

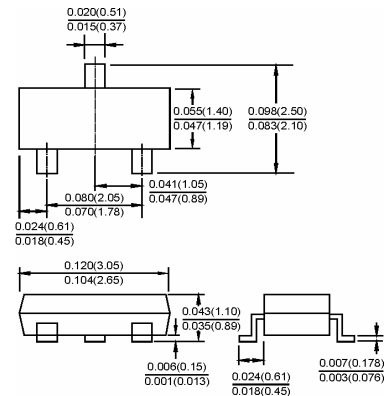
# 2SA1036

SOT-23 Transistor(PNP)



1. BASE
2. EMITTER
3. COLLECTOR

## SOT-23



Dimensions in inches and (millimeters)

## Features

- ✧ Large  $I_C$ -  $I_{CMax} = -500$  mA
- ✧ Low  $V_{CE(sat)}$ - Ideal for low-voltage operation.

MARKING : HP, HQ, HR

MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	-40	V
$V_{CEO}$	Collector-Emitter Voltage	-32	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-500	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20\text{V}, I_E = 0$			-1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0$			-1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = -3\text{V}, I_C = -10\text{mA}$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$			-0.4	V
Transition frequency	$f_T$	$V_{CE} = -5\text{V}, I_C = -20\text{mA}, f = 100\text{MHz}$		200		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		7		pF

## CLASSIFICATION OF $h_{FE}$

Rank	P	Q	R
Range	82 - 180	120 - 270	180 - 390

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## Typical Characteristics

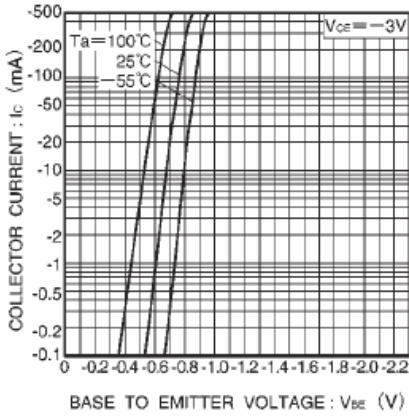


Fig.1 Grounded emitter propagation

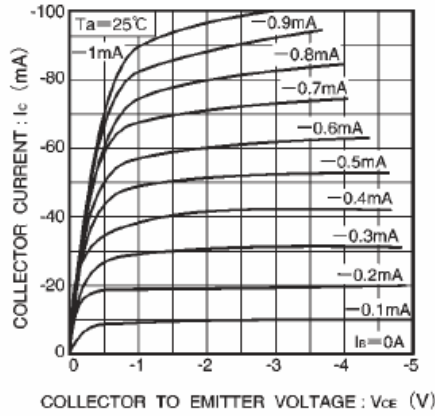


Fig.2 Grounded emitter output characteristics ( I )

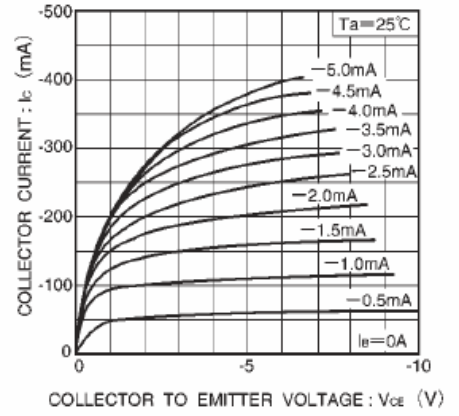


Fig.3 Grounded emitter output characteristics ( II )

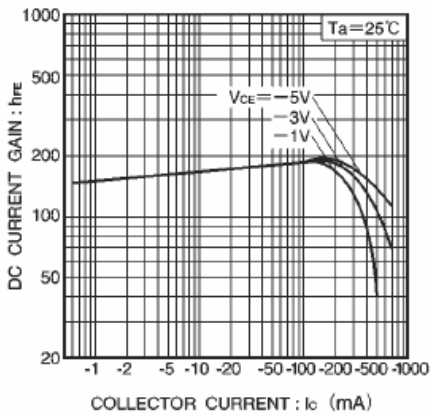


Fig.4 DC current gain vs. collector current ( I )

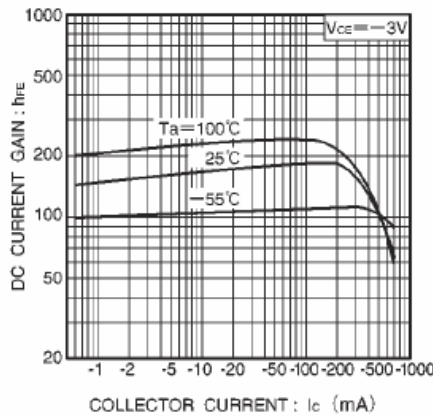


Fig.5 DC current gain vs. collector current ( II )

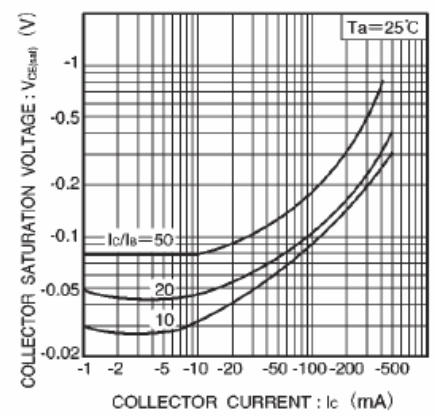


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

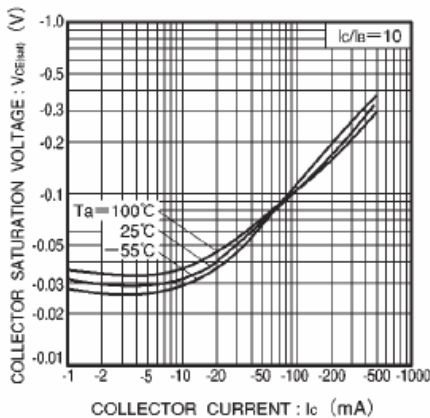


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

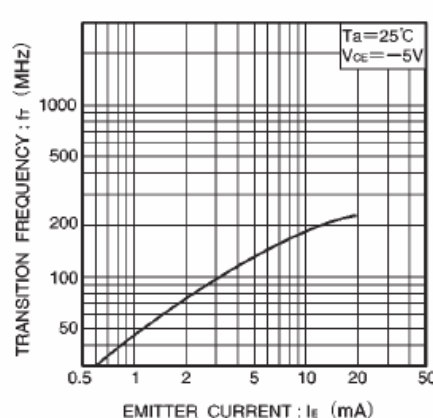


Fig.8 Gain bandwidth product vs. emitter current

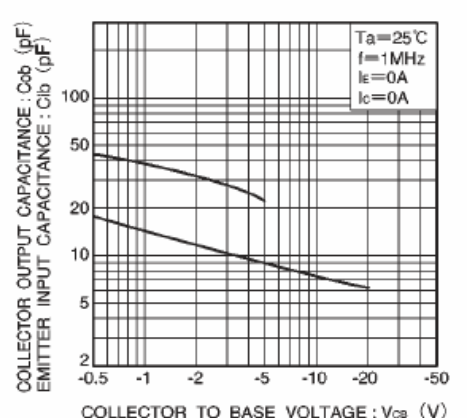


Fig.9 Collector output capacitance vs. collector-base voltage. Emitter input capacitance vs. emitter-base voltage

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