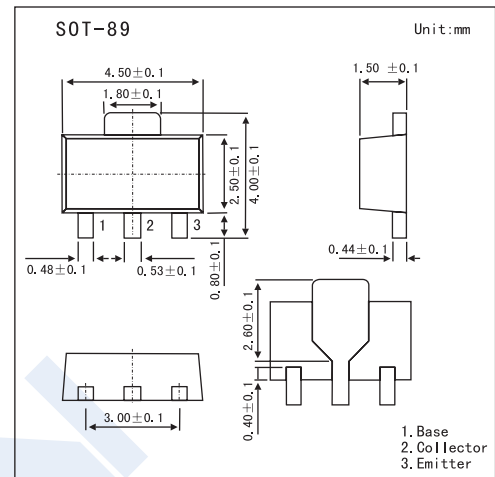


High-Voltage Switching Applications

2SA1415



Features

- Adoption of FBET Process
- High Breakdown Voltage ($V_{CE0} = 160V$)
- Excellent Linearity of h_{FE} and Small C_{ob}
- Fast Switching Speed

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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	-180	V
Collector-Emitter Voltage	V_{CE0}	-160	V
Emitter-Base Voltage	V_{EB0}	-5	V
Collector Current	I_C	-140	mA
Collector Current (Pulse)	I_{CP}	-200	mA
Collector Power Dissipation	P_C	500	mW
	P_{C^*}	1.3	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature Range	T_{stg}	-55 to +150	$^\circ C$

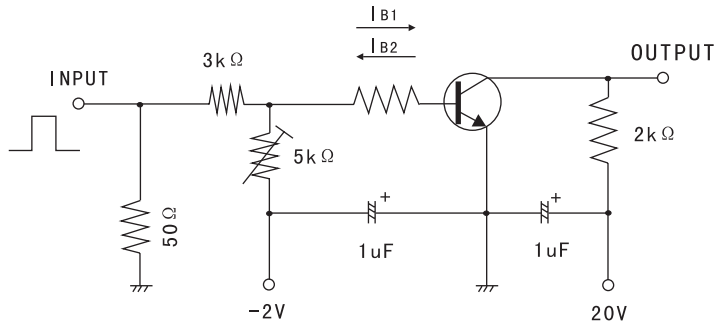
* Mounted on ceramic board (250 mm² x 0.8 mm)

Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	I_{CBO}	$V_{CB} = -80V, I_E = 0$			-100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -4V, I_C = 0$			-100	nA
DC Current Gain	h_{FE}	$V_{CE} = -5V, I_C = -10mA$	100		400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -50mA, I_B = -5mA$		-0.14	-0.4	V
Gain-Bandwidth Product	f_T	$V_{CE} = -10V, I_C = -10mA$		150		MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$		4		pF
Turn-On Time	t_{on}	See Test Circuit.		0.1		μs
Storage Time	t_{stg}			1.5		
Fall Time	t_f			0.1		

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Test Circuit

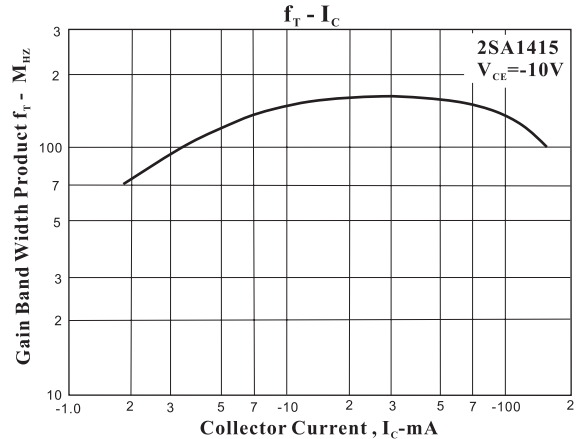
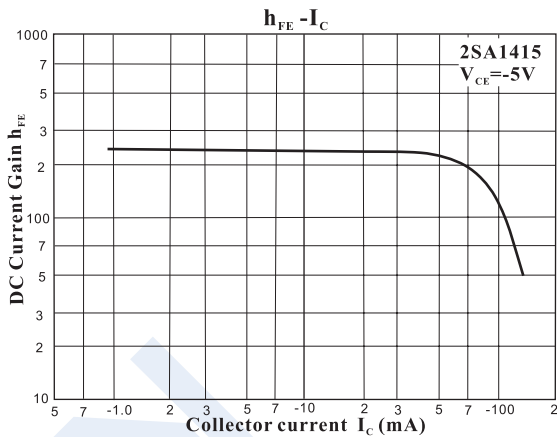
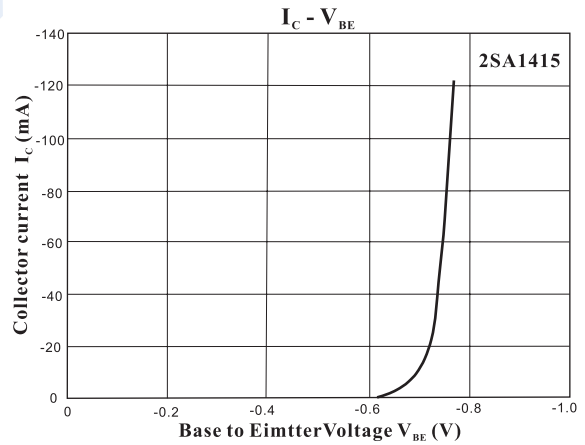
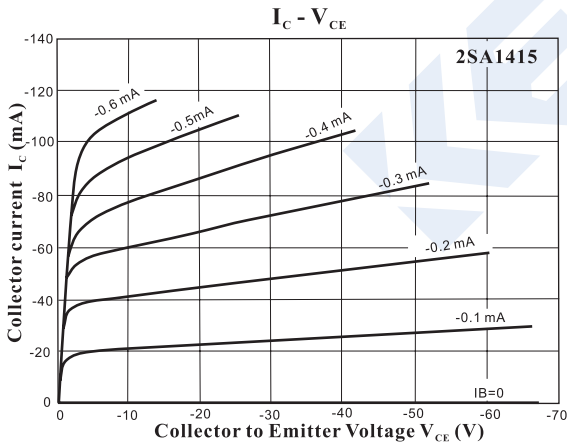


$I_C = 10I_{B1} = -10I_{B2} = 10\text{mA}$
 (For PNP, the polarity is reversed.)

hFE Classification

Marking	AA		
Rank	R	S	T
hFE	100 ~ 200	140 ~ 280	200 ~ 400

Electrical Characteristics Curves



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