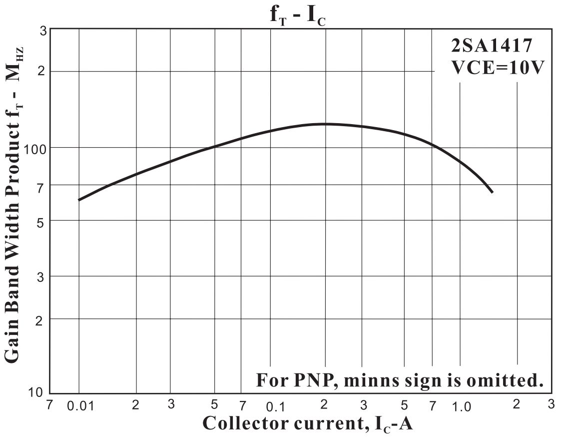
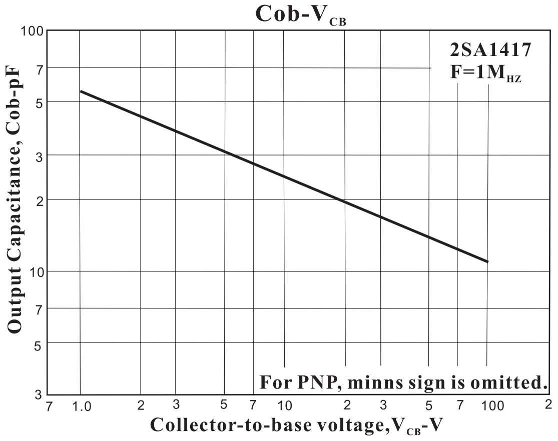
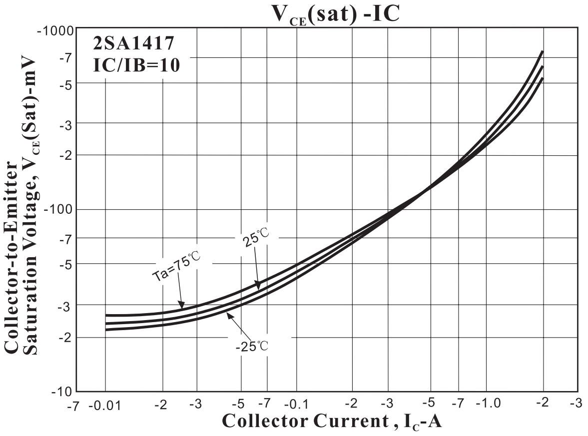
■ Typical Characterisitics



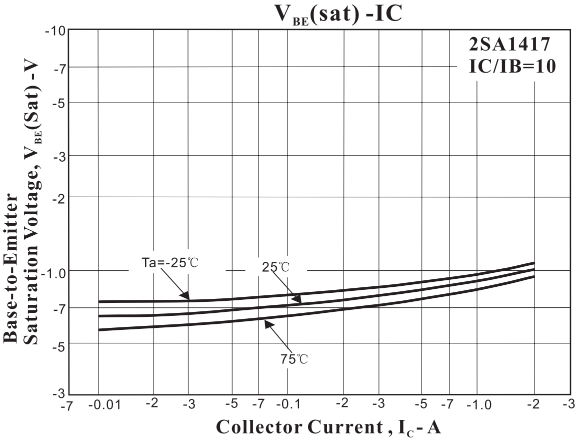
f_T - I_C



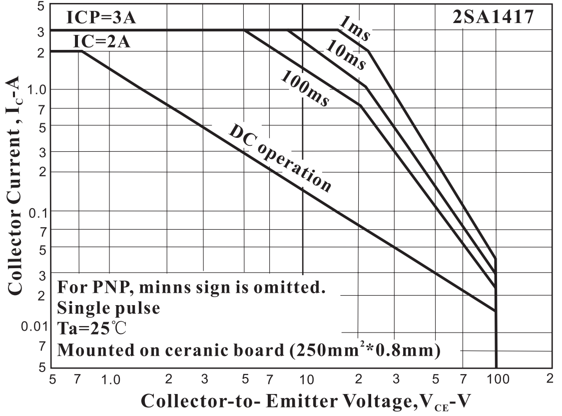
Cob-V_{CB}



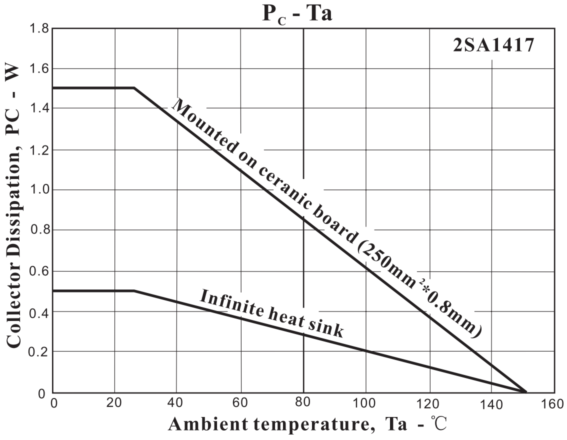
V_{CE}(sat) -IC



V_{BE}(sat) -IC



ASO



P_C - Ta