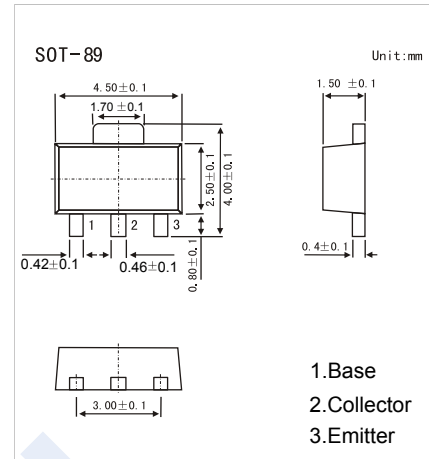


PNP Transistors

2SA1213-HF

■ Features

- Low Saturation Voltage: $V_{CE(sat)} = -0.5V$ (max) ($I_C = -1A$)
- High Speed Switching Time: $t_{stg} = 1.0\mu s$ (typ.)
- Small Flat Package
- $P_c = 1$ to $2W$ (mounted on ceramic substrate)
- Complementary to 2SC2873-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-50	V
Collector - Emitter Voltage	V_{CEO}	-50	
Emitter - Base Voltage	V_{EBO}	-5	
Collector Current - Continuous	I_C	-2	A
Base Current - Continuous	I_B	-0.4	
Collector Power Dissipation	P_c	500	mW
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = -100 \mu A, I_E = 0$	-50			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = -10 mA, I_B = 0$	-50			
Emitter - base breakdown voltage	V_{EBO}	$I_E = -100 \mu A, I_C = 0$	-5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -50 V, I_E = 0$			-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5V, I_C = 0$			-100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1 A, I_B = -50mA$			-0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1 A, I_B = -50mA$			-1.2	
DC current gain	$h_{FE(1)}$	$V_{CE} = -2V, I_C = -0.5A$	70		240	
	$h_{FE(2)}$	$V_{CE} = -2V, I_C = -2A$	20			
Turn-on time	t_{on}	See Test Circuit.		0.1		us
Storage time	t_{stg}			1		
Fall time	t_f			0.1		
Collector output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$		40		pF
Transition frequency	f_T	$V_{CE} = -2V, I_C = -0.5A$		120		MHz

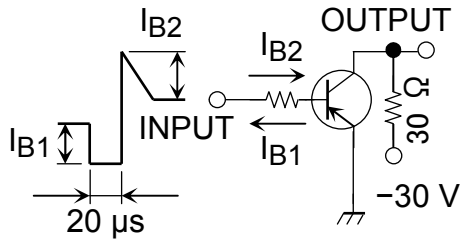
■ Classification of $h_{fe(1)}$

Type	2SA1213-O-HF	2SA1213-Y-HF
Range	70-140	120-240
Marking	NO _F	NY _F

PNP Transistors

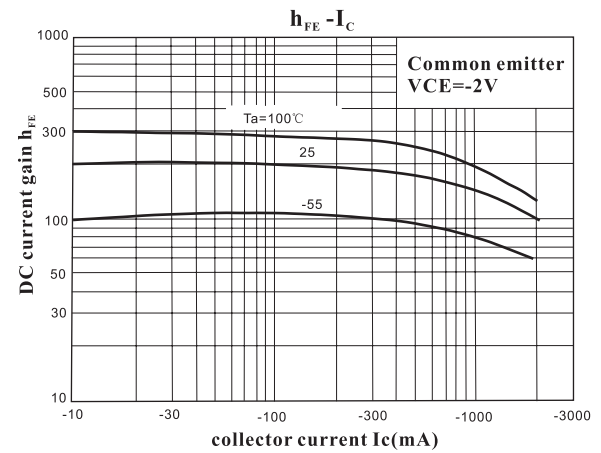
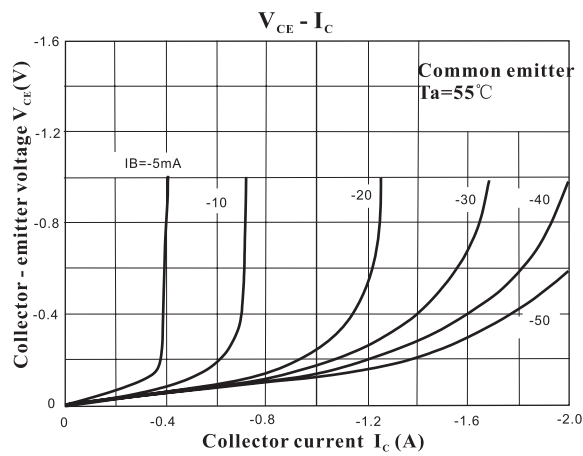
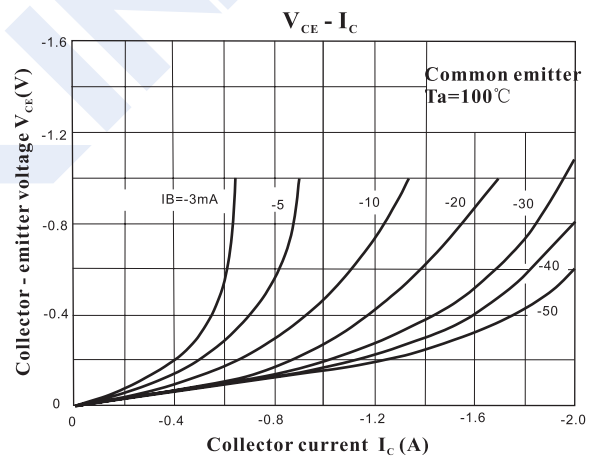
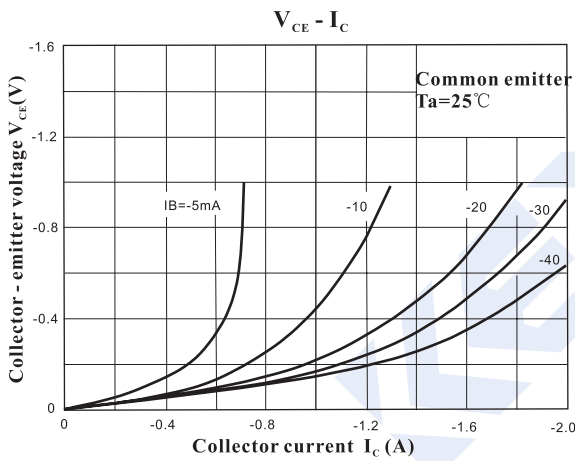
2SA1213-HF

■ Test Circuit



$I_{B1} = 0.05 \text{ A}, I_{B2} = 0.05 \text{ A}$
 DUTY CYCLE $\leq 1\%$

■ Typical Characteristics



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Typical Characteristics

