



# TS13001

## High Voltage NPN Transistor

TO-92



Pin assignment:  
 1. Emitter  
 2. Collector  
 3. Base

**$BV_{CEO} = 400V$**   
 **$BV_{CBO} = 500V$**   
 **$I_C = 0.1A$**   
 **$V_{CE(SAT)}, = 0.5V @ I_C / I_B = 50mA / 10mA$**

### Features

- ◇ High voltage.
- ◇ High speed switching

### Structure

- ◇ Silicon triple diffused type.
- ◇ NPN silicon transistor

### Ordering Information

Part No.	Packing	Package
TS13001CT	Bulk	TO-92

### Absolute Maximum Rating ( $T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	500V	V
Collector-Emitter Voltage	$V_{CEO}$	400V	V
Emitter-Base Voltage	$V_{EBO}$	9	V
Collector Current	DC	$I_C$	0.1
	Pulse		0.3
Collector Power Dissipation	TO-92	$P_D$	0.6
Operating Junction Temperature	$T_J$	+150	$^\circ C$
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	$^\circ C$

Note: 1. Single pulse,  $P_w = 5mS$ , Duty  $\leq 10\%$

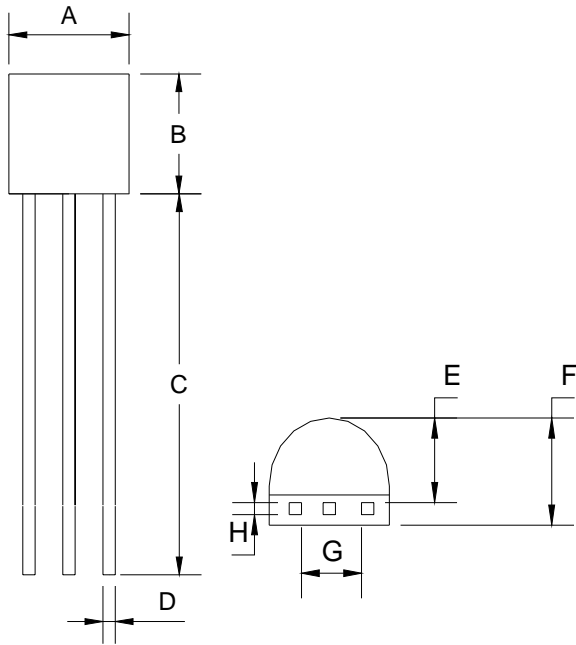
### Electrical Characteristics

$T_a = 25^\circ C$  unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Collector-Base Voltage	$I_C = 10mA, I_B = 0$	$BV_{CBO}$	500	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 10mA, I_E = 0$	$BV_{CEO}$	400	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 1mA, I_C = 0$	$BV_{EBO}$	9	--	--	V
Collector Cutoff Current	$V_{CB} = 500V, I_E = 0$	$I_{CBO}$	--	--	100	$\mu A$
Emitter Cutoff Current	$V_{EB} = 7V, I_C = 0$	$I_{EBO}$	--	--	0.01	$\mu A$
Collector-Emitter Saturation Voltage	$I_C / I_B = 50mA / 10mA$	$V_{CE(SAT)}$	--	--	0.5	V
DC Current Gain	$V_{CE} = 5V, I_C = 20mA$	$h_{FE}$	10	--	40	
Output Capacitance	$V_{CB} = 10V, f = 0.1MHz$	$C_{ob}$	--	4	--	pF
Storage Time	$V_{CE} = 250V, I_C = 5 Ib,$ $Ib1=Ib2=40mA$	$t_s$	--	--	2.0	$\mu S$
Fall Time		$t_f$	--	--	0.8	

Note : pulse test: pulse width  $\leq 5mS$ , duty cycle  $\leq 10\%$

## TO-92 Mechanical Drawing



TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	14.30(typ)		0.563(typ)	
D	0.43	0.49	0.017	0.019
E	2.19	2.81	0.086	0.111
F	3.30	3.70	0.130	0.146
G	2.42	2.66	0.095	0.105
H	0.37	0.43	0.015	0.017