

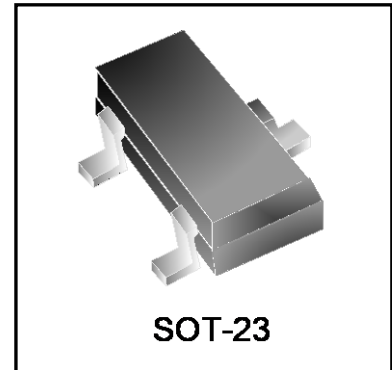
## NPN Silicon Transistor

## Features

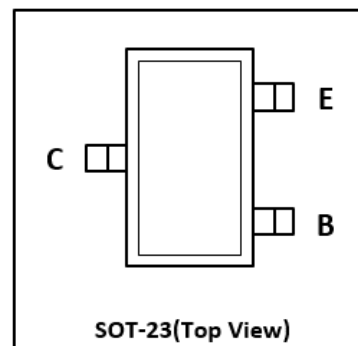
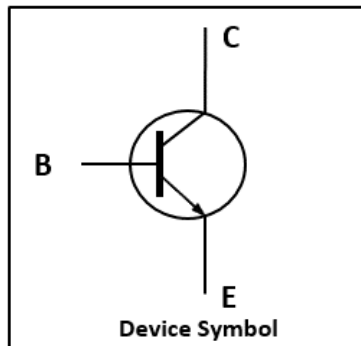
- High Collector Current
- High Current Gain
- Complementary Types: WT807 (PNP)

## Mechanical Characteristics

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



## Schematic &amp; PIN Configuration



## Absolute Maximum Rating

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	$I_C$	500	mA
Peak Collector Current	$I_{CM}$	1	A
Peak Base Current	$I_{BM}$	200	mA
Collector Power Dissipation <sup>1</sup>	$P_C$	250	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{stg}$	-55 ~ 150	°C
Thermal Resistance from Junction-to-Ambient <sup>1</sup>	$R_{\theta JA}$	500	K/W

**Electrical Characteristics (T<sub>amb</sub>=25°C unless otherwise noted)**

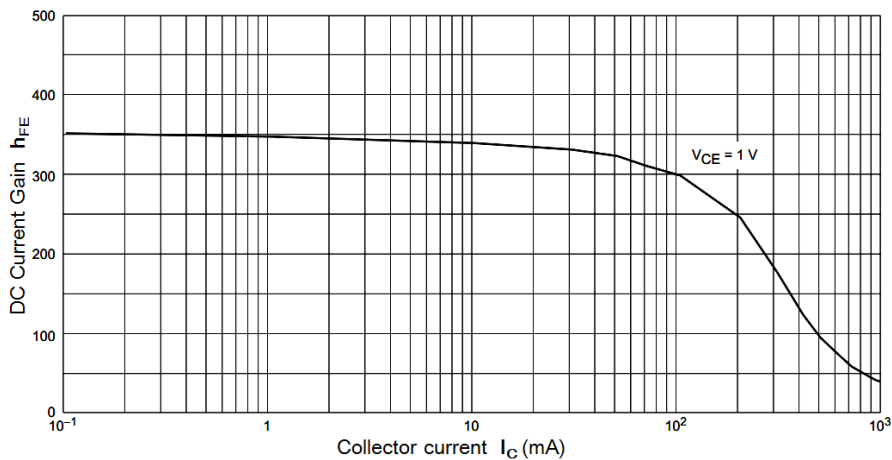
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	50	-	-	V
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0	45	-	-	V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 45V, I <sub>E</sub> = 0	-	-	100	nA
		V <sub>CB</sub> = 20V, I <sub>E</sub> = 0, T <sub>j</sub> = 150 °C			5	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	-	-	100	nA
DC Current Gain <sup>2</sup>	h <sub>FE(1)</sub>	V <sub>CE</sub> = 1V, I <sub>C</sub> = 100mA	160	-	400	-
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 1V, I <sub>C</sub> = 500mA	40	-	-	-
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA	-	-	0.7	V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA	-	-	1.2	V
Base-Emitter Voltage <sup>3</sup>	V <sub>BE</sub>	V <sub>CE</sub> = 1V, I <sub>C</sub> = 500mA	-	-	1.2	V
Collector Capacitance	C <sub>C</sub>	I <sub>E</sub> = I <sub>e</sub> = 0; V <sub>CB</sub> = 10 V; f = 1MHz	-	5	-	pF
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, f = 100MHz	100	-	-	MHz

**Notes:**

1. Transistor mounted on an FR4 printed-circuit board.
2. Pulse test: tp ≤ 300 μs; δ ≤ 0.02.
3. V<sub>BE</sub> decreases by approx. 2mV/K with increasing temperature.

**Typical Characteristics**

Figure 1. h<sub>FE</sub> vs. I<sub>C</sub>



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
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	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	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

Part Number	WT817
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.