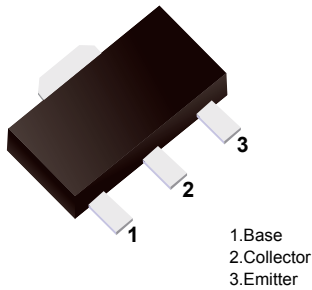


### FEATURE

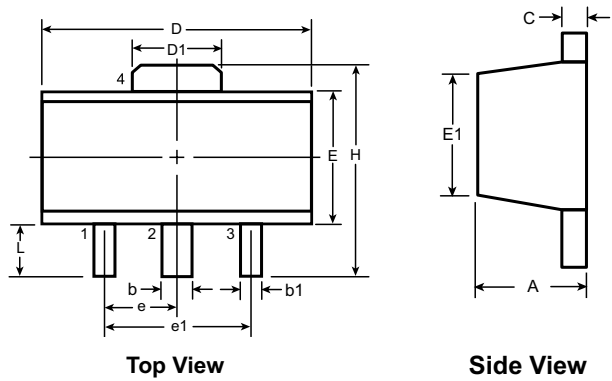
- High voltage
- Large continuous collector current capability

MARKING: 1013



■ Simplified outline(SOT-89)

### SOT-89 PACKAGE OUTLINE



Symbol	A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00 <sup>†</sup>	1.50	3.00	3.94
	NOM	-	-	-	-	-	-	-	-	3.00	-	0.89
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29	BSC	4.25	1.20

Dimensions in mm

### MAXIMUM RATINGS (T<sub>a</sub>=25 °C unless otherwise noted )

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	-160	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-160	V
V <sub>EBO</sub>	Emitter-Base Voltage	-6	V
I <sub>c</sub>	Collector Current -Continuous	-1	A
P <sub>C</sub>	Collector Power Dissipation	0.5	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	250	°C/W

# 2SA1013

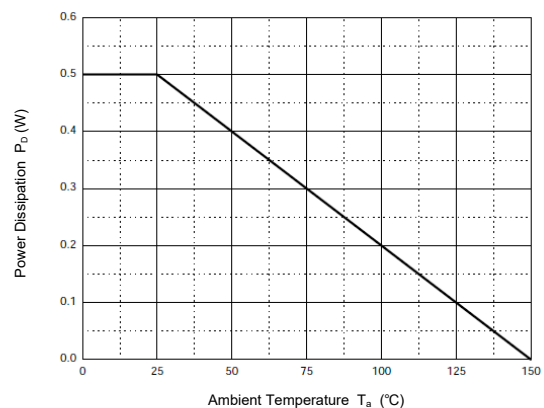
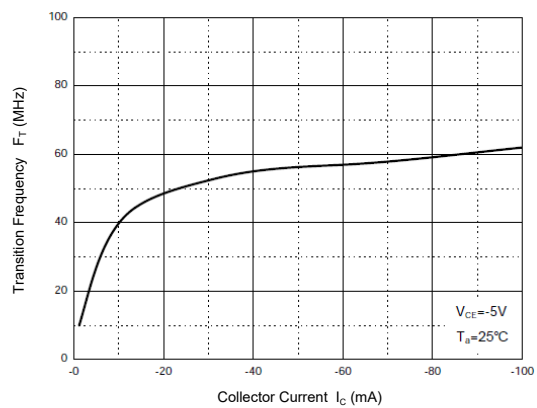
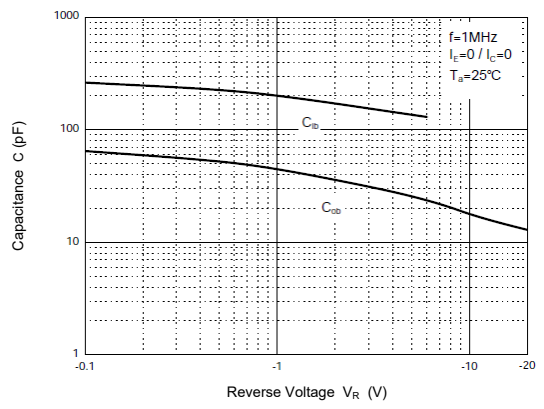
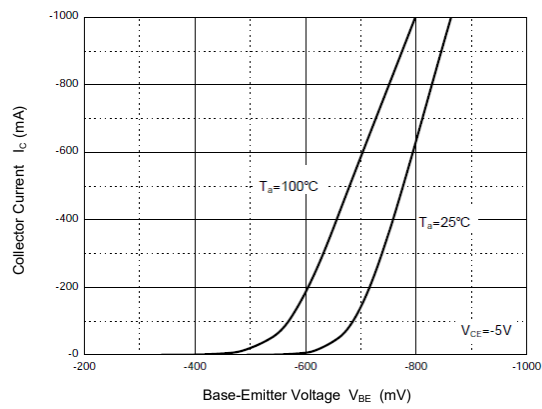
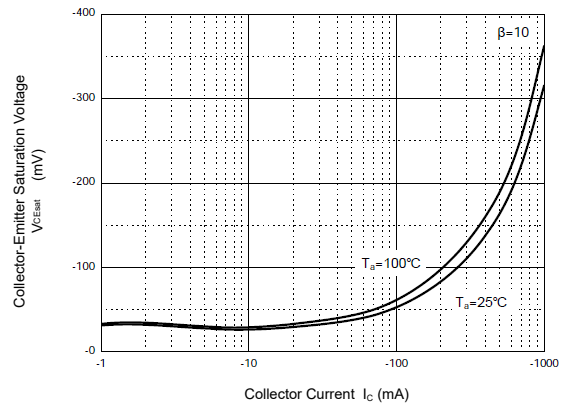
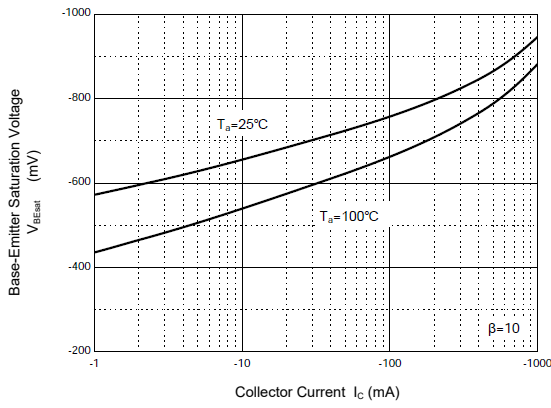
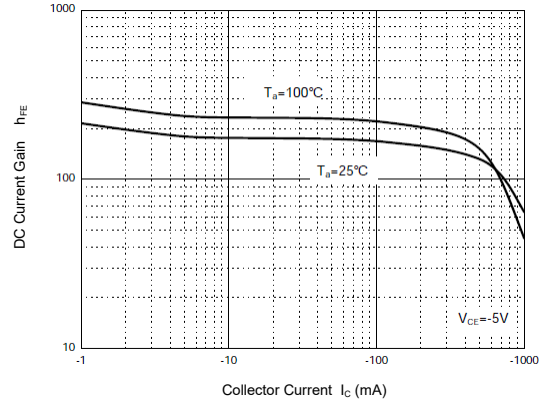
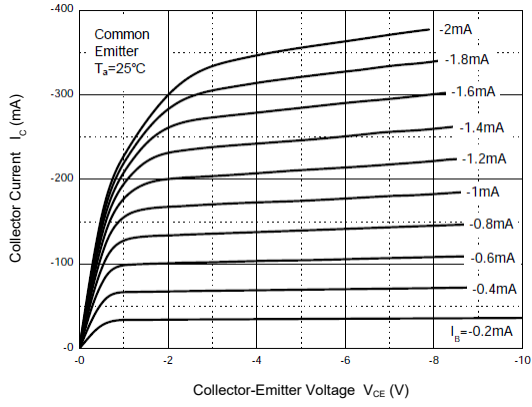
## ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	-160		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-160		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-6		V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -150V, I_E = 0$		-1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6V, I_C = 0$		-1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE} = -5V, I_C = -200mA$	60	320	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500mA, I_B = -50mA$		-1.5	V
Base-emitter voltage	$V_{BE}$	$I_C = -5mA, V_{CE} = -5V$		-0.75	V
Transition frequency	$f_T$	$V_{CE} = -5V, I_C = -200mA$	15		MHz

### CLASSIFICATION OF $h_{FE}$

Rank	R	O	Y
Range	60-120	100-200	160-320

## RATING AND CHARACTERISTIC CURVES (2SA1013)



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