



LIC01-SERIES

Application Specific Discretets
A.S.D.TM

LIGHT IGNITION CIRCUIT

PRELIMINARY DATASHEET

FEATURES AND BENEFITS

- HIGH VOLTAGE BREAKOVER DIODE:
 $V_{BO \text{ MIN}} = 195 \text{ or } 215 \text{ V}$
- HIGH HOLDING CURRENT STRUCTURE :
 $I_H > 50 \text{ mA}$
- HIGH PEAK CURRENT PULSE CAPABILITY:
 $I_{TRM} = 50 \text{ A}$
- DIRECT OPERATION ON 220/240 VAC MAINS CIRCUITS.

DESCRIPTION

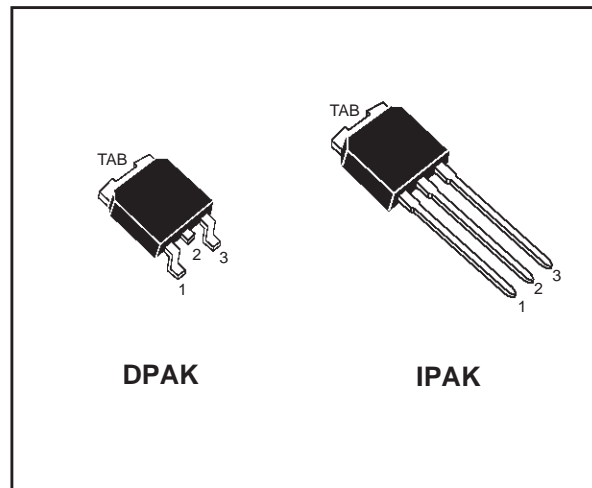
The LIC01 is a high performance planar diffused technology device suitable for high surge current operation in rugged environmental conditions.

When the voltage across the device reaches the break over voltage, it decreases from the off state to the low voltage on-state. When the current through the circuit drops below the holding current I_H , the device comes back to the off state.

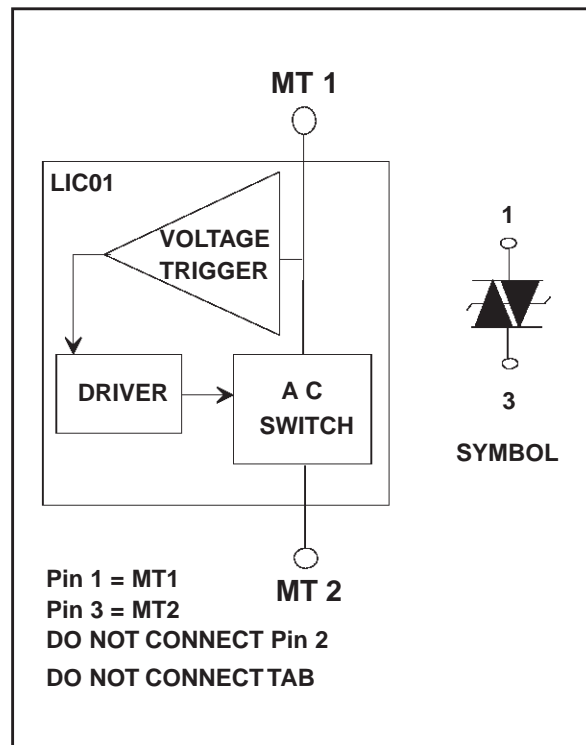
LIC01 has been especially designed for high voltage pulse generation circuits such as light ignitors for :

- . High pressure sodium lamp
- . Lamp flashing circuit
- . Metal Halid lamp

DEVICE TYPE	BREAKDOWN VOLTAGE RANGE
LIC01-195	$V_{BO \text{ min}}: 195\text{V}$ $V_{BO \text{ max}}: 230\text{V}$
LIC01-215	$V_{BO \text{ min}}: 215\text{V}$ $V_{BO \text{ max}}: 255\text{V}$



FUNCTIONAL DIAGRAM

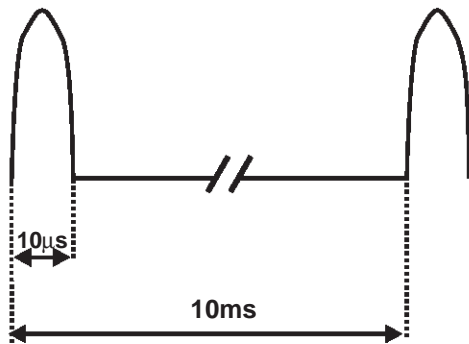


LIC01-SERIES

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRM}	Repetitive surge peak on state current for thyristor	$t_p = 10\mu s$ (note 1)	± 50	A
$I_{T(RMS)}$	RMS on state current	$T_{amb} = 90^\circ C$	1.2	A
di/dt	Critical rate of rise on state current		80	A/ μs
V_{DRM}	Repetitive peak off state voltage	$T_j = 125^\circ C$	± 180	V
T_{stg}	Storage junction temperature range		- 40 to + 125	$^\circ C$
T_j	Operating junction temperature range		-20 to 125	$^\circ C$
T_L	Maximum lead temperature for soldering during 10s		260	$^\circ C$

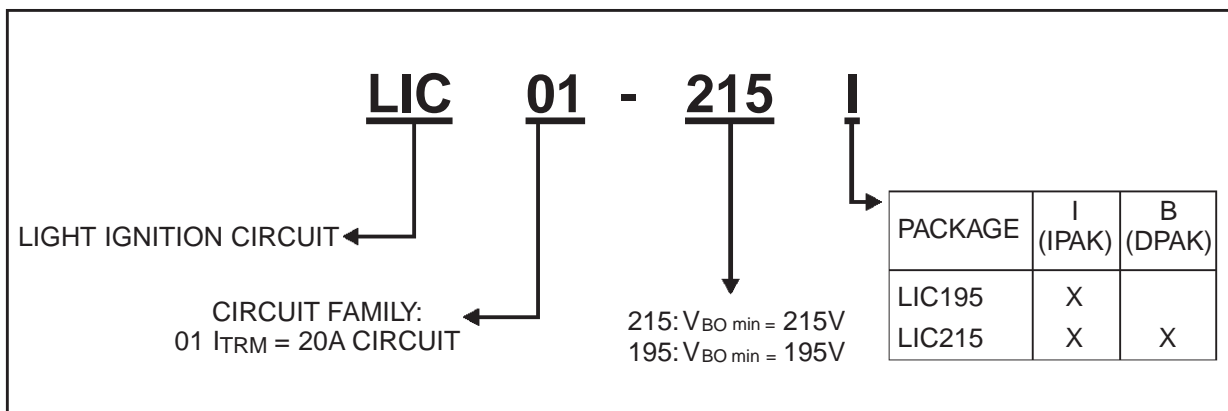
Note 1 : Test current waveform



THERMAL RESISTANCE

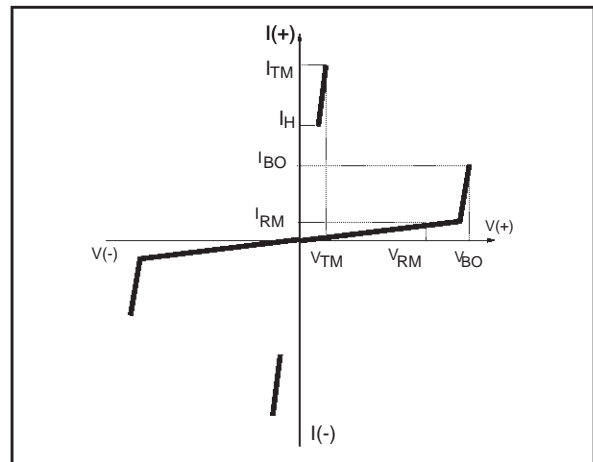
Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	100	$^\circ C/W$

ORDERING INFORMATION



ELECTRICAL CHARACTERISTICS

Symbol	Parameters
V_{RM}	Stand-off voltage
V_{TM}	On-state voltage
V_{BO}	Breakover voltage
I_{TM}	On-state current
I_H	Holding current
I_{BO}	Breakover current
I_{RM}	Leakage current



ELECTRICAL PARAMETERS

Symbol	Test conditions			Value	Unit		
I_{RM}	$V_D = V_{RM} 180V$			$T_j = 25^\circ C$	MAX	5	μA
				$T_j = 125^\circ C$	MAX	50	μA
V_{BO}	I_{BO}	LIC01-195	$T_j = 25^\circ C$	MIN	195	V	
			MAX	230			
		LIC01-215	$T_j = 25^\circ C$	MIN	215	V	
			MAX	255			
I_{BO}	$V_{BO} \text{ max.}$			$T_j = 25^\circ C$	TYP	200	μA
				MAX	500		
I_H	$I_T = 350mA$	$T_j = 25^\circ C$		MIN	50	mA	
V_{TM}	$I_{TM} = 1A$	$T_j = 25^\circ C$		TYP	3	V	

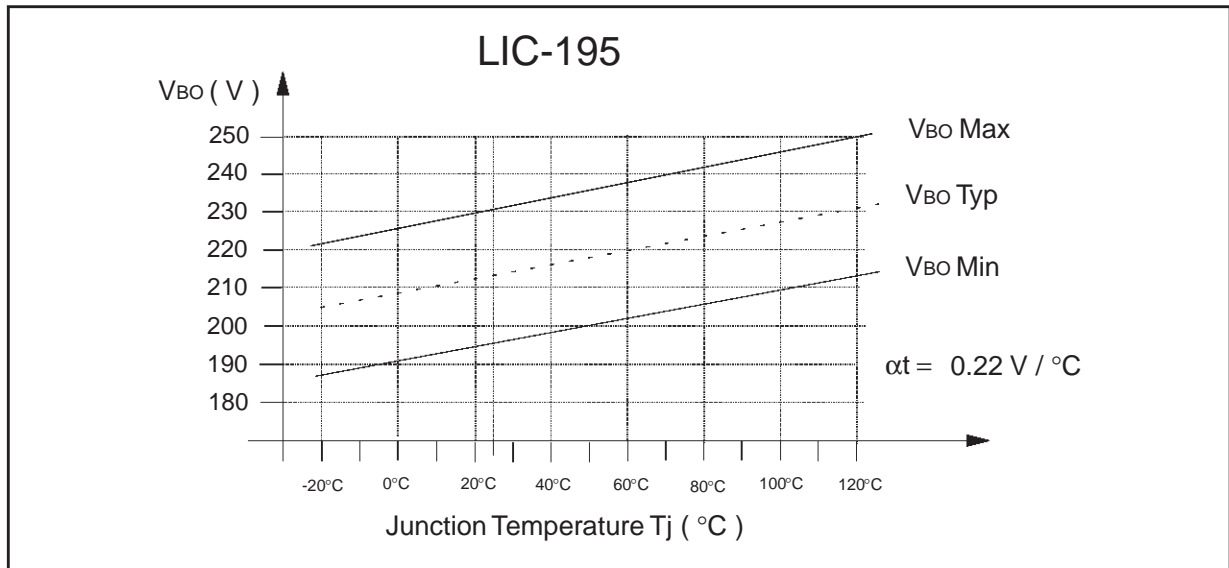
HOLDING CURRENT TEST CIRCUIT

$R1 = 1k\Omega / 50W$ (a 220V / 60W bulb can be used)

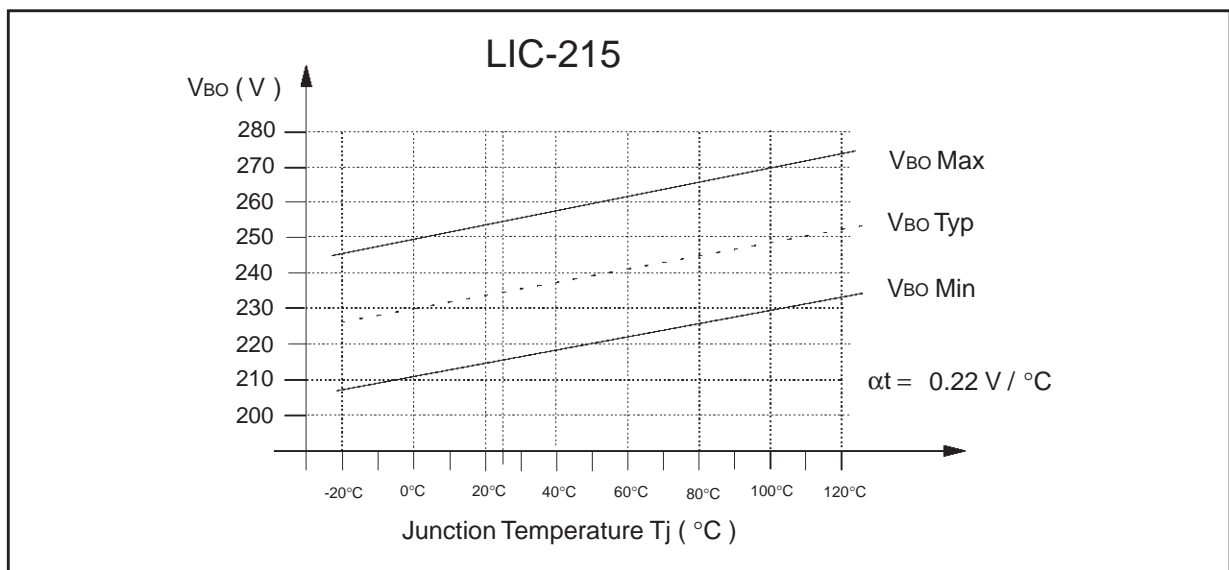
$R2 = 22\Omega$
 $C2 = 220nF$ } Auxiliary network providing the complete firing of the LIC01 under test

LIC01-SERIES

VARIATION OF V_{BO} VERSUS JUNCTION TEMPERATURE

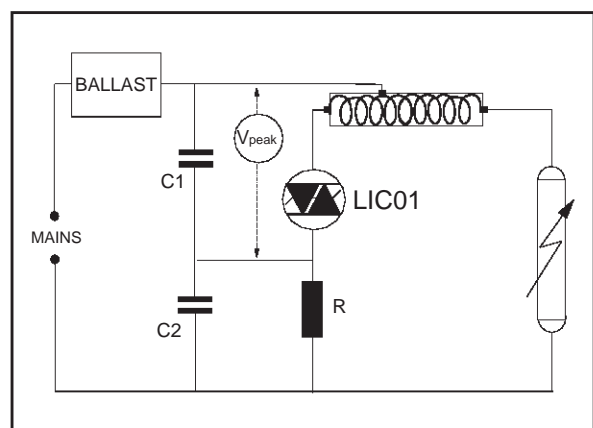


VARIATION OF V_{BO} VERSUS JUNCTION TEMPERATURE

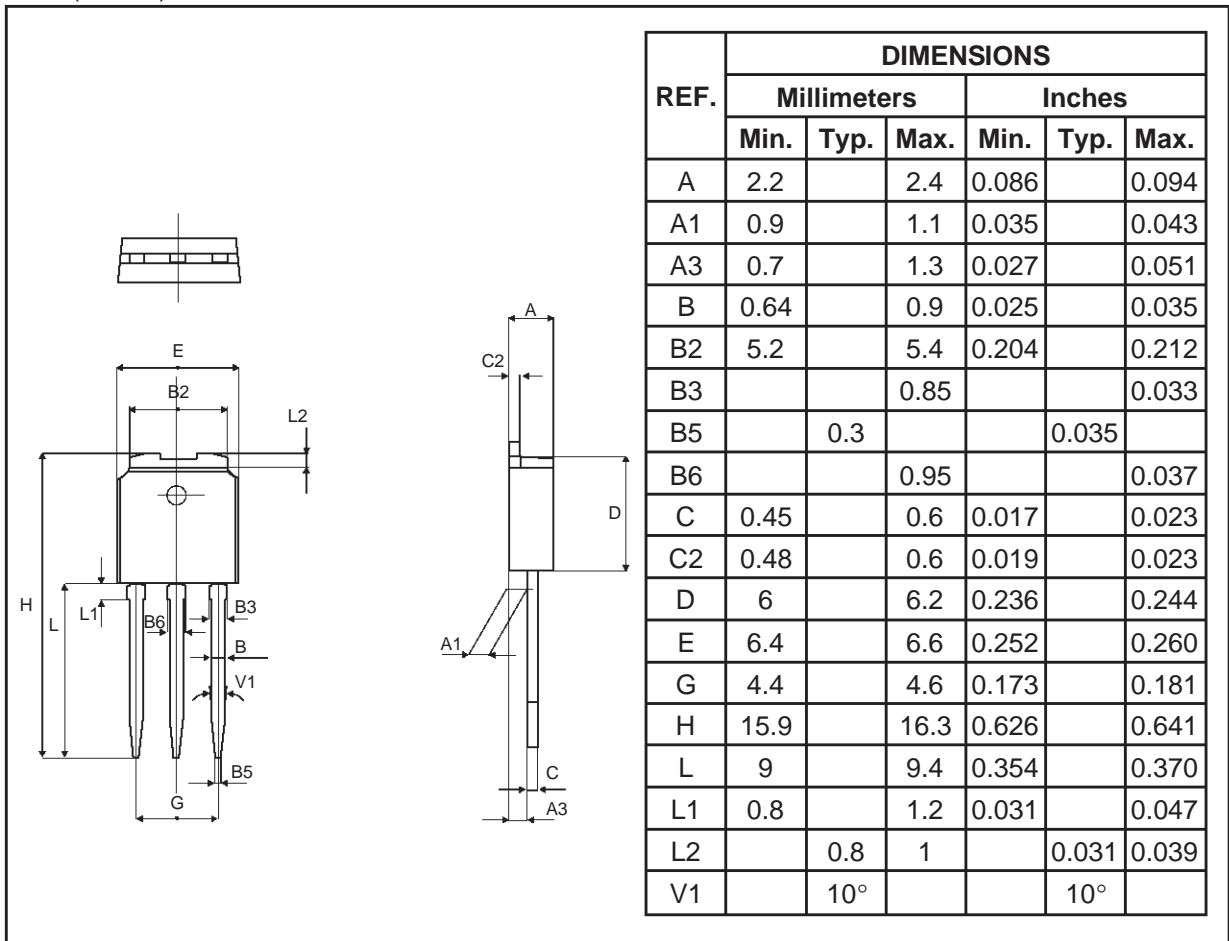


TYPICAL APPLICATION

When the peak voltage across C1 reaches the break over voltage V_{BO} of the LIC01, this device turns on and produces a pulse of current through the primary of the transformer. In turns, the transformer generates high voltage pulses across the lamp.



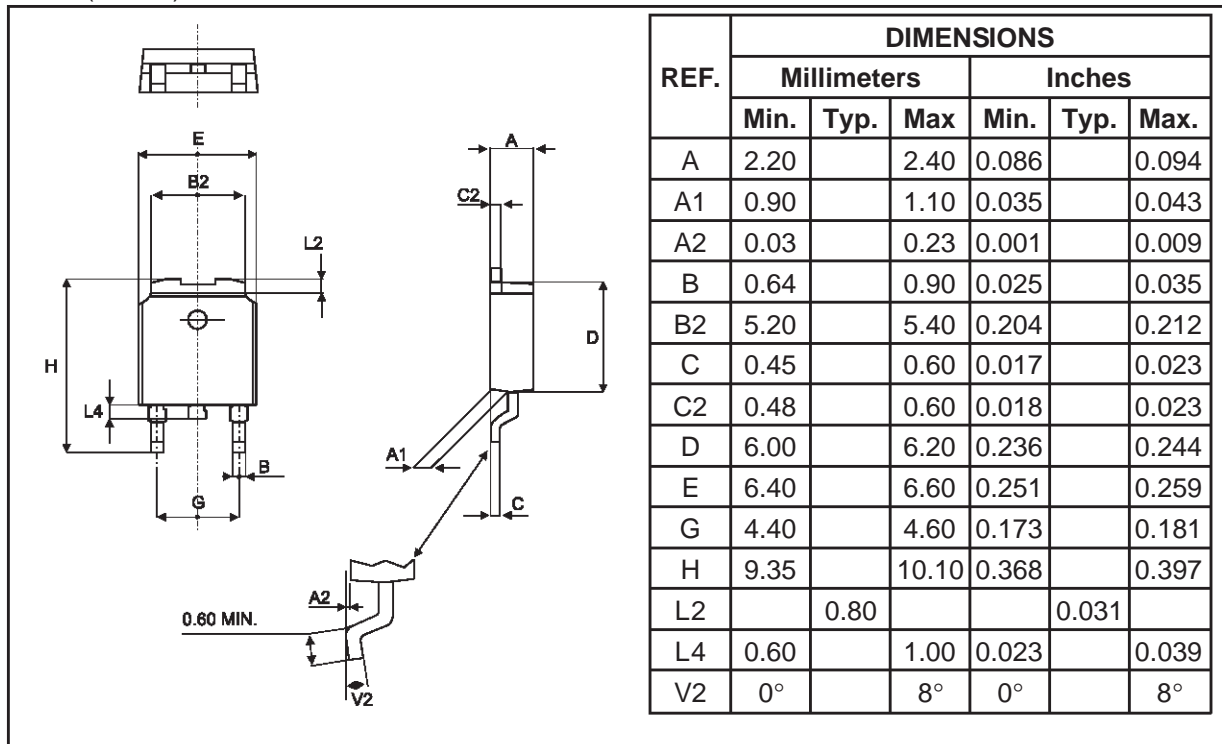
PACKAGE MECHANICAL DATA
IPAK (Plastic)



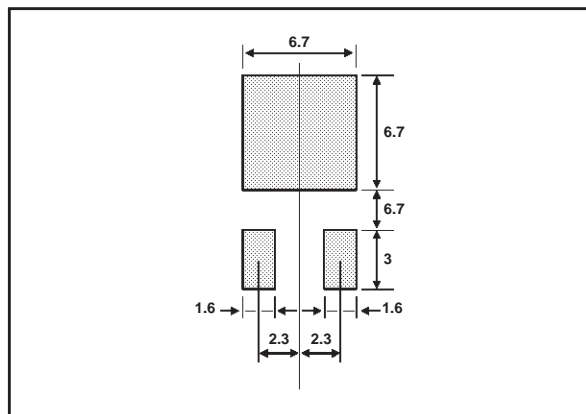
- **Marking:** type number
- **Weight:** 0.350 g.
- **Shipped** 75 units per tube

LIC01-SERIES

PACKAGE MECHANICAL DATA DPAK (Plastic)



FOOT PRINT DIMENSIONS (in millimeters)



- **Marking:** type number
- **Weight:** 0.300 g.
- **Shipped** 2500 units per reel or 75 units per tube

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 1998 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.