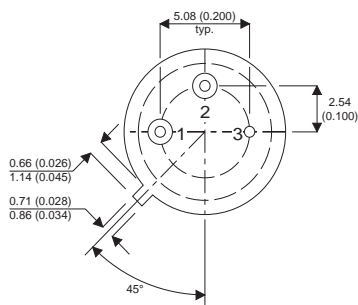
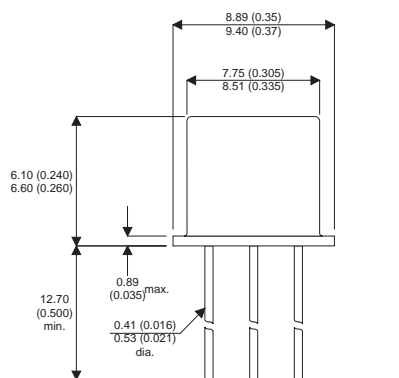


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO-39**

Pin 1 – Emitter      Pin 2 – Base      Pin 3 – Collector

**NPN SILICON  
TRANSISTORS**

**DESCRIPTION**

The 2N5338X & 2N5339X silicon epitaxial planar NPN transistor in jedec TO-39 metal case intended for use as drivers for high power transistors in general purpose, amplifier and switching circuit

**ABSOLUTE MAXIMUM RATINGS**  $T_{CASE} = 25^{\circ}C$  unless otherwise stated

$V_{CBO}$	Collector – Base Voltage ( $I_E = 0$ )	100V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	100V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	6V
$I_C$	Collector Current	5A
$I_{CM}$	Collector Peak Current	7A
$I_B$	Base Current	1A
$P_{tot}$	Total Dissipation at $T_{case} \leq 25^{\circ}C$ $T_{amb} \leq 25^{\circ}C$	6W 1W
$T_{stg}$	Storage Temperature Range	-65 to +200°C
$T_j$	Junction temperature	200°C

Semelab Plc 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.

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Document Number 2674

Issue: 2

## THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	29.2	°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut Off Current $I_E = 0$ $V_{CB} = 100V$			10	$\mu A$
$I_{CEX}$	Collector Cut Off Current $V_{BE} = 1.5V$ $V_{CE} = 90V$ $T_{case} = 150^{\circ}C$			10 1	$\mu A$ mA
$I_{CEO}$	Collector Cut Off Current $I_B = 0$ $V_{CE} = 90V$			100	$\mu A$
$V_{CEO(sus)*}$	Collector Emitter Sustaining Voltage $I_B = 0$ $I_C = 50mA$			100	V
$V_{CE(sat)*}$	Collector Emitter Saturation Voltage $I_C = 2A$ $I_B = 0.2A$ $I_C = 5A$ $I_B = 0.5A$			0.7 1.2	V
$V_{BE(sat)*}$	Base Emitter Voltage $I_C = 2A$ $I_B = 0.2A$ $I_C = 5A$ $I_B = 0.5A$			1.2 1.8	V
$h_{FE*}$	DC Current Gain $I_C = 0.5A$ $V_{CE} = 2V$ $I_C = 2A$ $V_{CE} = 2V$ $I_C = 5A$ $V_{CE} = 2V$				—
				30 60	
				30 60	
				20 40	
$f_T$	Transistion Frequency $I_C = 0.5mA$ $V_{CE} = 10V$	30			MHz
$C_{CBO}$	Collector Base Capacitance $I_E = 0$ $V_{CB} = 10V$ $f = 0.1MHz$			250	pF
$t_{on}$	Turn-on Time $I_C = 2A$ $V_{CC} = 40V$ $I_{B1} = 0.2mA$			200	ns
$t_s$	Storage Time $I_C = 2A$ $V_{CC} = 40V$			2.5	$\mu s$
$t_f$	Fall Time $I_{B1} = - I_{B2} = 0.2A$			200	ns

\* Pulse test  $t_p = 300\mu s$  , Duty Cycle 1.5%