

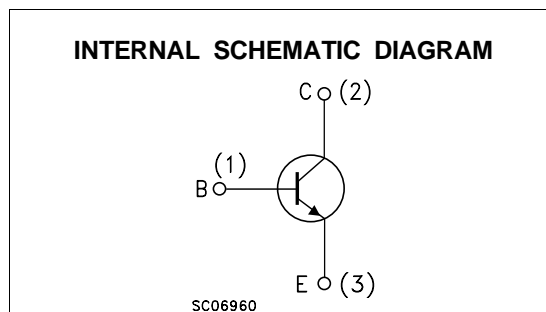
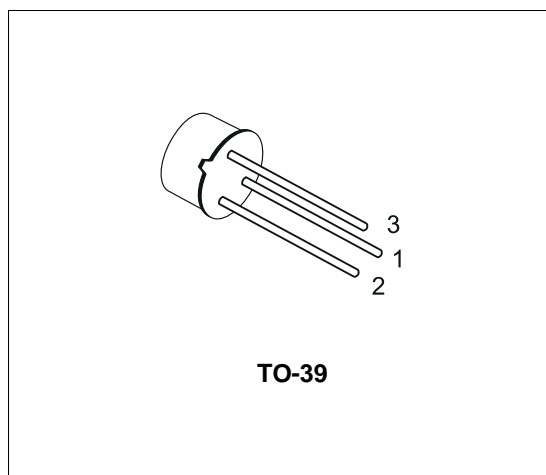
SILICON NPN TRANSISTORS

- 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

$R_{thj-case}$	Thermal Resistance Junction-case	Max	17.5	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}C/W$

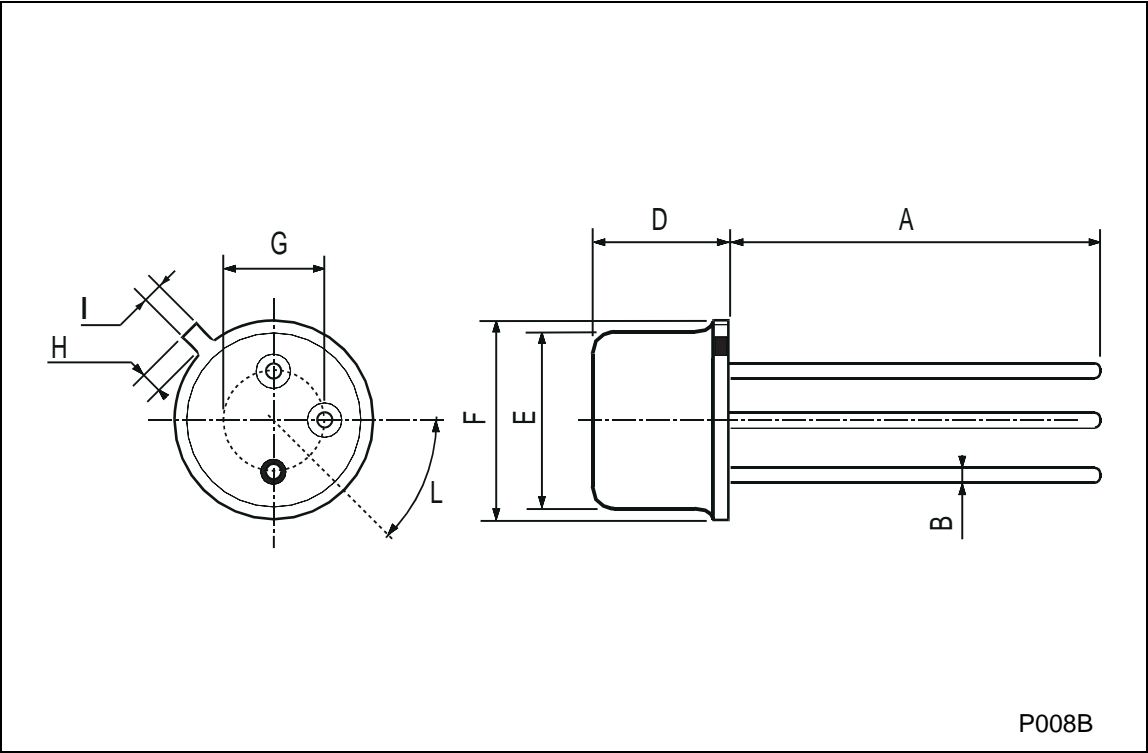
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	for 2N3439 $V_{CB} = 360 V$ for 2N3440 $V_{CB} = 250 V$			20 20	μA μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	for 2N3439 $V_{CE} = 300 V$ for 2N3440 $V_{CE} = 200 V$			20 50	μA μA
I_{CEX}	Collector Cut-off Current ($V_{BE} = -1.5V$)	for 2N3439 $V_{CE} = 450 V$ for 2N3440 $V_{CE} = 300 V$			500 500	μA μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 6 V$			20	μA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = 50 mA$ for 2N3439 for 2N3440	350 250			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 50 mA$ $I_B = 4 mA$			0.5	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 50 mA$ $I_B = 4 mA$			1.3	V
h_{FE}^*	DC Current Gain	$I_C = 20 mA$ $V_{CE} = 10 V$ $I_C = 2 mA$ $V_{CE} = 10 V$ for 2N3439	40 30		160	
h_{FE}	Small Signal Current Gain	$I_C = 5 mA$ $V_{CE} = 10 V$ $f = 1KHz$	25			
f_T	Transition frequency	$I_C = 5 mA$ $V_{CE} = 10 V$ $f = 5MHz$	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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