STL71

MEDIUM VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

- MEDIUM VOLTAGE CAPABILITY
- LOW SPREAD OF DYNAMIC PARAMETERS
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- VERY HIGH SWITCHING SPEED

APPLICATIONS

- COMPACT FLUORESCENT LAMPS (CFLS)

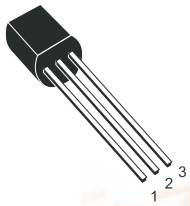
DESCRIPTION

The device is manufactured using high voltage Multi-Epitaxial Planar technology for high switching speeds and medium voltage capability.

It uses a Cellular Emitter structure with planar edge termination to enhance switching speeds while maintaining the wide RBSOA.

The STL series is designed for use in Compact Fluorescent Lamps.

Figure 1: Package



TO-92

Figure 2: Internal Schematic Diagram

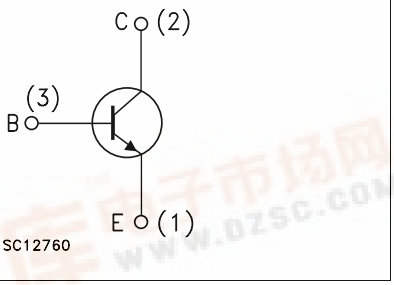


Table 1: Order Codes

Part Number	Marking	Package	Packaging
STL71	L71 L or (#) L71 H	TO-92	Bulk

See:note on page 2

Table 2: Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)	700	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	400	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	9	V
I_C	Collector Current	0.6	A
I_{CM}	Collector Peak Current (t_p < 5ms)	1.5	A
I_B	Base Current	0.4	A
I_{BM}	Base Peak Current (t_p < 5ms)	0.75	A
P_{tot}	Total Dissipation at T_C = 25 °C	0.95	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_J	Max. Operating Junction Temperature	150	°C

Table 3: Thermal Data

$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient	Max	131.6	°C/W

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

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current (V_{BE} = -1.5 V)	V_{CE} = 700 V				250	µA
I_{EBO}	Emitter-Cut-off Current (I_C = 0)	V_{EB} = 9 V				1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 1 mA		400			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 0.1 A	I_B = 20 mA		0.15	0.4	V
		I_C = 0.2 A	I_B = 40 mA		0.2	0.5	V
		I_C = 0.3 A	I_B = 60 mA		0.4	1	V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 0.2 A	I_B = 40 mA		0.8	1	V
h_{FE}	DC Current Gain #	I_C = 0.2 A	V_{CE} = 5 V				
		Group L		10		16	
		Group H		15		23	
		I_C = 0.6 A	V_{CE} = 10 V	4		10	
t_f	INDUCTIVE LOAD Fall Time	I_C = 0.2	V_{Clamp} = 300 V				
		I_{B1} = -I_{B2} = 40 mA	L = 3mH		0.3		µs
		(see figure 3)					

* Pulsed: Pulsed duration = 300 μs, duty cycle $\leq$ 1.5 %.
# The product is pre-selected in DC current gain (Group L and Group H). STMicroelectronics reserves the right to ship either groups according to production availability. Please contact your nearest STMicrolectronics sales office for delivery datails.

Figure 3: Inductive Load Switching Test Circuit

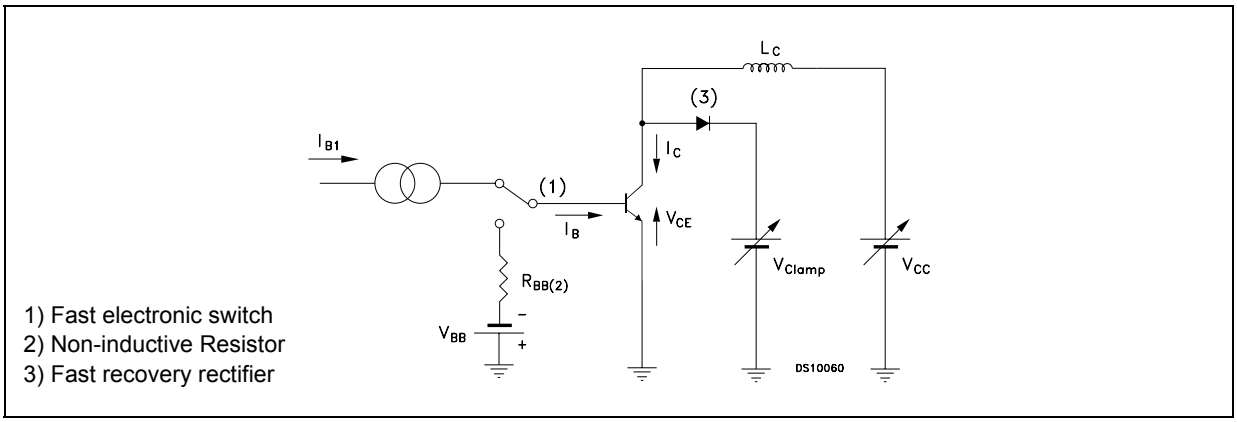
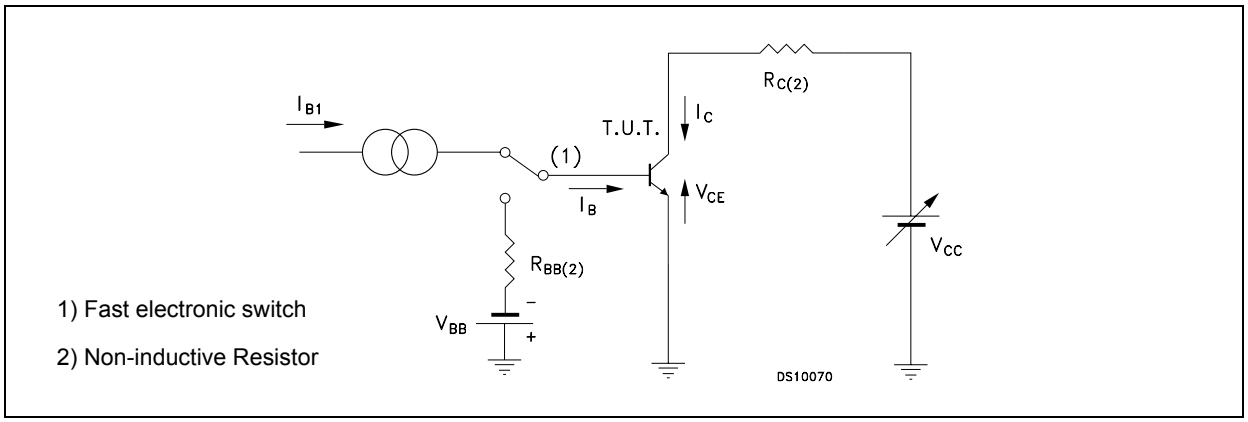


Figure 4: Restistive Load Switching Test Circuit



TO-92 BULK SHIPMENT MECHANICAL DATA

DIM.	mm.		
	MIN.	TYP	MAX.
A	4.32		4.95
b	0.36		0.51
D	4.45		4.95
E	3.30		3.94
e	2.41		2.67
e1	1.14		1.40
L	12.70		15.49
R	2.16		2.41
S1	0.92		1.52
W	0.41		0.56
V		5 ^{O}	

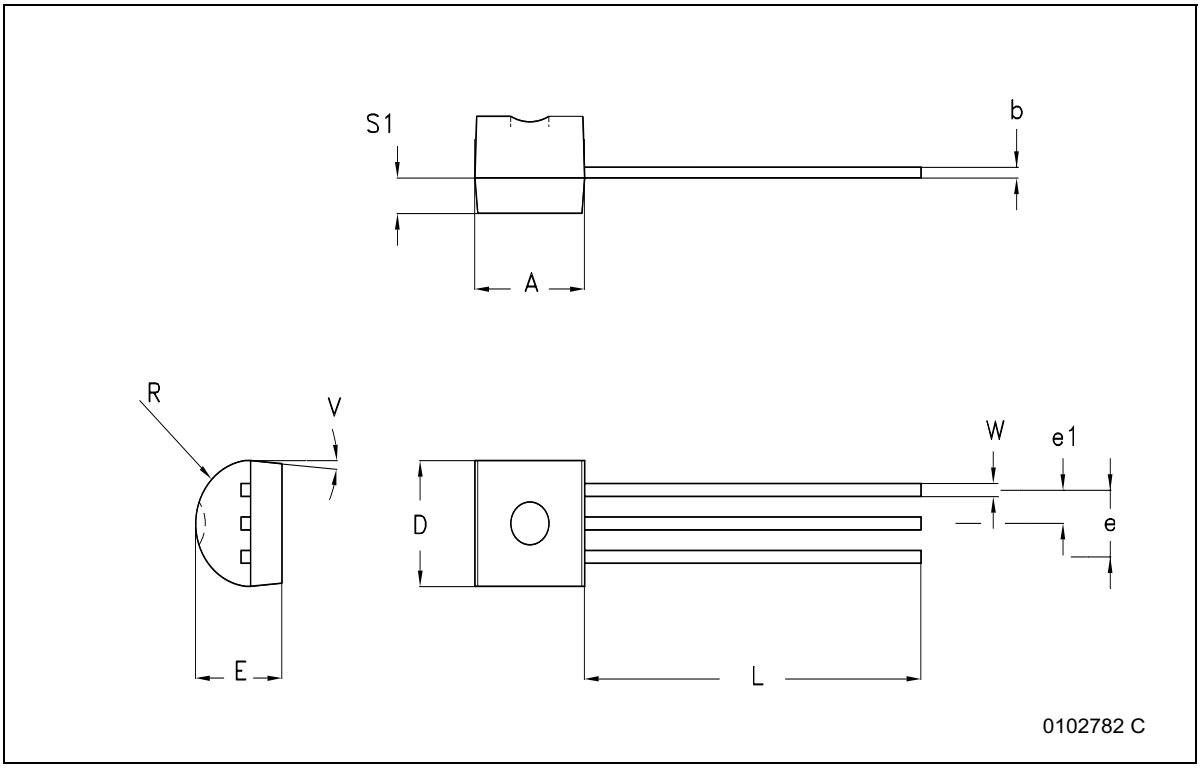


Figure 5: Revision History

Release Date	Version	Change Designator
01-Apr-2005	1	Initial release
12-Jul-2005	2	New hfe range values