



## SMALL SIGNAL NPN TRANSISTOR

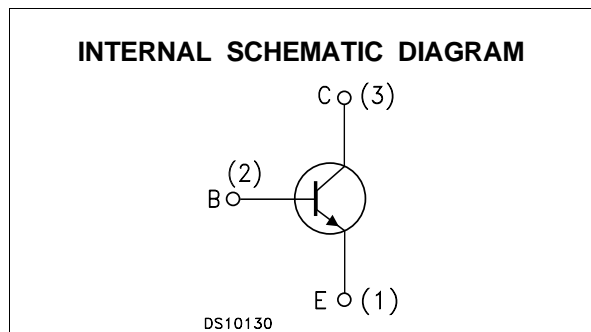
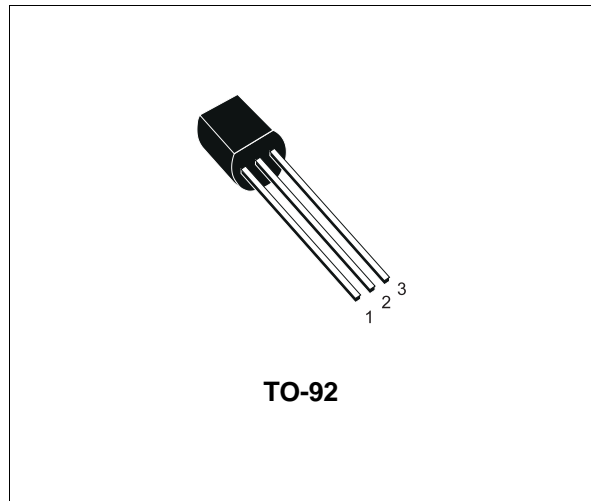
PRELIMINARY DATA

Type	Marking
STPSA42	PSA42

- SILICON EPITAXIAL PLANAR NPN HIGH VOLTAGE TRANSISTOR
- TO-92 PACKAGE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY
- THE PNP COMPLEMENTARY TYPE IS STPSA92

### APPLICATIONS

- VIDEO AMPLIFIER CIRCUITS (RGB CATHODE CURRENT CONTROL)
- TELEPHONE WIRELINE INTERFACE (HOOK SWITCHES, DIALER CIRCUITS)



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	300	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	300	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	5	V
$I_C$	Collector Current	0.5	A
$I_{CM}$	Collector Peak Current	0.6	A
$P_{tot}$	Total Dissipation at $T_C = 25\text{ }^\circ\text{C}$	625	mW
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

## STPSA42

### THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	200	$^{\circ}\text{C}/\text{W}$
$R_{thj-case}$	Thermal Resistance Junction-Case	Max	83.3	$^{\circ}\text{C}/\text{W}$

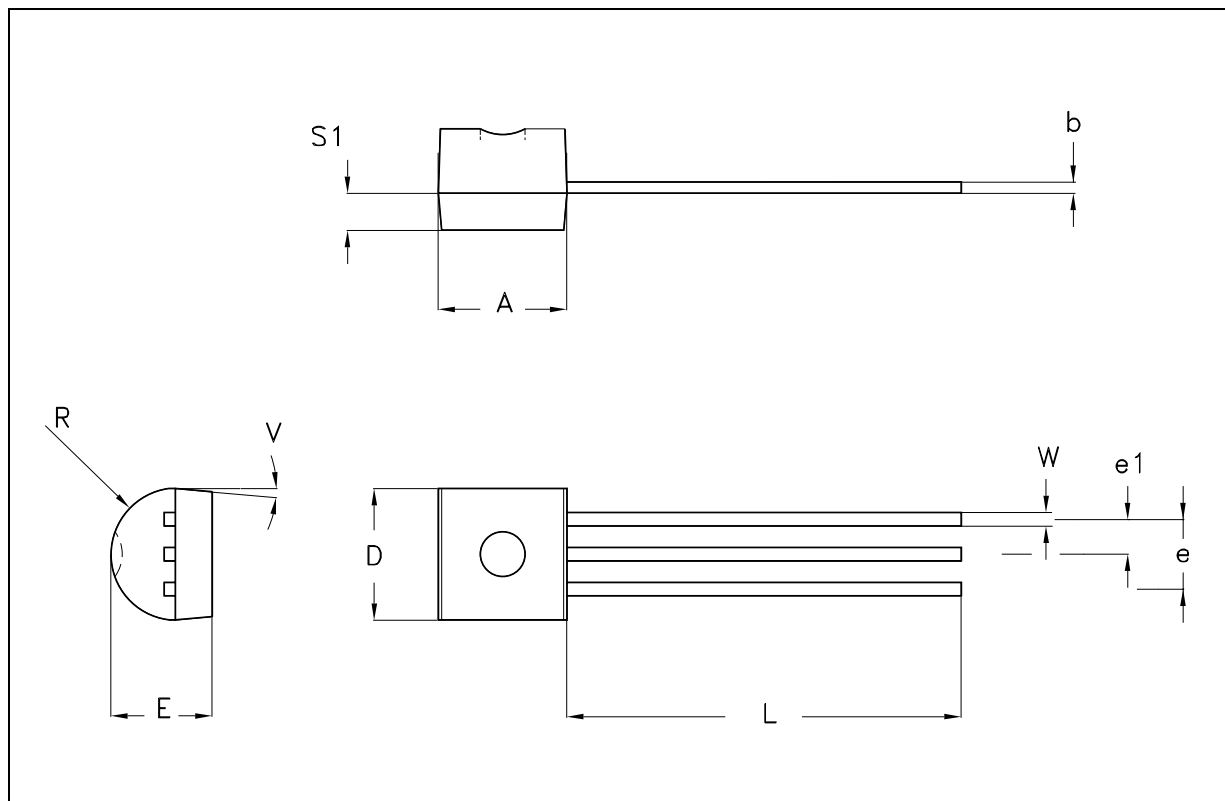
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = 200\text{ V}$			100	nA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_E = 0$ )	$I_C = 100\ \mu\text{A}$	300			V
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 1\text{ mA}$	300			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\ \mu\text{A}$	5			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 20\text{ mA}$ $I_B = 2\text{ mA}$			0.5	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 20\text{ mA}$ $I_B = 2\text{ mA}$			0.9	V
$h_{FE}^*$	DC Current Gain	$I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 30\text{ mA}$ $V_{CE} = 10\text{ V}$	25 40 40			
$f_T$	Transition Frequency	$I_C = 10\text{ mA}$ $V_{CE} = 20\text{ V}$ $f = 20\text{ MHz}$	50			MHz
$C_{CBO}$	Collector-Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$		6		pF
$C_{EBO}$	Emitter-Base Capacitance	$I_C = 0$ $V_{EB} = 2\text{ V}$ $f = 1\text{ MHz}$		22		pF

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 1.5\%$

## TO-92 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.32		4.95	0.170		0.195
b	0.36		0.51	0.014		0.020
D	4.45		4.95	0.175		0.194
E	3.30		3.94	0.130		0.155
e	2.41		2.67	0.095		0.105
e1	1.14		1.40	0.045		0.055
L	12.70		15.49	0.500		0.609
R	2.16		2.41	0.085		0.094
S1	1.14		1.52	0.045		0.059
W	0.41		0.56	0.016		0.022
V	4 degree		6 degree	4 degree		6 degree



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