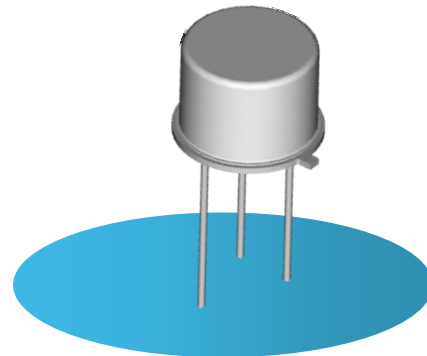


HIGH VOLTAGE NPN TRANSISTORS

2N3439 / 2N3440

- Hermetic TO39 Package
- High Voltage
- Ideally suited for drivers in high voltage low current inverters, switching and series regulators
- High Reliability Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

Symbols	Parameters	2N3439	2N3440
V _{CBO}	Collector – Base Voltage	450V	300V
V _{CEO}	Collector – Emitter Voltage	350V	250V
V _{EBO}	Emitter – Base Voltage		7V
I _C	Collector Current – Continuous		1.0A
I _B	Base Current		0.5A
P _D	Total Power Dissipation at T _C = 25°C		5W
	Derate Above 25°C		28.57mW/°C
P _D	Total Power Dissipation at T _A = 25°C		1.0W
	Derate Above 25°C		5.71mW/°C
T _J	Junction Temperature Range		-65 to +200°C
T _{stg}	Storage Temperature Range		-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
R _{θJA}	Thermal Resistance, Junction To Ambient	175	°C/W
R _{θJC}	Thermal Resistance, Junction To Case	35	°C/W

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

Semelab

Semelab Limited

Coventry Road, Lutterworth, Leicestershire, LE17 4JB

Document Number: 3066

Telephone: +44 (0) 1455 556565
Fax: +44 (0) 1455 552612

Email: sales@semelab-tt.com

Website: <http://www.semelab-tt.com>

Issue: 2
Page: 1 of 3

HIGH VOLTAGE NPN TRANSISTORS 2N3439 / 2N3440

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units	
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	2N3439	350	400	V	
			2N3440	250			
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 300\text{V}$ $V_{CE} = 200\text{V}$	$I_B = 0$	2N3439	1.0	20	μA
				2N3440		50	
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 450\text{V}$ $V_{CE} = 300\text{V}$	$V_{BE} = -1.5\text{V}$	2N3439	0.001	500	
				2N3440		500	
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 350\text{V}$	2N3439	0.001	20		
		$V_{CB} = 250\text{V}$	2N3440		20		
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 6\text{V}$ $I_C = 0$		0.001	20		
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 4\text{mA}$		0.15	0.5	V	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 4\text{mA}$		0.76	1.3		
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 2\text{mA}$ $V_{CE} = 10\text{V}$ $I_C = 20\text{mA}$ $V_{CE} = 10\text{V}$	2N3439	30	114		
			2N3439	40	116	160	
			2N3440	40		160	

DYNAMIC CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
f_T	Transition Frequency	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 5\text{MHz}$	15	55		MHz
h_{fe}	Small signal forward-current transfer ratio	$I_C = 5\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{KHz}$	25	116		
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$		5.4	10	pF
t_{on}	Turn-On Time	$I_C = 10\text{mA}$ $V_{CC} = 200\text{V}$ $I_{B1} = 2\text{mA}$		0.35	1.0	μs
t_{off}	Turn-Off Time	$I_C = 10\text{mA}$ $V_{CC} = 200\text{V}$ $I_{B1} = -I_{B2} = 2\text{mA}$		1.45	10	

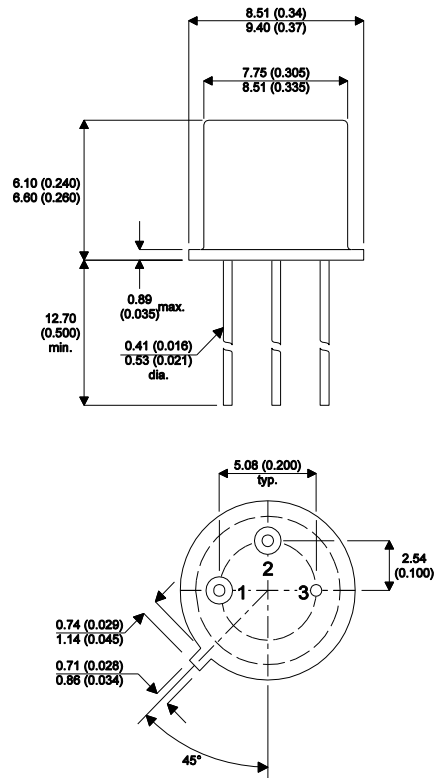
Notes

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

HIGH VOLTAGE NPN TRANSISTORS 2N3439 / 2N3440

MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AD) METAL PACKAGE
Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector

Lead Finish:

- Au (Gold) plated leads as standard.
- Hot solder dip options available but must be specified on purchase order.