

NPN MEDIUM POWER TRANSISTOR

- TO-92 PACKAGE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY

APPLICATIONS

- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

DESCRIPTION

The STX724 is a NPN transistor manufactured using planar Technology resulting in rugged high performance devices.

Figure 1: Package

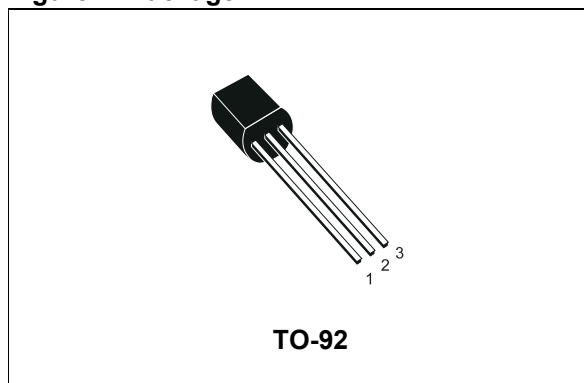


Figure 2: Internal Schematic Diagram

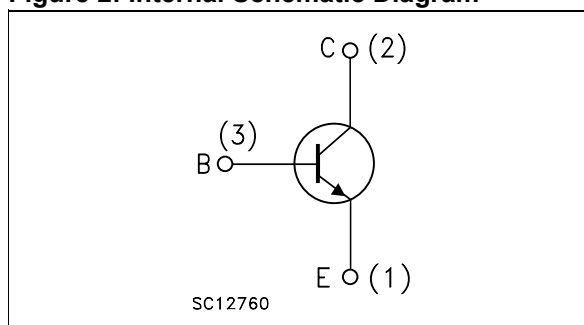


Table 1: Order Codes

Part Number	Marking	Package	Packaging
STX724	X724	TO-92	Bulk

Table 2: Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	60	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	30	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	3	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	6	A
I_B	Base Current	1	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	2	A
P_{tot}	Total Dissipation at $T_C = 25$ °C	0.9	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_J	Max. Operating Junction Temperature	150	°C

Table 3: Thermal Data

$R_{thj-case}$	Thermal Resistance Junction-Case	Max	44.6	°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	139	°C/W

Table 4: Electrical Characteristics ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 60\text{ V}$				10	μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 30\text{ V}$				100	μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$				10	μA
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ($I_B = 0$)	$I_C = 10\text{ mA}$		30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_E = 0$)	$I_C = 100\text{ }\mu\text{A}$		60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_C = 0$)	$I_E = 100\text{ }\mu\text{A}$		5			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 1\text{ A}$	$I_B = 50\text{ mA}$			0.4	V
		$I_C = 2\text{ A}$	$I_B = 100\text{ mA}$			0.7	V
		$I_C = 3\text{ A}$	$I_B = 150\text{ mA}$			1.1	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 2\text{ A}$	$I_B = 100\text{ mA}$			1.2	V
h_{FE}	DC Current Gain	$I_C = 100\text{ mA}$	$V_{CE} = 2\text{ V}$	100		300	
		$I_C = 1\text{ A}$	$V_{CE} = 2\text{ V}$	80			
		$I_C = 3\text{ A}$	$V_{CE} = 2\text{ V}$	30			
f_T	Transition Frequency	$I_C = 0.1\text{ A}$	$V_{CE} = 10\text{ V}$		100		MHz

* Pulsed: Pulsed duration = 300 μs , 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

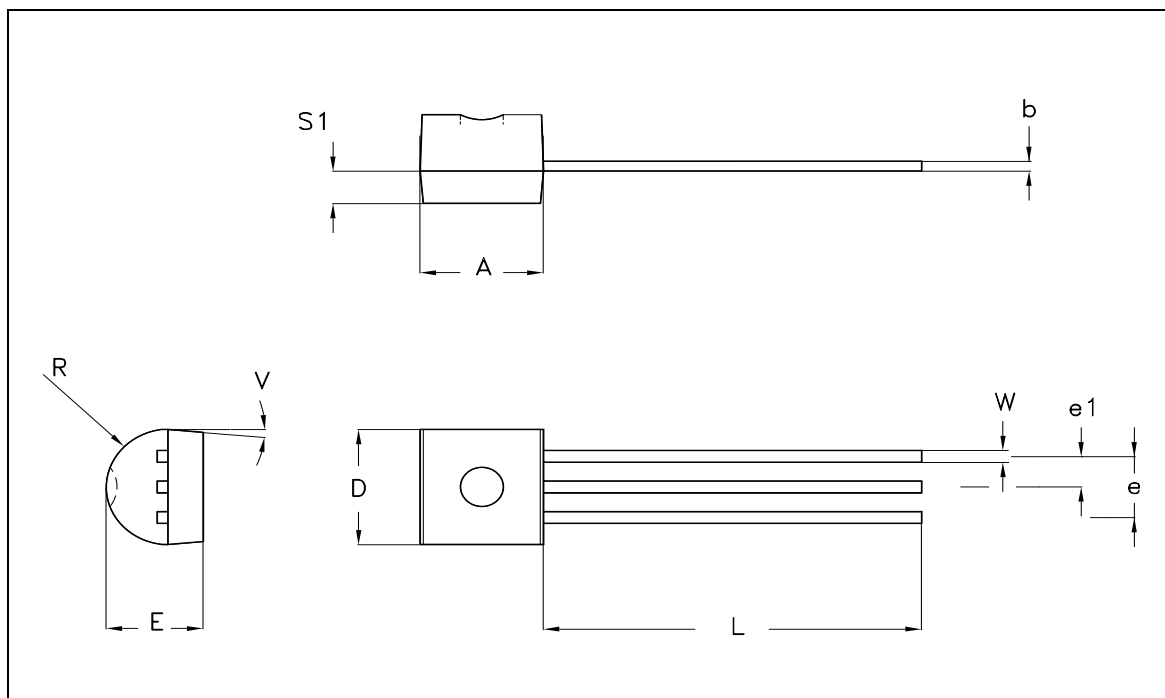


Figure 5: Revision History

Version	Release Date	Change Designator
02-Nov-2004	1	First Release.

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