



TS13002A

High Voltage NPN Transistor

TO-92



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

$BV_{CEO} = 400V$
 $BV_{CBO} = 700V$
 $I_C = 0.3A$
 $V_{CE(SAT)}, = 1.5V @ I_C / I_B = 200mA / 20mA$

Features

- ✧ High voltage.
- ✧ High speed switching

Structure

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

Ordering Information

Part No.	Packing	Package
TS13002ACT B0	Bulk	TO-92
TS13002ACT A3	AMMO pack	TO-92

Absolute Maximum Rating (Ta = 25 °C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	700V	V
Collector-Emitter Voltage	V_{CEO}	400V	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current	DC	0.3	A
	Pulse	0.5	
Collector Power Dissipation	P_D	0.6	W
Operating Junction Temperature	T_J	+150	°C
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	°C

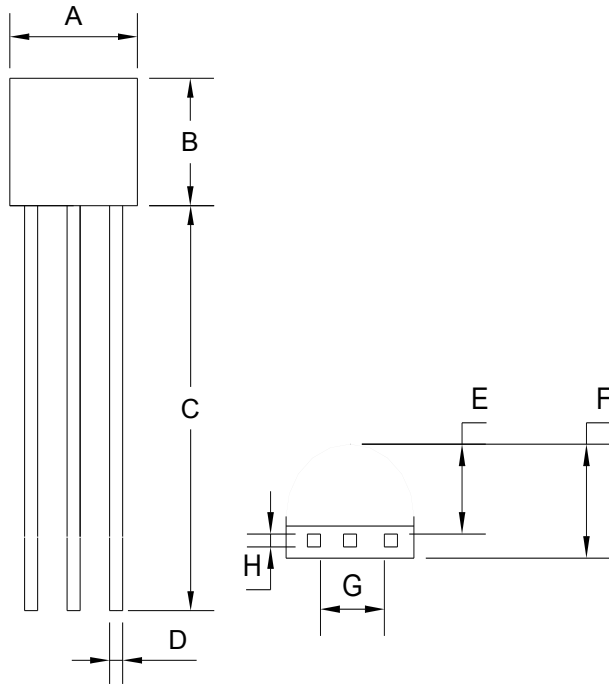
Electrical Characteristics

Ta = 25 °C unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	$I_C = 10mA, I_B = 0$	BV_{CBO}	700	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_E = 0$	BV_{CEO}	400	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 1mA, I_C = 0$	BV_{EBO}	9	--	--	V
Collector Cutoff Current	$V_{CB} = 700V, I_E = 0$	I_{CBO}	--	--	10	uA
Emitter Cutoff Current	$V_{EB} = 7V, I_C = 0$	I_{EBO}	--	--	10	uA
Collector-Emitter Saturation Voltage	$I_C / I_B = 200mA / 20mA$	$V_{CE(SAT)1}$	--	--	1.5	V
	$I_C / I_B = 100mA / 10mA$	$V_{CE(SAT)2}$	--	--	1.0	
DC Current Gain	$V_{CE} = 10V, I_C = 10uA$	h_{FE1}	15	--	40	
	$V_{CE} = 10V, I_C = 100mA$	h_{FE2}	25	--	40	
	$V_{CE} = 10V, I_C = 280mA$	h_{FE3}	12	--	30	
Frequency	$V_{CE} = 10V, I_C = 0.1A$	f_T	4	--	--	MHz
Output Capacitance	$V_{CB} = 10V, f = 0.1MHz$	Cob	--	21	--	pF
Turn On Time	$V_{CC} = 125V, I_C = 100mA,$	t_{ON}	--	1.1	--	uS
Storage Time	$I_{B1} = I_{B2} = 20mA,$	t_{STG}	--	--	4	uS
Fall Time	$R_L = 125ohm$	t_f	--	--	0.7	uS

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