

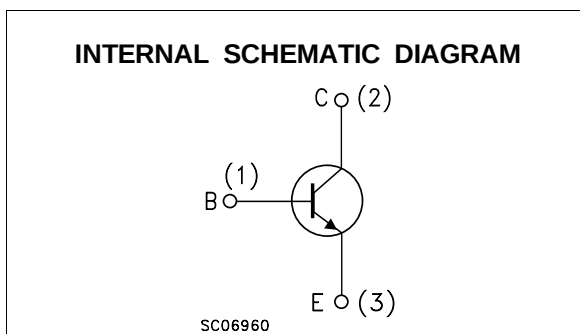
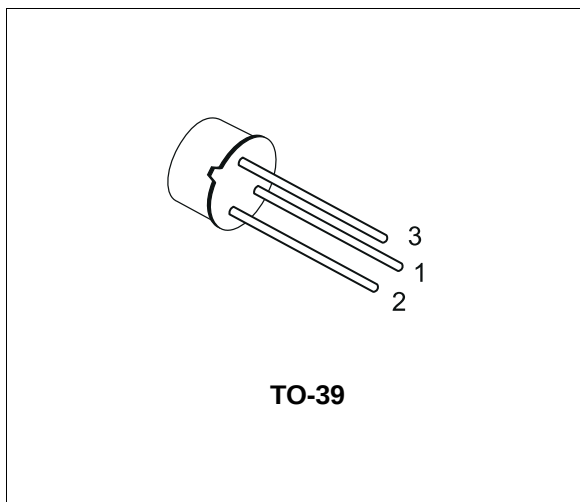
SILICON NPN TRANSISTORS

- 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	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	175	°C/W

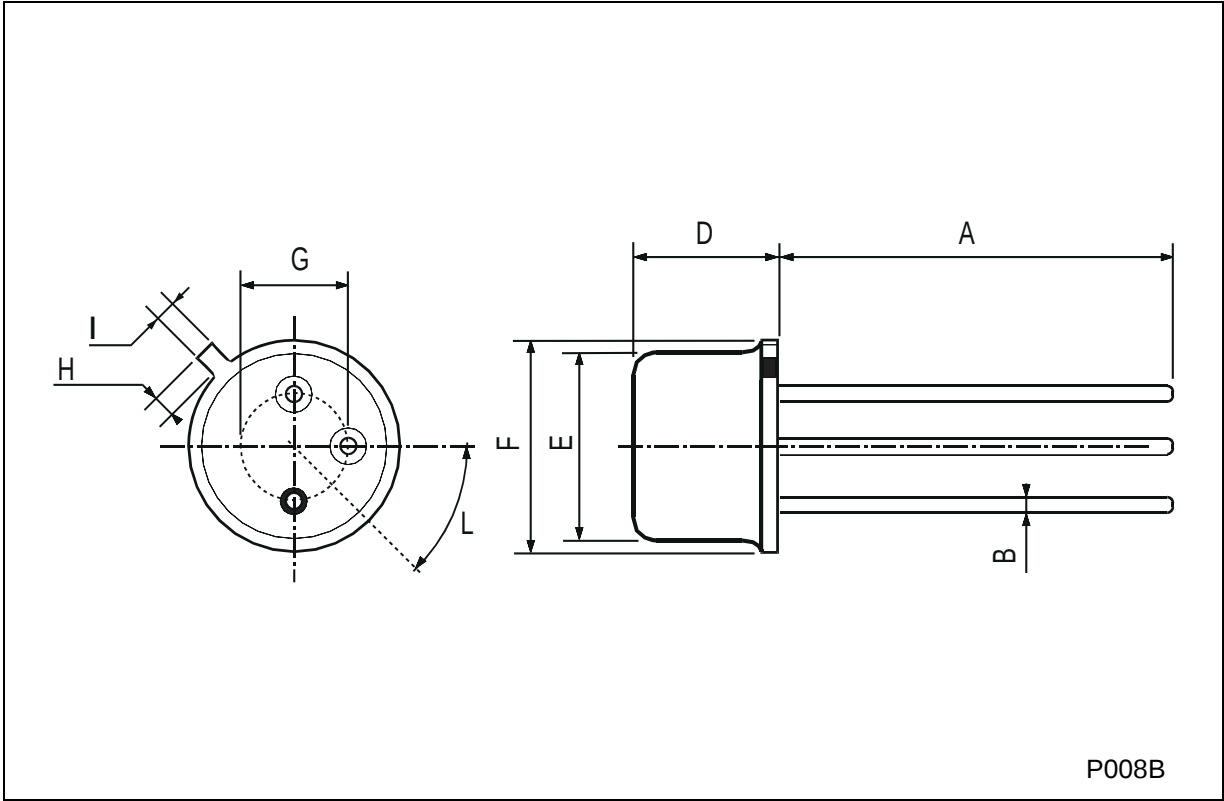
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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 _{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.)					



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2000 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco -
Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>