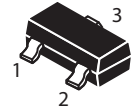
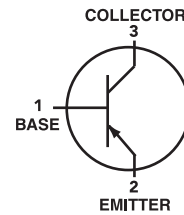


### PNP General Purpose Transistors

 Lead(Pb)-Free



**SOT-23**

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	-50	Vdc
Collector-Base Voltage	$V_{CBO}$	-60	Vdc
Emitter-Base Voltage	$V_{EBO}$	-6.0	Vdc
Collector Current-Continuous	$I_C$	-150	mAdc

#### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) $T_A=25^\circ\text{C}$	$P_D$	200	mW
Derate above $25^\circ\text{C}$		1.6	$\text{mW}/^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction and Storage, Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### DEVICE MARKING

2SA1037KQ=G3F, 2SA1037AKR=G4F, 2SA1037AKS=G5F

#### ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C=-1.0\text{mA}, I_B=0$ )	$V_{(BR)CEO}$	-50	-	Vdc
Collector-Base Breakdown Voltage ( $I_C=-50\mu\text{A}, I_E=0$ )	$V_{(BR)CBO}$	-60	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E=-50\mu\text{A}, I_C=0$ )	$V_{(BR)EBO}$	-6.0	-	Vdc
Collector Cutoff Current ( $V_{CE}=-50\text{Vdc}, I_E=0$ )	$I_{CEO}$	-	-0.1	$\mu\text{A}$
Collector Cutoff Current ( $V_{CB}=-60\text{Vdc}, I_E=0$ )	$I_{CBO}$	-	-0.1	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB}=-6.0\text{Vdc}, I_C=0$ )	$I_{EBO}$	-	-0.1	$\mu\text{A}$

1.FR-5=1.0 x 0.75 x 0.062 in

# 2SA1037AK



## ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Typ	Max	Unit
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### ON CHARACTERISTICS

DC Current Gain ( $I_C=-1\text{ mAdc}, V_{CE}=-6.0\text{ Vdc}$ )	$h_{FE}$	120	-	560	-
Collector-Emitter Saturation Voltage ( $I_C=-50\text{ mAdc}, I_B=-5\text{ mAdc}$ )	$V_{CE(sat)}$	-	-	-0.5	Vdc
Output Capacitance $V_{CB}=-12\text{ Vdc}, I_E=0\text{ A}, f=1\text{ MHz}$	$C_{ob}$	-	4.0	5.0	PF
Current-Gain-Bandwidth Product ( $I_E=-2\text{ mAdc}, V_{CE}=-12\text{ Vdc}, f=30\text{ MHz}$ )	$f_T$	-	140	-	MHz

### CLASSIFICATION OF $h_{FE}$

Rank	Q	R	S
Range	120-270	180-390	270-560
Marking	G3F	G4F	G5F

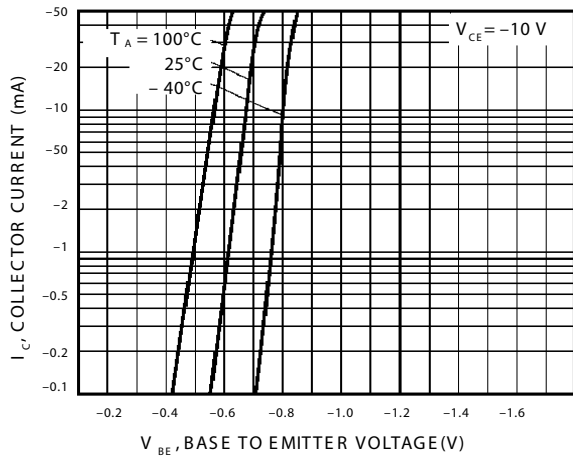


FIG.1 Grounded Emitter Propagation Characteristics

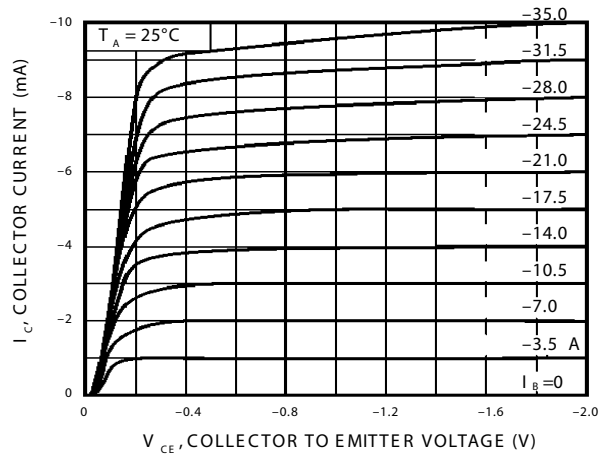


FIG.2 Grounded Emitter Output Characteristics(I)

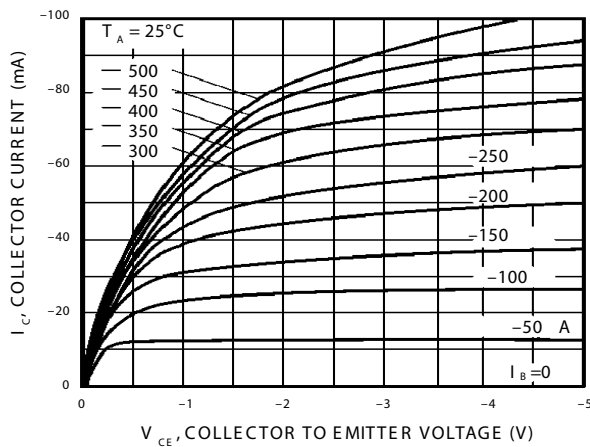


FIG.3 Grounded Emitter Output Characteristics(II)

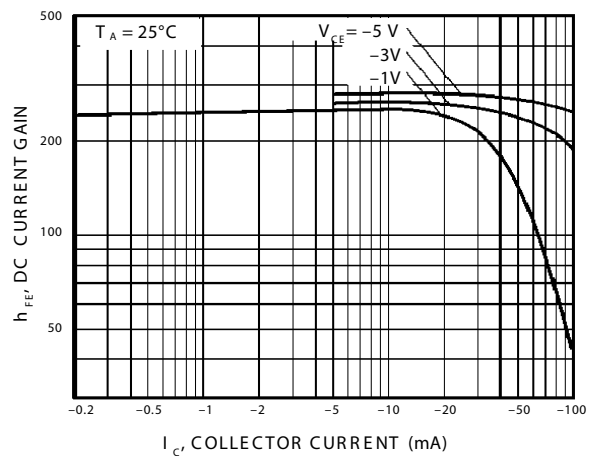


FIG.4 DC Current Gain vs. Collector Current (I)

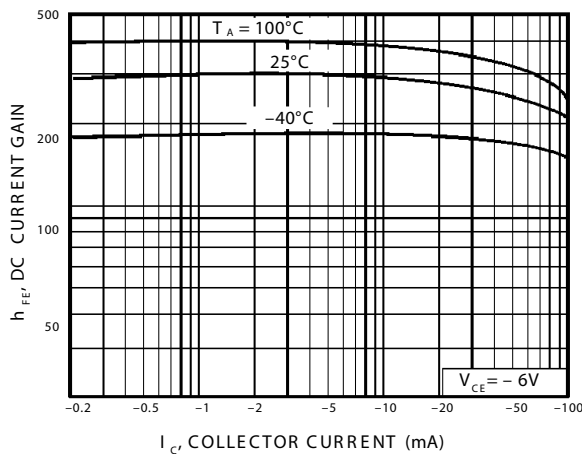


FIG.5 DC Current Gain vs. Collector Current (II)

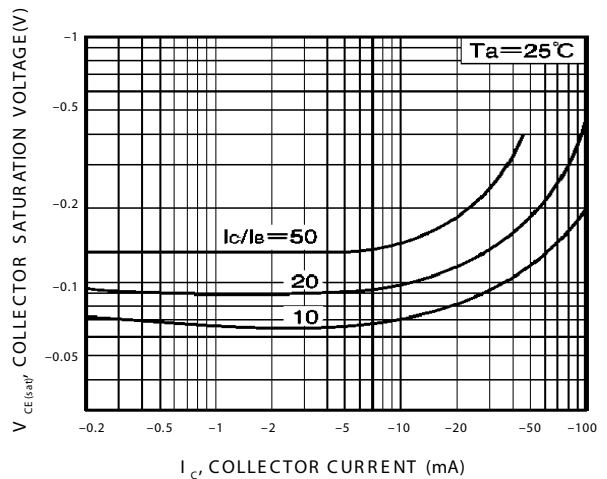
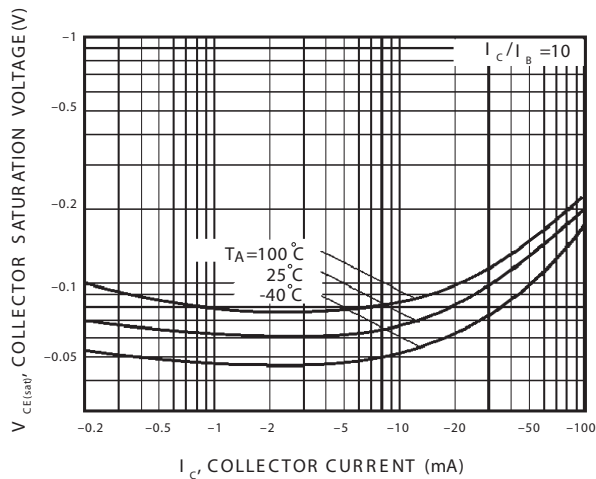
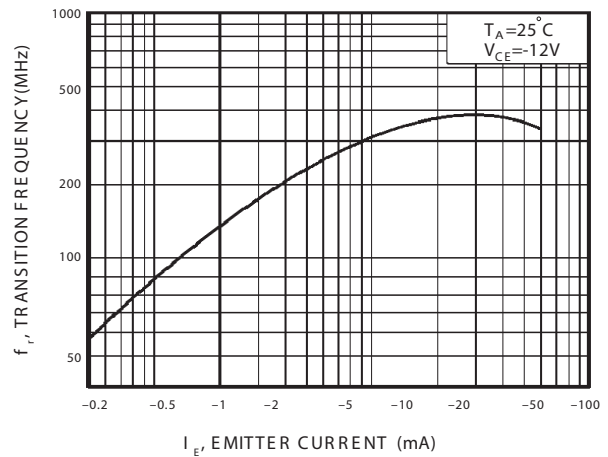


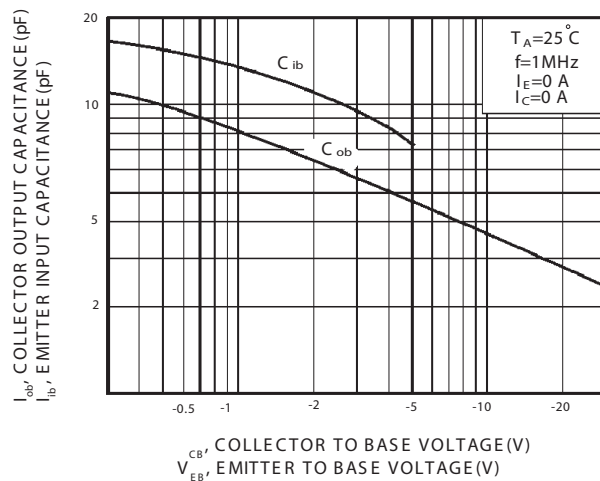
FIG.6 Collector-Emitter Saturation Voltage vs Collector Current (I)



**FIG.7 Collector-Emitter Saturation Voltage vs Collector Current (I)**



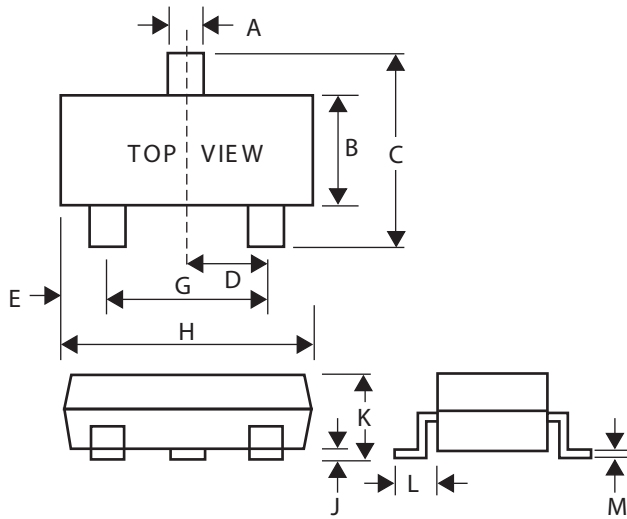
**FIG.8 Gain Bandwidth Product vs Emitter Current**



**FIG. 9 Collector Output Capacitance vs Collector-Base Voltage  
Emitter Input Capacitance vs Emitter-Base Voltage**

SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25