ST901T

HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER TRANSISTOR

- HIGH VOLTAGE SPECIAL DARLINGTON STRUCTURE
- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATION JUNCTION TEMPERATURE
- HIGH DC CURRENT GAIN

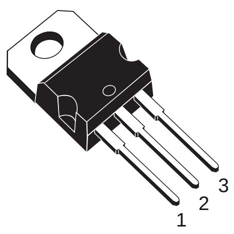
APPLICATIONS

- HIGH RUGGEDNESS ELECTRONIC IGNITION FOR SMALL ENGINES

DESCRIPTION

The ST901T is a High Voltage NPN silicon transistor in monolithic special Darlington configuration mounted in Jedec TO-220 plastic package, designed for applications such us electronic ignition for small engines (scooters, lawnmovers, chainsaws).

Figure 1: Package



TO-220

Figure 2: Internal Schematic Diagram

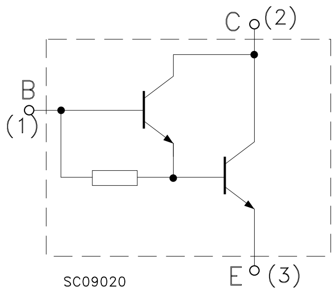


Table 1: Order Codes

Part Number	Marking	Package	Packaging
ST901T	901T	TO-220	TUBE

Table 2: Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)	500	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	350	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_C	Collector Current	4	A
I_{CM}	Collector Peak Current (t_p < 5ms)	8	A
I_B	Base Current	0.5	A
I_{BM}	Base Peak Current (t_p < 5ms)	2.5	A
P_{tot}	Total Dissipation at T_C = 25 ^oC	100	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_J	Max. Operating Junction Temperature	150	°C

Table 3: Thermal Data

$R_{thj\text{-}case}$	Thermal Resistance Junction-Case	Max	1.25	$^oC/W$

Table 4: Electrical Characteristics (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (I_E = 0)	V_{CE} = 500 V V_{CE} = 500 V T_{case} = 125 ^oC			100 500	μA μA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 350 V V_{CE} = 350 V T_{case} = 125 ^oC			100 500	μA μA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			10	μA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 10 mA L = 10 mH	350			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 20 mA			2	V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 2 A I_B = 20 mA			1.8	V
h_{FE}	DC Current Gain	I_C = 2 A V_{CE} = 2 V I_C = 4 A V_{CE} = 2 V	1500 500			
	Functional Test	V_{CC} = 24 V V_{clamp} = 350 V L = 4 mH	4			
 t_s t_f	INDUCTIVE LOAD Storage Time Fall Time	V_{CC} = 12 V V_{clamp} = 250 V L = 4 mH I_C = 2 A I_B = 20 mA V_{BE} = -3 V		 15 1.5		 μs μs

* Pulsed: Pulsed duration = 300 μs, duty cycle ≤ 1.5 %.

TO-220 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.15		1.70	0.045		0.066
c	0.49		0.70	0.019		0.027
D	15.25		15.75	0.60		0.620
E	10		10.40	0.393		0.409
e	2.40		2.70	0.094		0.106
e1	4.95		5.15	0.194		0.202
F	1.23		1.32	0.048		0.052
H1	6.20		6.60	0.244		0.256
J1	2.40		2.72	0.094		0.107
L	13		14	0.511		0.551
L1	3.50		3.93	0.137		0.154
L20		16.40			0.645	
L30		28.90			1.137	
øP	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116

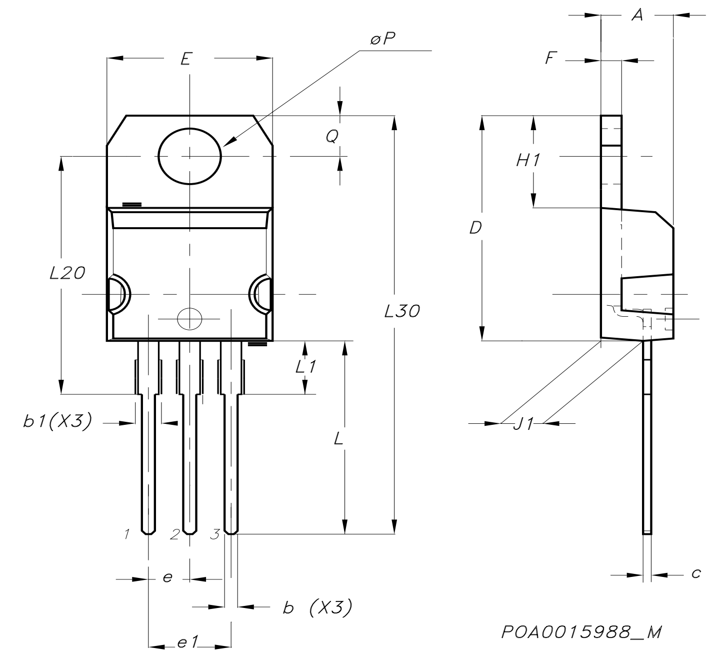


Figure 5: Revision History

Version	Release Date	Change Designator
14-Oct-2004	1	First Release.
15-Jan-2005	2	DC current gain range has been modified.

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