

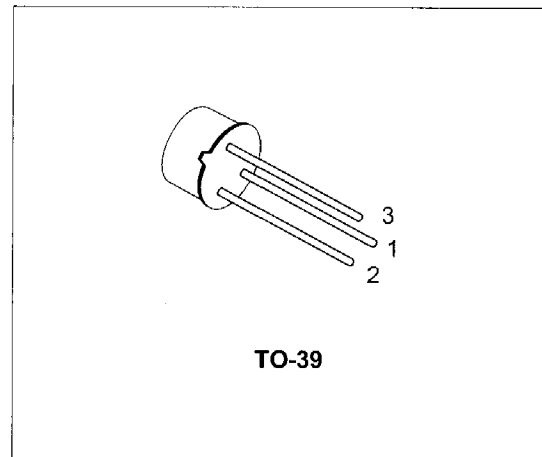
2N3439
2N3440

SILICON NPN TRANSISTORS

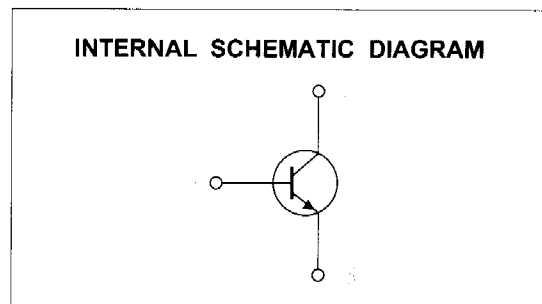
DESCRIPTION

The 2N3439, 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.



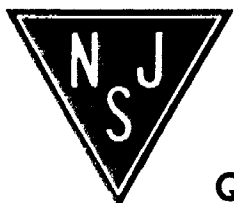
INTERNAL SCHEMATIC DIAGRAM



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 _{EB0}	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 ≤ 25 °C	10		W
P _{tot}	Total Dissipation at T _{amb} ≤ 50 °C	1		W
T _{stg}	Storage Temperature	-65 to 200		°C
T _j	Max. Operating Junction Temperature	200		°C

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



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 %

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.)					

