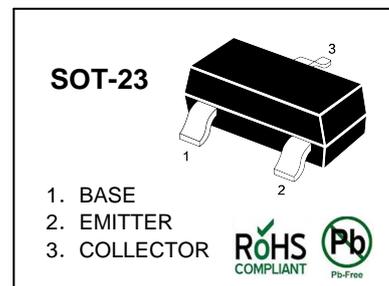


### NPN Silicon Epitaxial Planar Transistor

for general small signal amplifier.

The transistor is subdivided into four groups, O, Y, G and L, according to its DC current gain.



#### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

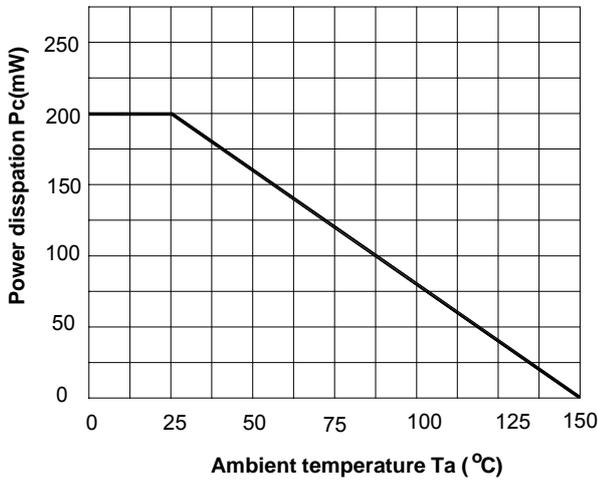
Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	150	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55 +150	$^\circ\text{C}$

### Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

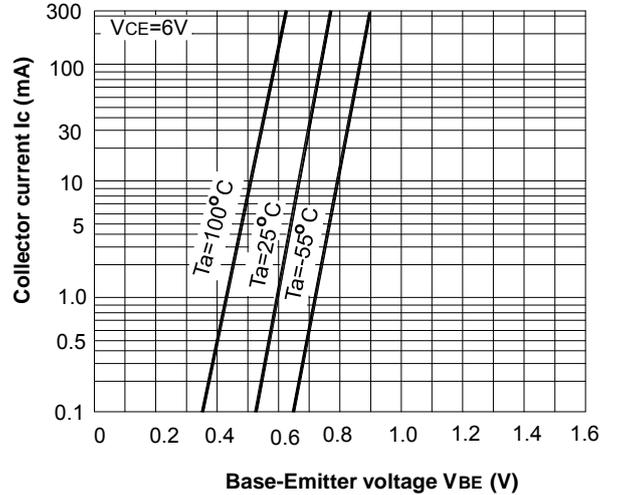
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE}=6\text{V}$ , $I_C=1\text{mA}$					
Current Gain Group O	$h_{FE}$	70	-	140	-
Y	$h_{FE}$	120	-	240	-
G	$h_{FE}$	200	-	400	-
L	$h_{FE}$	300	-	700	-
Collector Emitter Saturation Voltage at $I_C=50\text{mA}$ , $I_B=5\text{mA}$	$V_{CE(sat)}$	-	-	400	mV
Collector Cutoff Current at $V_{CB}=30\text{V}$	$I_{CBO}$	-	-	0.5	$\mu\text{A}$
Emitter Cutoff Current at $V_{EB}=4\text{V}$	$I_{EBO}$	-	-	0.5	$\mu\text{A}$
Transition Frequency at $V_{CE}=12\text{V}$ , $I_C=2\text{mA}$	$f_T$	-	180	-	MHz
Output Capacitance at $V_{CB}=12\text{V}$ , $f=1\text{MHz}$	$C_{OB}$	-	2	-	pF
Collector Base Breakdown Voltage at $I_C=50\mu\text{A}$	$V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $I_C=1\text{mA}$	$V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at $I_E=50\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Noise Figure at $V_{CE}=6\text{V}$ , $I_C=0.1\text{mA}$ , $f=1\text{KHz}$ , $R_G=10\text{K}\Omega$	NF	-	1	10	dB

## Typical Characteristics

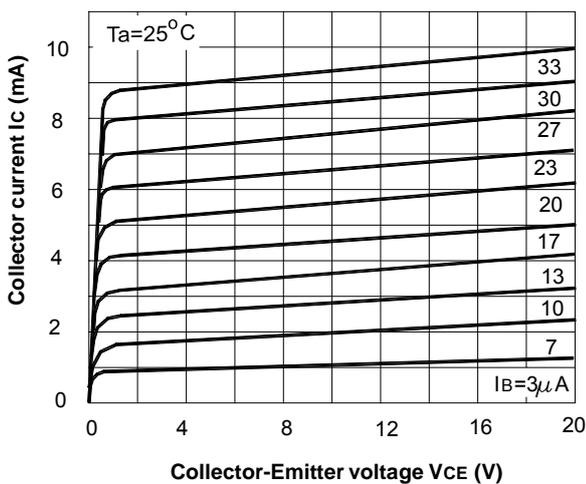
Pc-Ta



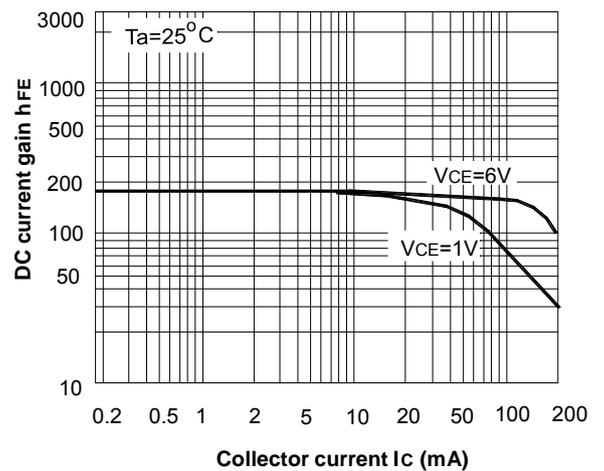
IC-VBE



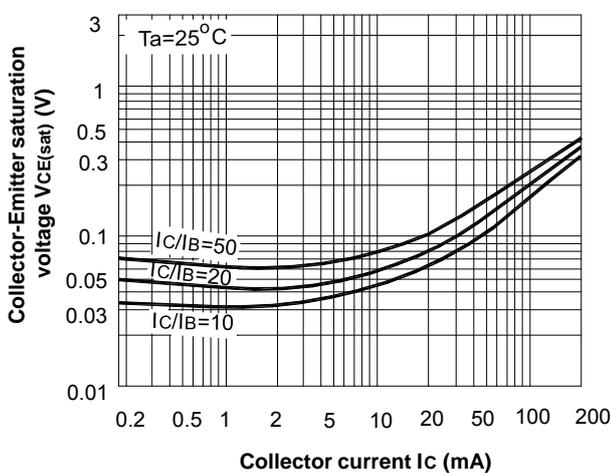
IC-VCE



hFE-IC

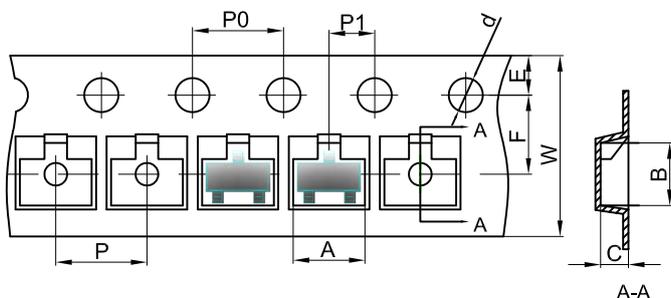


VCE(sat)-IC



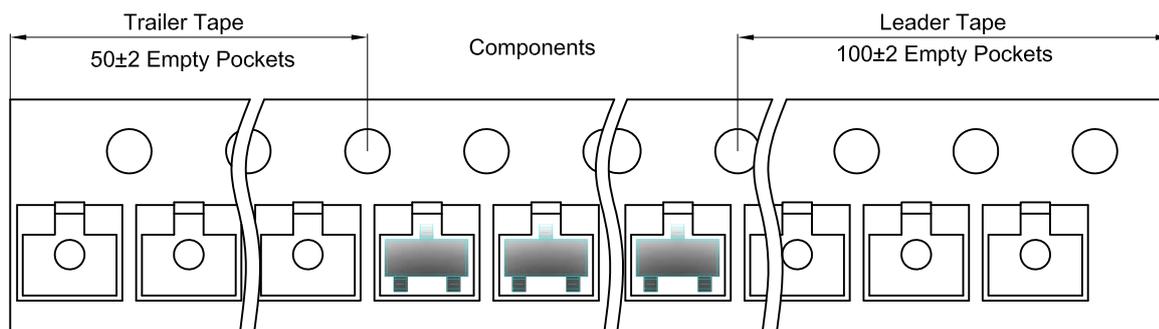
## SOT-23 Tape and Reel

### SOT-23 Embossed Carrier Tape

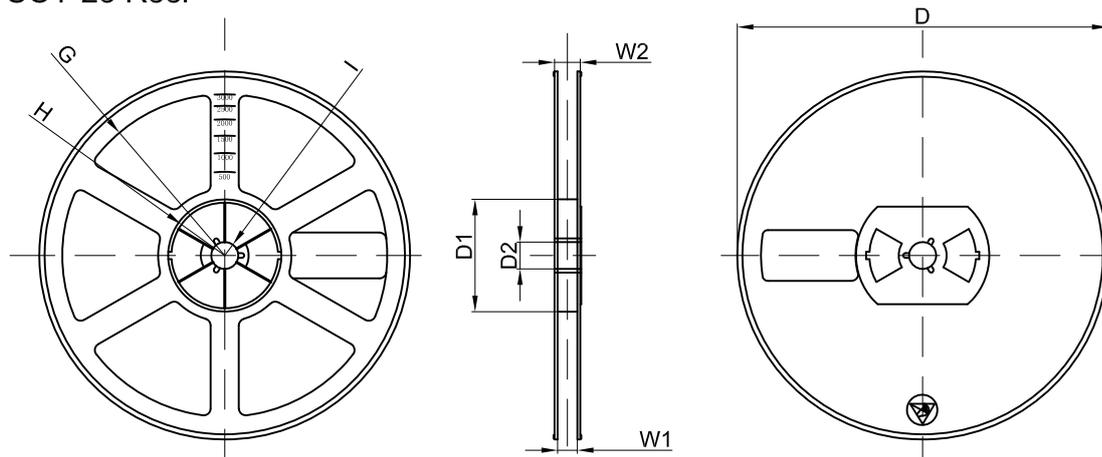


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### SOT-23 Tape Leader and Trailer

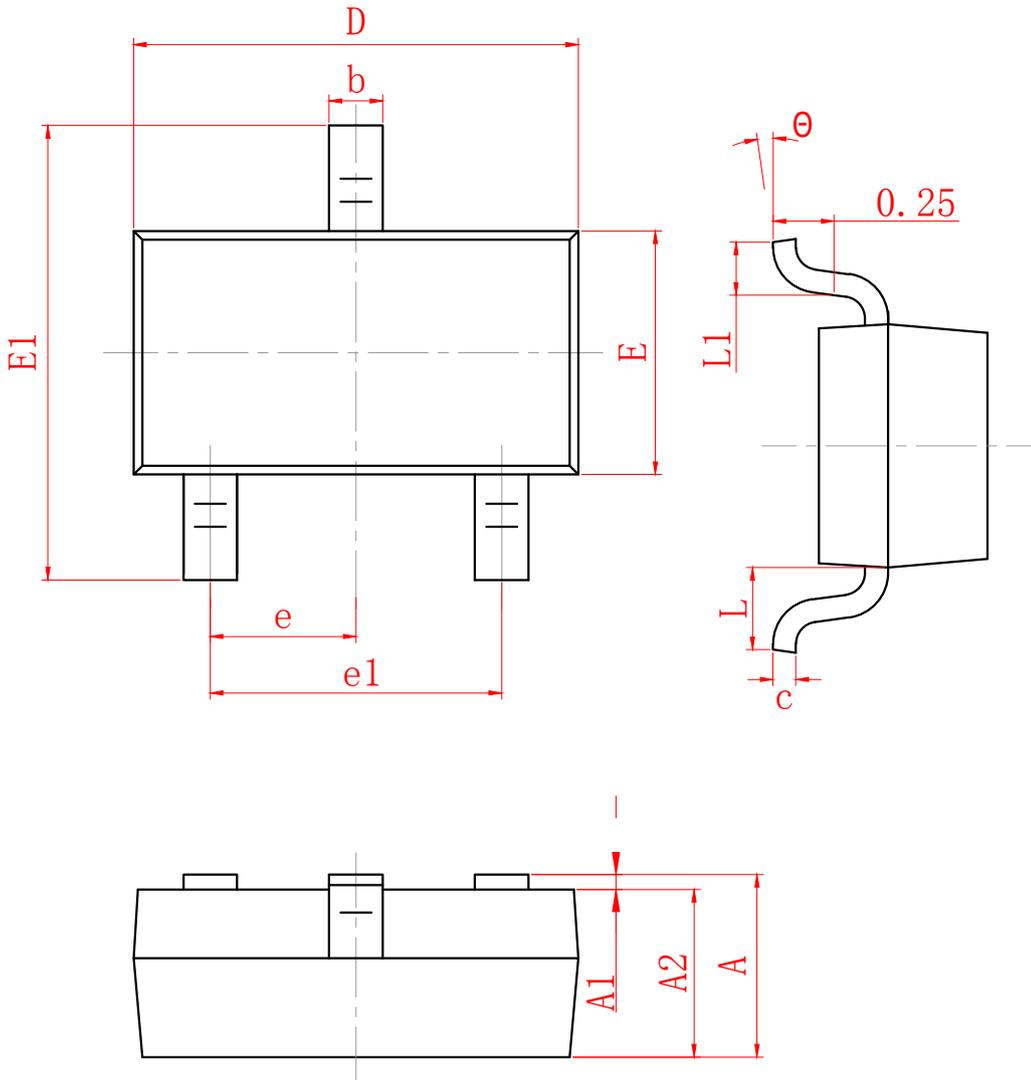


### SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
$\theta$	0°	8°

## DISCLAIMER

JHG PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with JHG products. You are solely responsible for

- (1) selecting the appropriate JHG products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. JHG grants you permission to use these resources only for development of an application that uses the JHG products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other JHG intellectual property right or to any third party intellectual property right. JHG disclaims responsibility for, and you will fully indemnify JHG and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.