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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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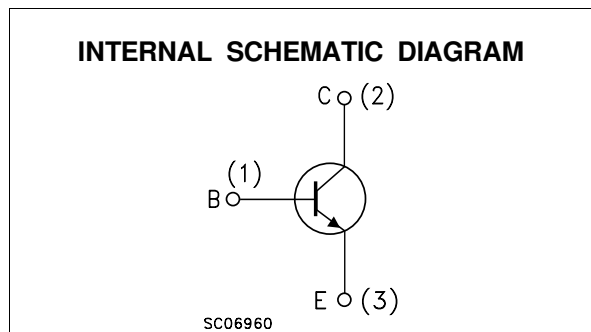
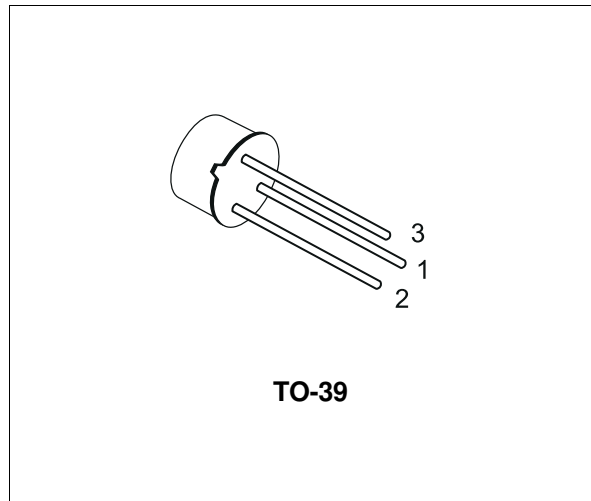
## SILICON NPN TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- NPN TRANSISTOR

### DESCRIPTION

The 2N3439 and 2N3440 are silicon epitaxial planar NPN transistors in jedec TO-39 metal case designed for use in consumer and industrial line-operated applications.

These devices are particularly suited as drivers in high-voltage low current inverters, switching and series regulators.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N3439	2N3440	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	450	300	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	350	250	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7		V
$I_C$	Collector Current	1		A
$I_B$	Base Current	0.5		A
$P_{tot}$	Total Dissipation at $T_c \leq 25\text{ }^\circ\text{C}$	10		W
$P_{tot}$	Total Dissipation at $T_{amb} \leq 50\text{ }^\circ\text{C}$	1		W
$T_{stg}$	Storage Temperature	-65 to 200		$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	200		$^\circ\text{C}$

## 2N3439 / 2N3440

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	17.5	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	175	°C/W

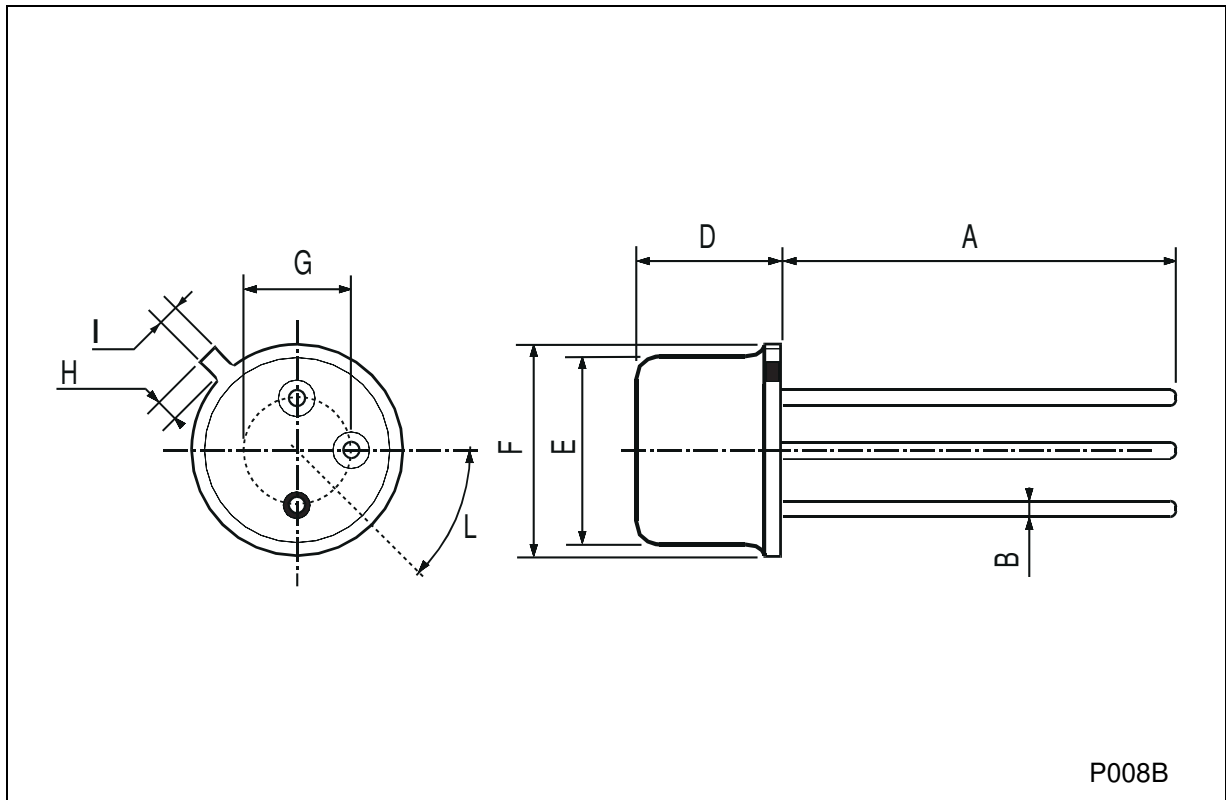
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	for <b>2N3439</b> V <sub>CB</sub> = 360 V for <b>2N3440</b> V <sub>CB</sub> = 250 V			20 20	μA μA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>2N3439</b> V <sub>CE</sub> = 300 V for <b>2N3440</b> V <sub>CE</sub> = 200 V			20 50	μA μA
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	for <b>2N3439</b> V <sub>CE</sub> = 450 V for <b>2N3440</b> V <sub>CE</sub> = 300 V			500 500	μA μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 6 V			20	μA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50 mA for <b>2N3439</b> for <b>2N3440</b>	350 250			V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 50 mA I <sub>B</sub> = 4 mA			0.5	V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 50 mA I <sub>B</sub> = 4 mA			1.3	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 20 mA V <sub>CE</sub> = 10 V I <sub>C</sub> = 2 mA V <sub>CE</sub> = 10 V for <b>2N3439</b>	40 30		160	
h <sub>FE</sub>	Small Signal Current Gain	I <sub>C</sub> = 5 mA V <sub>CE</sub> = 10 V f = 1KHz	25			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 5 mA V <sub>CE</sub> = 10 V f = 5MHz	15			MHz

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

**TO-39 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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