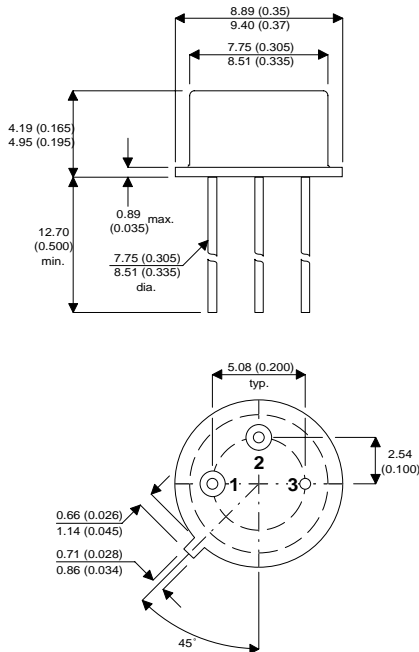


MECHANICAL DATA

Dimensions in mm (inches)



TO39 PACKAGE

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

**HIGH VOLTAGE
NPN TRANSISTORS**

FEATURES

- DUAL SILICON PLANAR EPITAXIAL NPN TRANSISTOR
- HIGH VOLTAGE

APPLICATIONS:

These devices are particularly suited as drivers in high-voltage low current inverters, switing and series regulators.

ABSOLUTE MAXIMUM RATINGS

($T_{case} = 25^{\circ}C$ unless otherwise stated)

		2N3439	2N3440
V_{CBO}	Collector – Base Voltage ($I_E = 0$)	450V	300V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	350V	250V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)		7V
I_C	Collector Current		1A
I_B	Base Current		0.5A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$ $T_{amb} \leq 50^{\circ}C$		5W 1W
T_{stg}	Storage Temperature		-55 to 200°C
T_j	Junction Temperature		200°C

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

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

* Pulse test $t_p = 300\mu s$, $\delta \leq 2\%$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = 10mA$ $V_{CE} = 10V$ $f = 5MHz$	15			MHz
C_{ob} Output Capacitance	$V_{CB} = 10V$ $f = 1MHz$			10	pF
h_{fe} Small Signal Current Gain	$I_C = 5mA$ $V_{CE} = 10V$ $f = 1kHz$	25			—

THERMAL DATA

Parameter	Min.	Typ.	Max.	Unit
$R_{\theta JA}$ Thermal Resistance Junction to Ambient			175	$^{\circ}C/W$
$R_{\theta JC}$ Thermal Resistance Junction to Case			35	$^{\circ}C/W$