

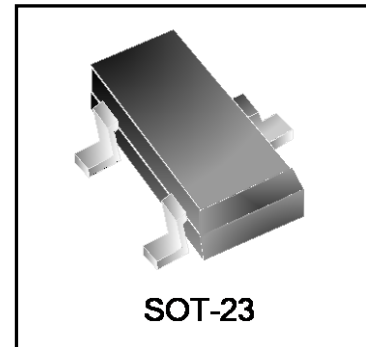
## NPN Silicon Transistor

### Features

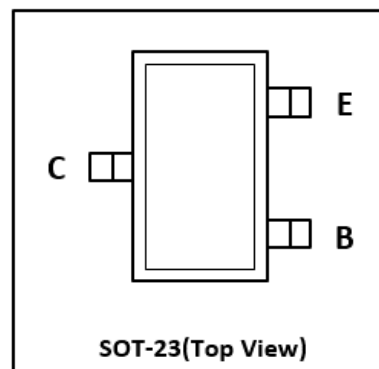
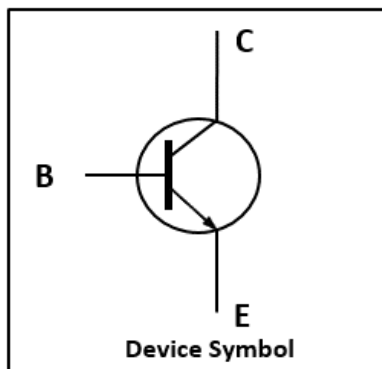
- Audio Frequency General Purpose Amplifier Applications
- Complementary to WT9015

### Mechanical Characteristics

- SOT-23 Package
- Marking : Making Code
- RoHS Compliant



### Schematic & PIN Configuration



### Absolute Maximum Rating ( $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	50	V
Collector Emitter Voltage	$V_{CEO}$	45	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current(DC)	$I_c$	100	mA
Collector Power Dissipation	$P_c$	200	mW
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-50 ~ 150	$^{\circ}\text{C}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

Electrical Characteristics ( $T_{amb}=25^{\circ}C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 0.1mA, I_B = 0$	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	5	-	-	V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = 50V, I_E = 0$	-	-	0.1	$\mu A$
Collector Cut-Off Current	$I_{CEO}$	$V_{CE} = 50V, I_E = 0$	-	-	1	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = 3V, I_C = 0$	-	-	0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 1mA$	20	-	450	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 5mA$	-	-	0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 100mA, I_B = 5mA$	-	-	1	V
Transition Frequency	$f_T$	$V_{CE} = 5V, I_C = 10mA, f = 30MHz$	150	-	-	MHz

Typical Characteristics

Figure 1. Static Characteristics

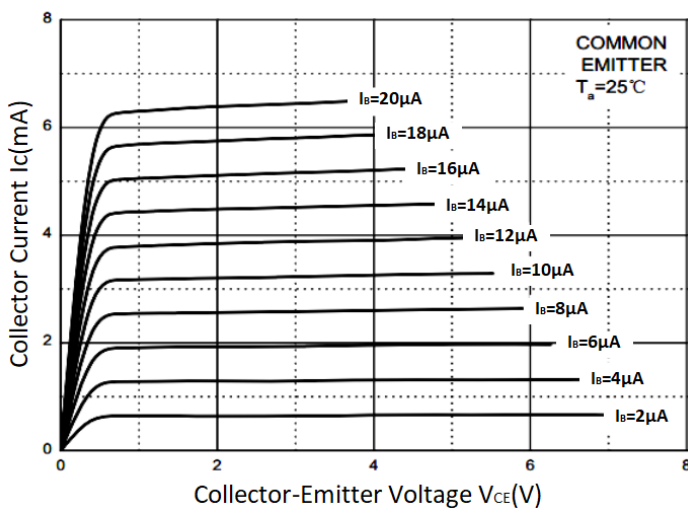


Figure 2.  $h_{FE}$  vs.  $I_C$

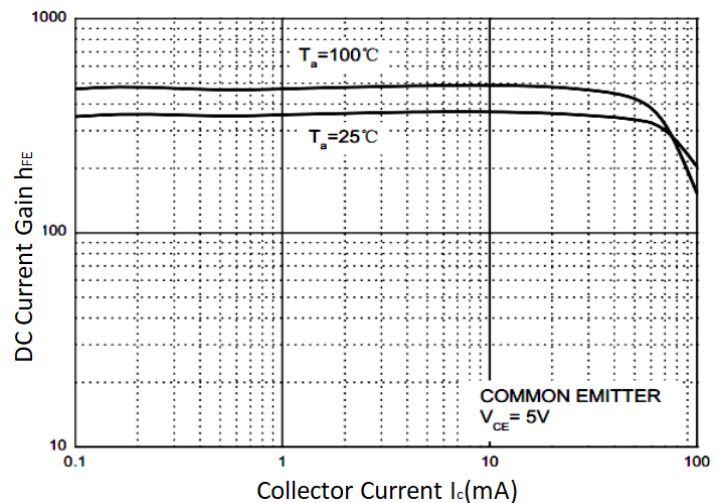


Figure 3.  $V_{CE(sat)}$  vs.  $I_c$

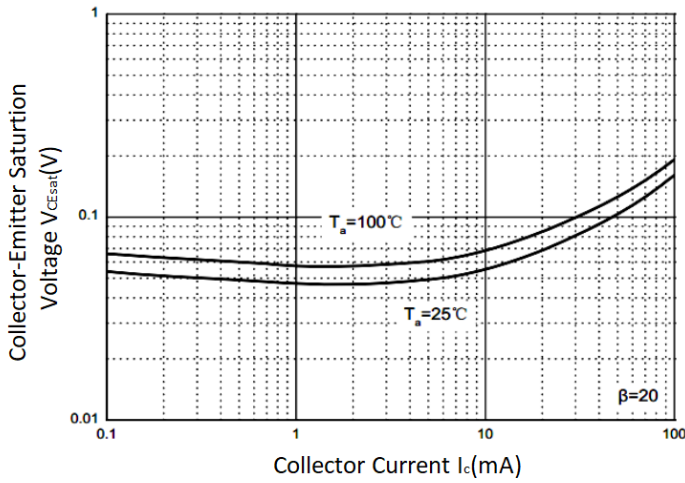


Figure 4.  $V_{BE(sat)}$  vs.  $I_c$

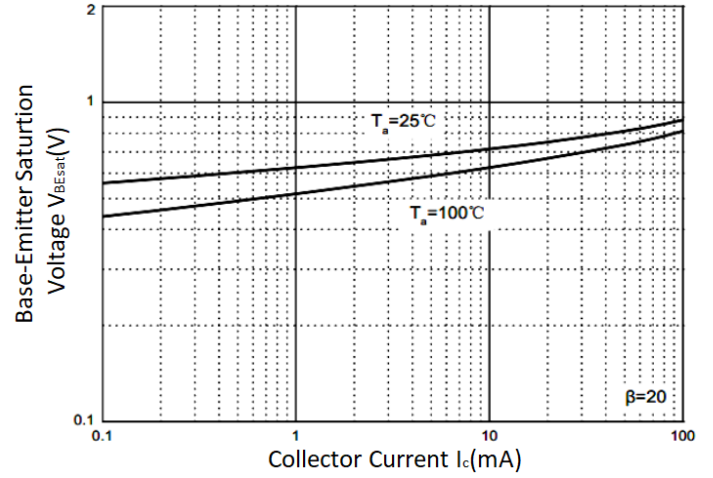


Figure 5.  $I_c$  vs.  $V_{BE}$

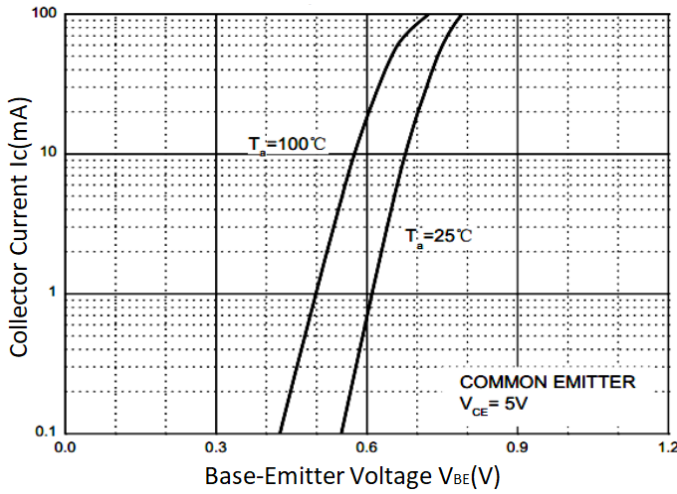


Figure 6.  $f_T$  vs.  $I_C$

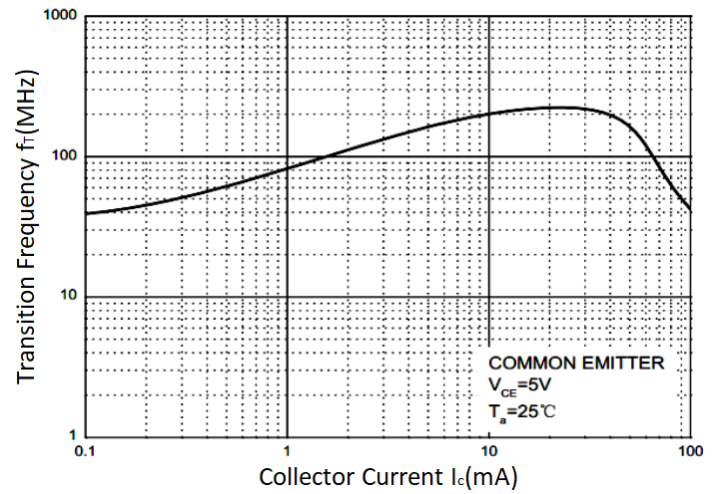


Figure 7.  $C_{ob}/C_{ib}$  vs.  $V_{CB}/V_{EB}$

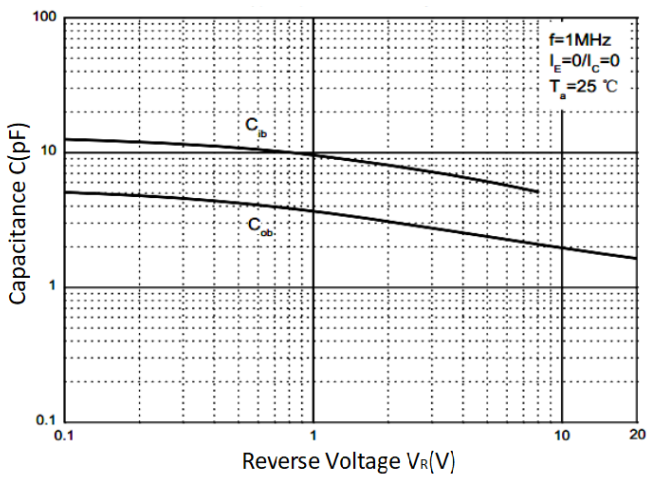
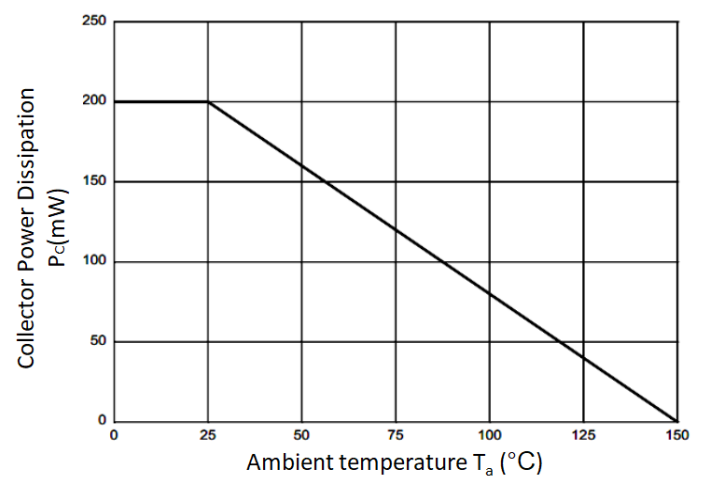


Figure 8.  $P_c$  vs.  $T_a$



Outline Drawing – SOT-23

### PACKAGE OUTLINE

**SOT-23**

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.60	0.70	0.0236	0.0275
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0	8°	0	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.0795	2.02
C	0.0315	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.9 BSC
b	0.0315	0.80

**Notes**

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

Rank	WT9014
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.  
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.