

# TRANSISOR(NPN)

## FEATURES

- High  $I_{CMax}$ .  $I_{CMax} = 0.5mA$
- Low  $V_{CE(sat)}$ . Optimal for low voltage operation.
- Complements the 2SA1036

## MAXIMUM RATINGS ( $T_A=25^{\circ}C$ 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	500	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^{\circ}C$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}C$

## SOT-23

1. BASE
2. EMITTER
3. COLLECTOR



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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=20V, I_E=0$			1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=3V, I_C=100mA$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=50mA$			0.4	V
Transition frequency	$f_T$	$V_{CE}=5V, I_C=20mA, f=100MHz$		250		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		6.0		pF

## CLASSIFICATION OF $h_{FE}$

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	CP	CQ	CR

● Electrical characteristic curves

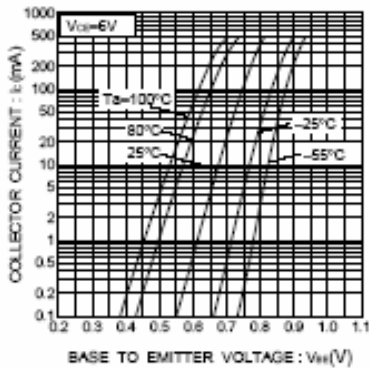


Fig. 1 Grounded emitter propagation characteristics

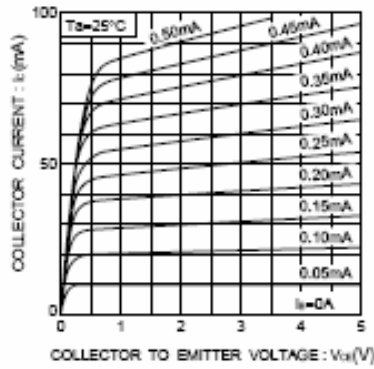


Fig. 2 Grounded emitter output characteristics(I)

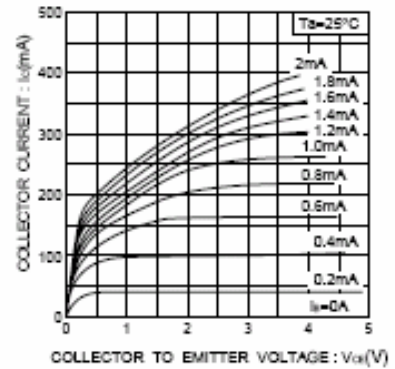


Fig. 3 Grounded emitter output characteristics(II)

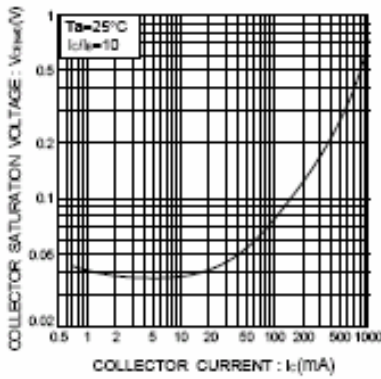


Fig. 4 Collector-emitter saturation voltage vs. collector current

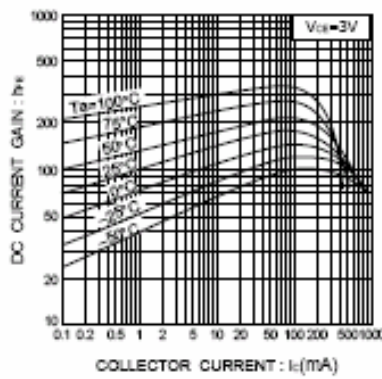


Fig. 5 DC current gain vs. collector current

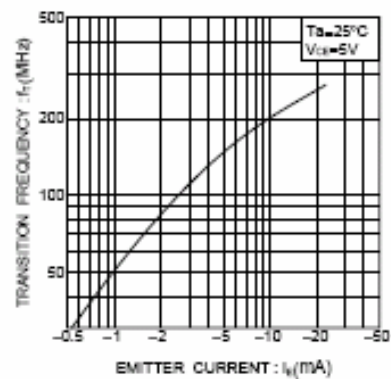


Fig. 6 Gain bandwidth product vs. emitter current

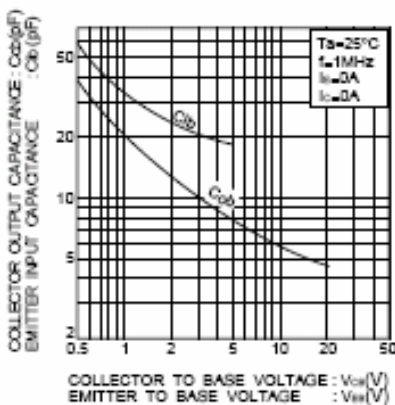


Fig. 7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage