

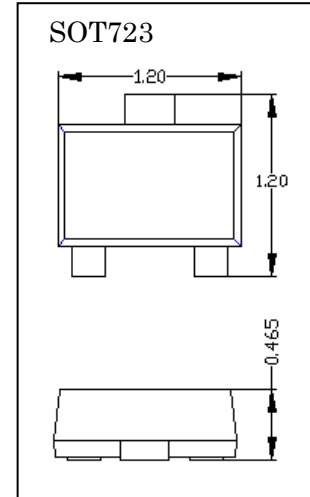
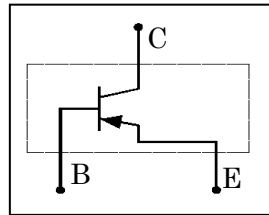
## DATA SHEET

### 2SA2029

- ◇ Small Outline Surface Mount Package
- ◇ RoHS Compliant / Green EMC

Device Marking Code	
2SA2029	FQ, FR, FS

Equivalent Circuit



### Maximum Ratings (Ta=25°C )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-6	V
$I_C$	Collector Current -Continuous	-150	mA
$P_C$	Collector Power Dissipation	150	mW
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55~+150	°C

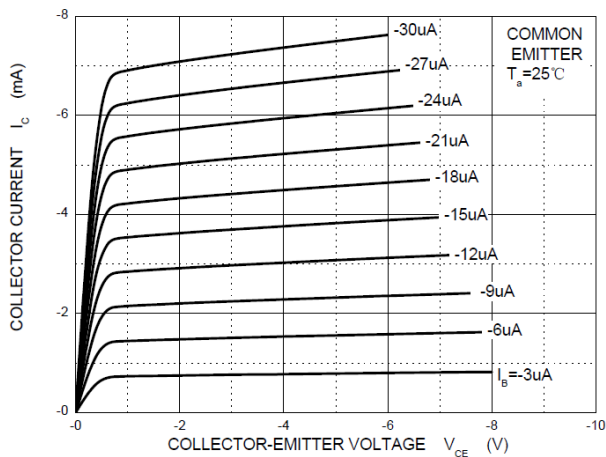
**Electrical Characteristics @ 25°C**

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -1\text{mA}, I_B = 0$	-50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = -50\mu\text{A}, I_E = 0$	-60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -50\mu\text{A}, I_C = 0$	-6			V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -60\text{V}, I_E = 0$			-0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -6\text{V}, I_C = 0$			-0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = -6\text{V}, I_C = -1\text{mA}$	120		560	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -50\text{mA}, I_B = -5\text{mA}$			-0.5	V
$f_T$	Transition Frequency	$V_{CE} = -12\text{V}, I_C = 2\text{mA}, f = 30\text{MHz}$		140		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -12\text{V}, I_E = 0, f = 1\text{MHz}$			5	pF

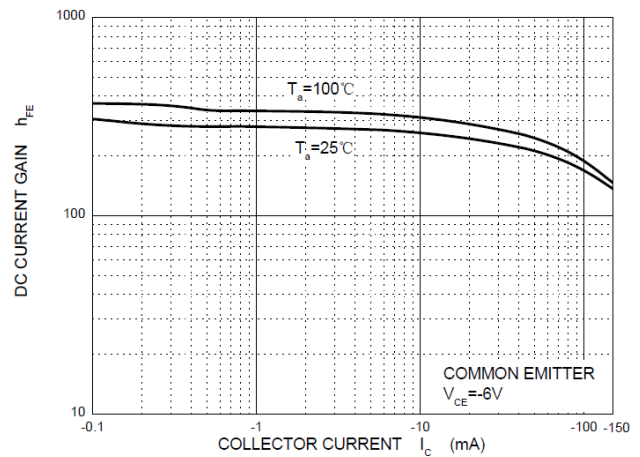
**Classification Of  $h_{FE}$**

Rank	Q	R	S
Range	120~270	180~390	270~560

**Typical Characteristics**

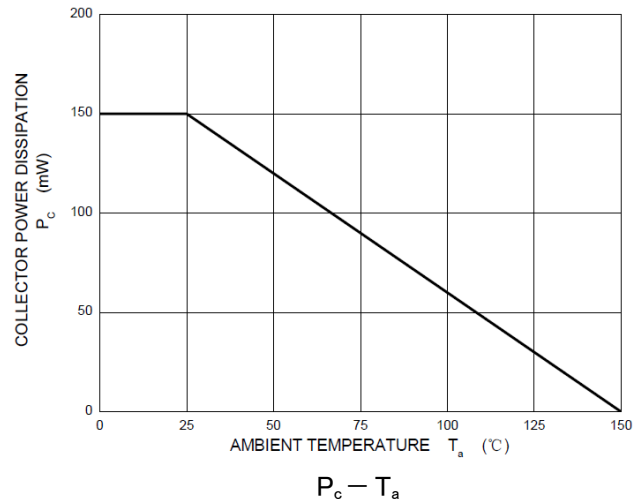
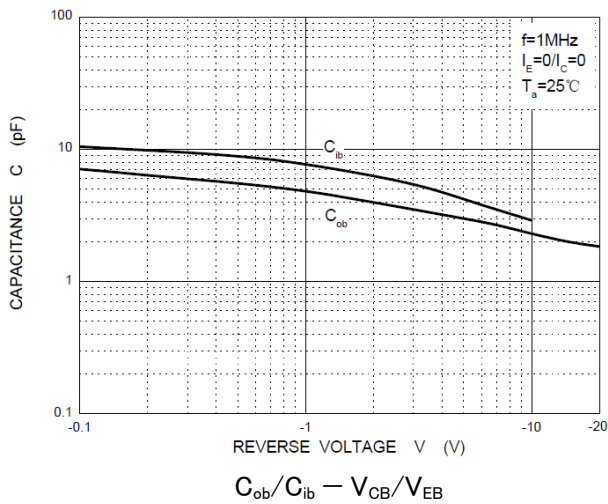
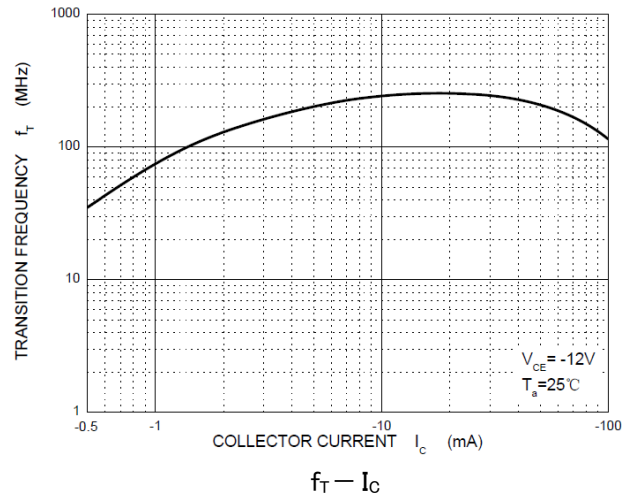
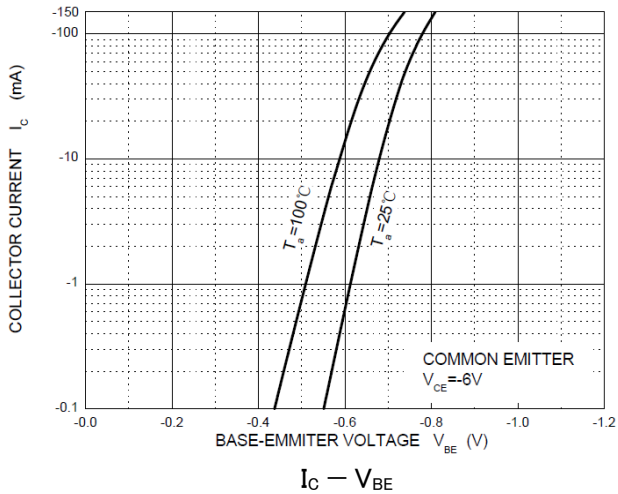
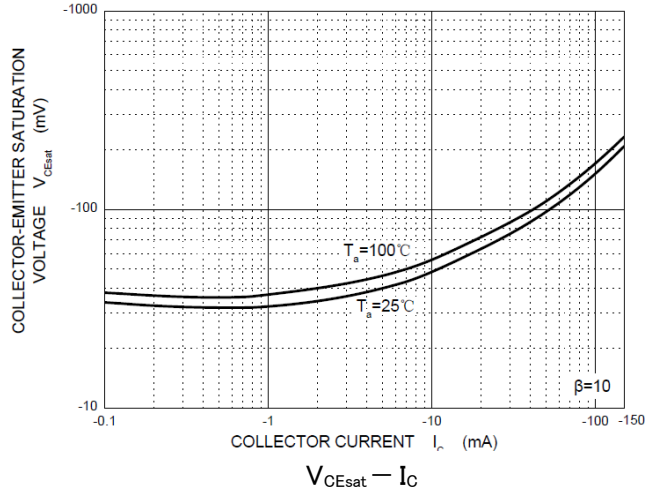
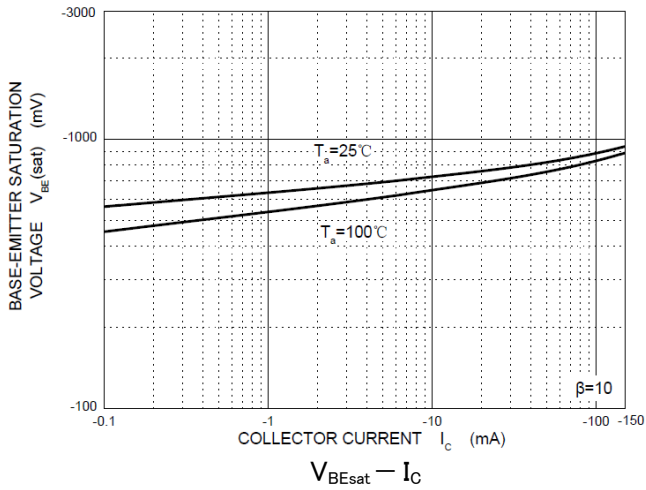


Static Characteristic



$h_{FE} - I_C$

Typical Characteristics



**Ordering Information**

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
2SA2029	SOT723	Tape & Reel 8000pcs /7" Reel	8mm	4mm	Conductive	

**Package Dimensions**

Package outline : SOT723

SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.430	0.500
A1	0.000	0.050
b	0.170	0.270
b1	0.270	0.370
c	0.080	0.150
D	1.150	1.250
E	1.150	1.250
E1	0.750	0.850
e	0.800 TYP.	
θ	0°	7°

**Notice:**

- Lead plating: Pb free solder
- Lead thickness includes solder plating
- Lead frame: CAC-5
- Other Tolerance: ±0.05
- Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
- Unit: mm

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