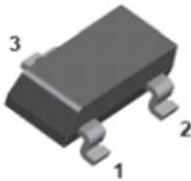
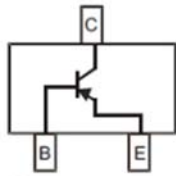


## PNP Transistor



SOT-23-3L

### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-23-3L
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code			2SA1037K-Q	FQ
			2SA1037K-R	FR
			2SA1037K-S	FS
Collector-base voltage	$V_{CBO}$	V	$I_C=-50\mu\text{A}, I_E=0$	-60
Collector-emitter voltage	$V_{CEO}$	V	$I_C=-1\text{mA}, I_B=0$	-50
Emitter-base voltage	$V_{EBO}$	V	$I_E=-50\mu\text{A}, I_C=0$	-6
Collector current	$I_C$	A		-0.15
Power dissipation	$P_D$	mW		200
Junction temperature	$T_J$	$^\circ\text{C}$		-55 to +150
Storage temperature	$T_{STG}$	$^\circ\text{C}$		-55 to +150



# 2SA1037K

RoHS  
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## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max	
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	V	I <sub>C</sub> =-50μA, I <sub>E</sub> =0	-60			
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	V	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-50			
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	V	I <sub>E</sub> =-50μA, I <sub>C</sub> =0	-6			
Collector-base cut-off current	I <sub>CBO</sub>	μA	V <sub>CB</sub> =-60V			-0.1	
Emitter-base cut-off current	I <sub>EBO</sub>	μA	V <sub>EB</sub> =-6V			-0.1	
DC current gain	h <sub>FE</sub>		2SA1037K-Q	V <sub>CE</sub> =-6V, I <sub>C</sub> =-1mA	120		270
			2SA1037K-R		180		390
			2SA1037K-S		270		560
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V	I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA			-0.5	
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =-12V, I <sub>C</sub> =-2mA, f=30MHz		140		
Collector-base output capacitance	C <sub>ob</sub>	pF	V <sub>CB</sub> =-12V, I <sub>E</sub> =0A, f=1MHz		4	5	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	625
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°C/W	500

### Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Static Characteristics

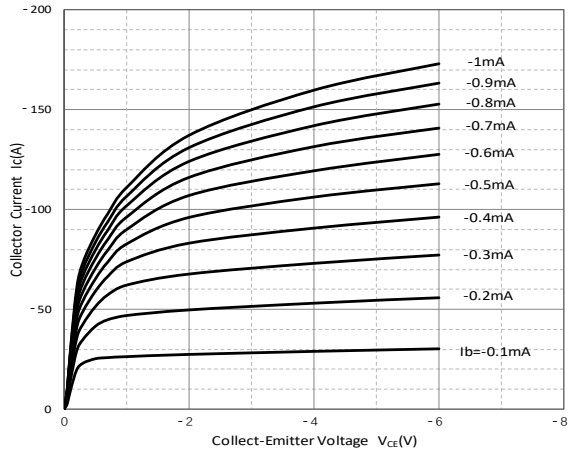


Fig 2: DC Current Gain

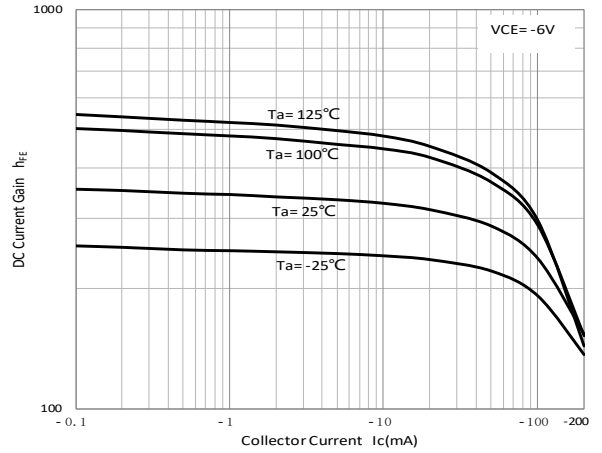


Fig 3: Collector-Emittor Saturation Voltage

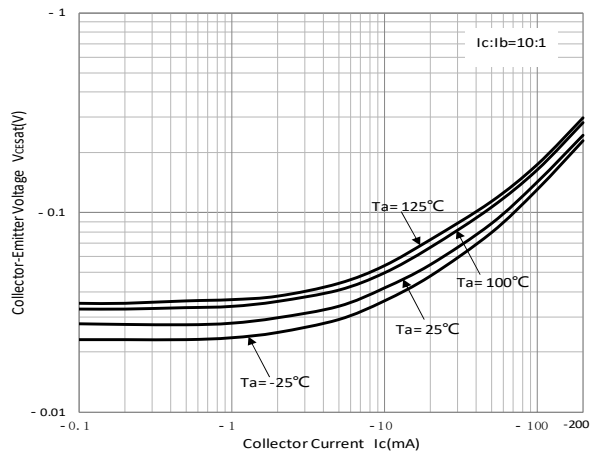


Fig 4: Base-Emittor Saturation Voltage

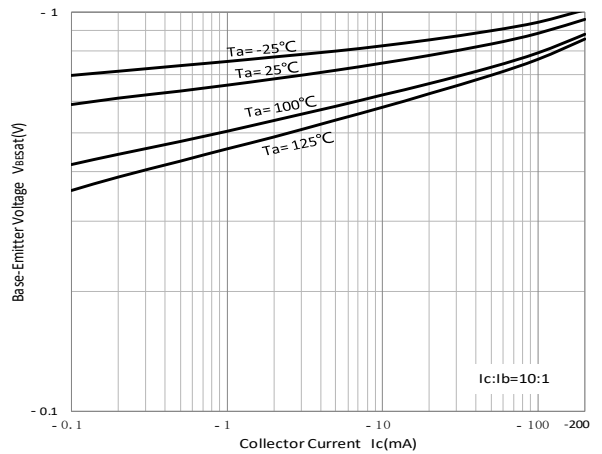


Fig 5: Base-Emittor On Voltage

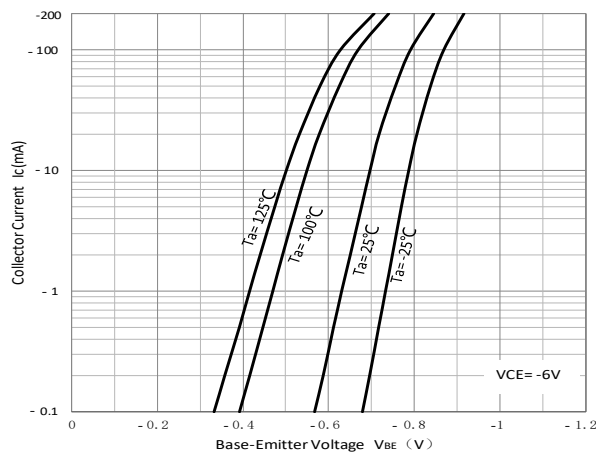


Fig 6: Cob/Cib-V<sub>CB</sub>/V<sub>EB</sub>

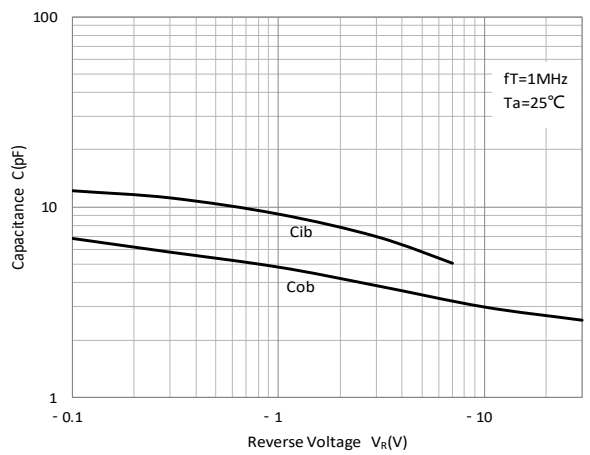
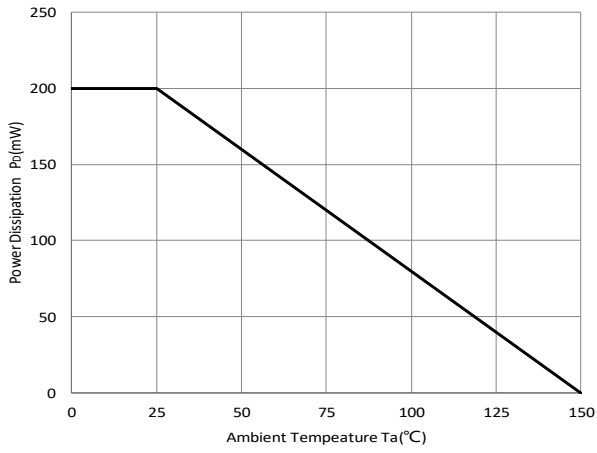




Fig 7: P<sub>D</sub>-T<sub>a</sub> Curve





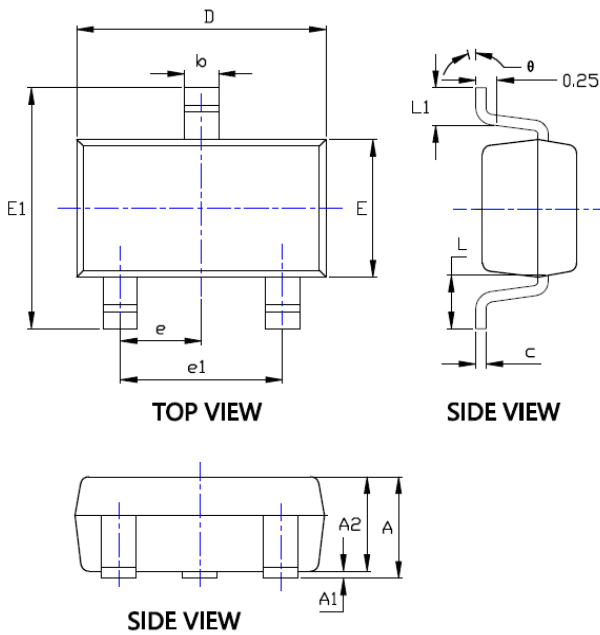
# 2SA1037K

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## Ordering Information

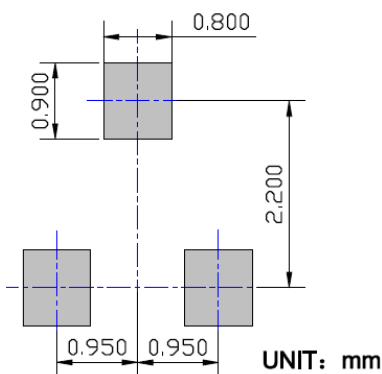
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
2SA1037K	F2	Approximate 0.014	3000	30000	120000	7" reel

## SOT-23-3L Package Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.041	0.049	1.050	1.250
A1	0.000	0.008	0.000	0.200
A2	0.041	0.045	1.050	1.150
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.111	0.119	2.820	3.020
E	0.059	0.067	1.500	1.700
E1	0.104	0.116	2.650	2.950
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.024REF		0.600REF	
L1	0.012	0.024	0.300	0.600
∅	0°	8°	0°	8°

## SOT-23-3L Soldering Footprint





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