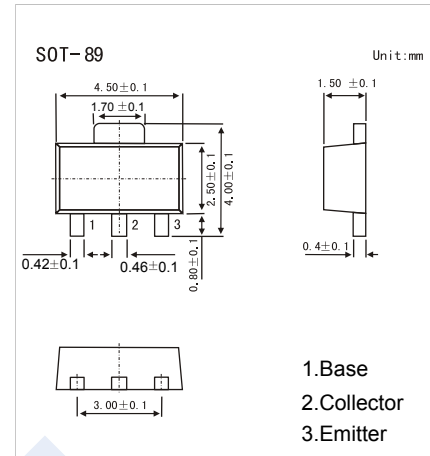


PNP Transistors

2SA1417



■ Features

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

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-120	V
Collector - Emitter Voltage	V_{CE0}	-100	
Emitter - Base Voltage	V_{EB0}	-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	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CB0}	$I_C = -100 \mu\text{A}$, $I_E = 0$	-120			V
Collector-emitter breakdown voltage	V_{CE0}	$I_C = -1 \text{mA}$, $R_{BE} = \infty$	-100			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100 \mu\text{A}$, $I_C = 0$	-6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = -100 \text{V}$, $I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = -4 \text{V}$, $I_C = 0$			-0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1 \text{A}$, $I_B = -100 \text{mA}$		-0.22	-0.6	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1 \text{A}$, $I_B = -100 \text{mA}$		-0.85	-1.2	
DC current gain	h_{FE}	$V_{CE} = -5 \text{V}$, $I_C = -100 \text{mA}$	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}		$V_{CB} = -10 \text{V}$, $I_E = 0$, $f = 1 \text{MHz}$		25	
Transition frequency	f_T	$V_{CE} = -10 \text{V}$, $I_E = -100 \text{mA}$		120		MHz

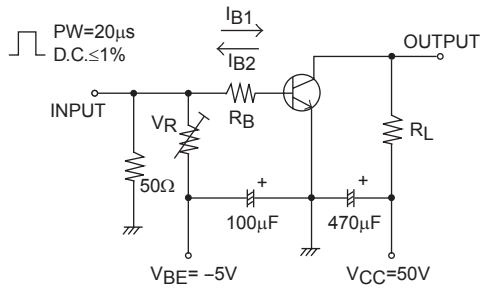
■ Classification of h_{FE}

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

PNP Transistors

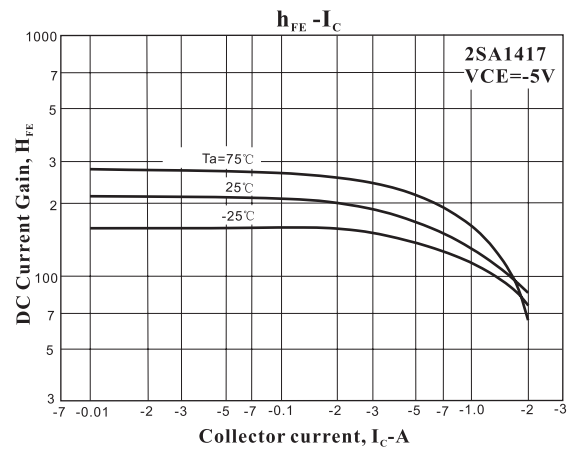
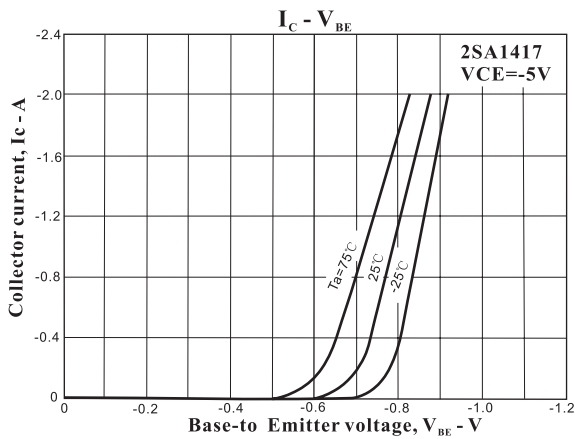
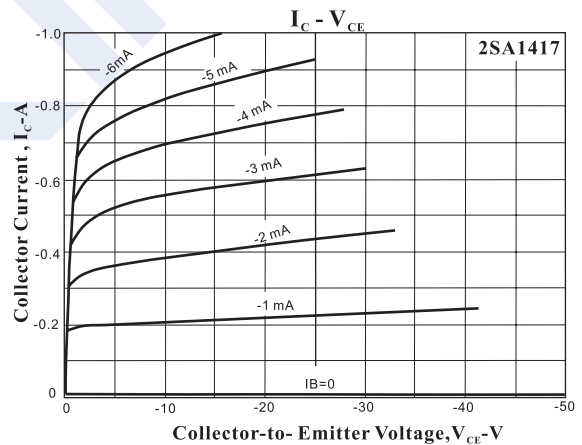
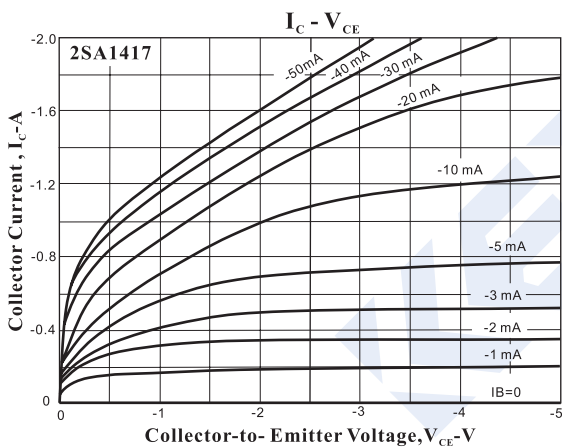
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■ Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 0.7A$
 For PNP, the polarity is reversed.

■ Typical Characteristics



PNP Transistors

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Typical Characteristics

