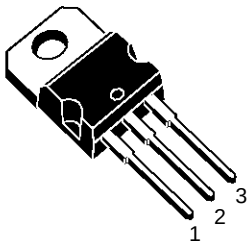
SGS-THOMSON MICROELECTRONICS

ST901T

HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON

PRELIMINARY DATA

- SGS-THOMSON PREFERRED SALESTYPE
- HIGH VOLTAGE SPECIAL DARLINGTON STRUCTURE
- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATING JUNCTION TEMPERATURE
- HIGH DC CURRENT GAIN



TO-220

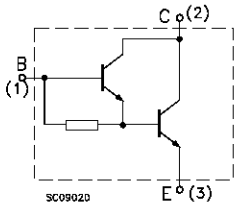
APPLICATION

- 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 as electronic ignition for small engines (scooters, lawnmowers, chainsaws).

INTERNAL SCHEMATIC DIAGRAM



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	8	A
I_B	Base Current	0.5	A
I_{BM}	Base Peak Current	2.5	A
P_{tot}	Total Dissipation at $T_c \leq 25\ ^oC$	30	W
T_{stg}	Storage Temperature	-65 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	5	$^oC/W$

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 0.5	µA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 350 V V_{CE} = 350 V T_{case} = 125 ^oC			100 0.5	µA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			10	µA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 10 mA L = 10 mH I_B = 0	350			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 20 mA			1.3	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			A
 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: Pulse 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
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151