

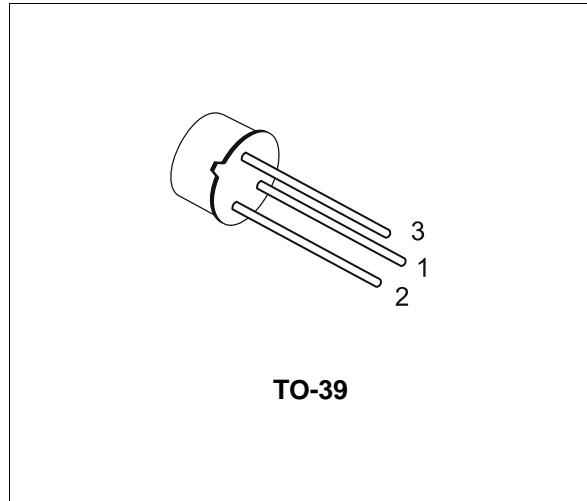
SILICON NPN TRANSISTORS

- STMicroelectronics PREFERRED SALES TYPES
- NPN TRANSISTOR

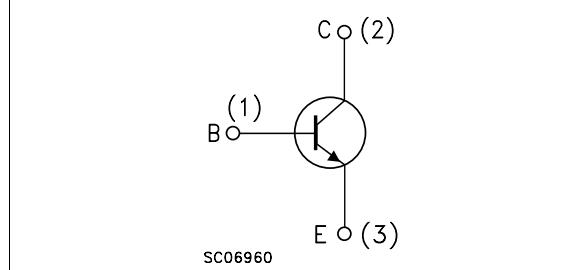
DESCRIPTION

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.



INTERNAL SCHEMATIC DIAGRAM



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 $T_c \leq 25^\circ\text{C}$	10		W
P_{tot}	Total Dissipation at $T_{amb} \leq 50^\circ\text{C}$	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	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	175	°C/W

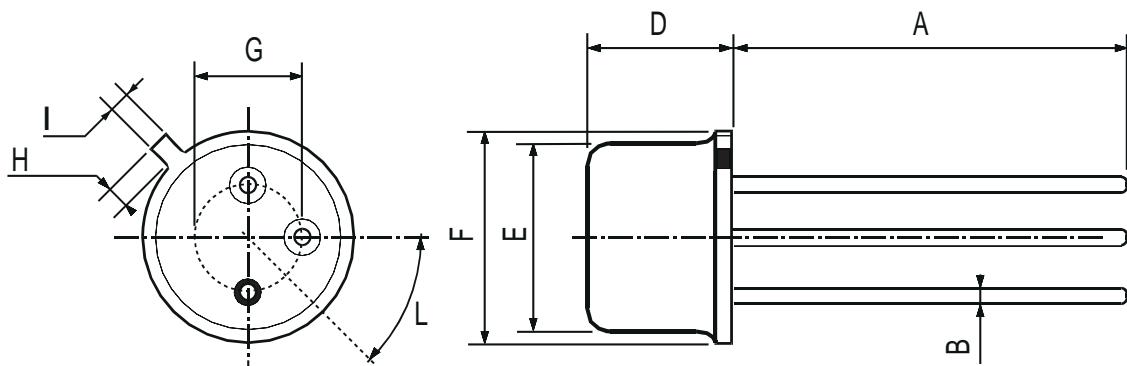
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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 _{CCEO(sus)*}	Collector-Emitter Sustaining Voltage	I _C = 50 mA for 2N3439 for 2N3440	350 250			V V
V _{CEx(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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