LIC01-SERIES

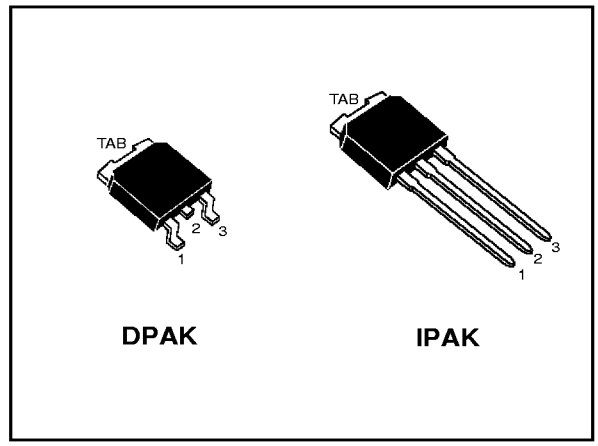
Application Specific Discretes
A.S.D.™

LIGHT IGNITION CIRCUIT

PRELIMINARY DATASHEET

FEATURES AND BENEFITS

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



DPAK **IPAK**

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 :

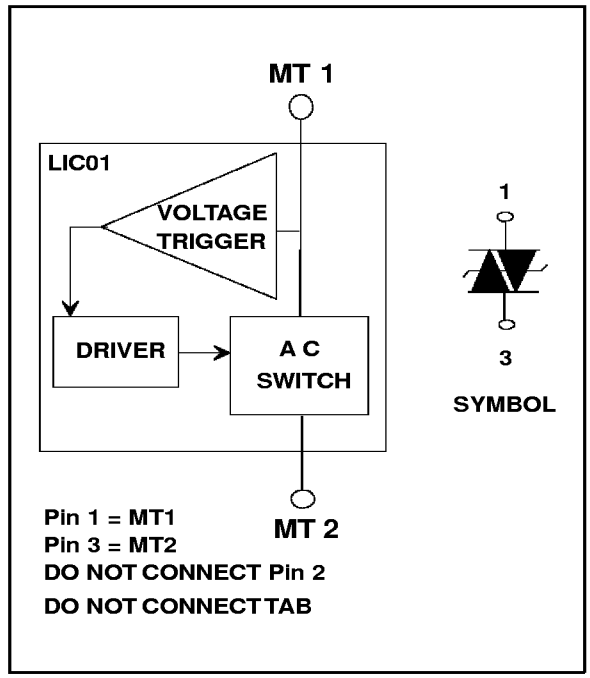
. High pressure sodium lamp

. Lamp flashing circuit

. Metal Halid lamp

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

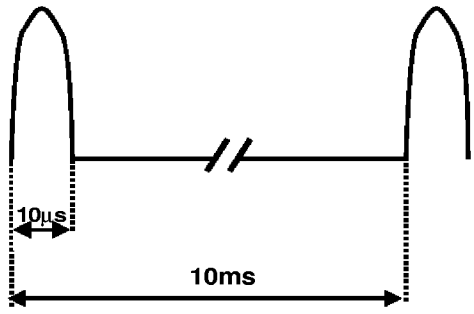
FUNCTIONAL DIAGRAM



ABSOLUTE RATINGS (limiting values)

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

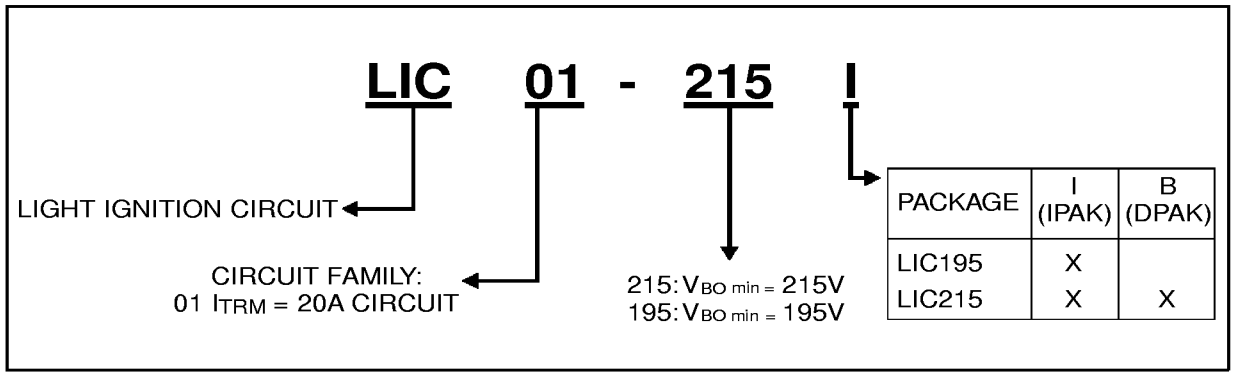
Note 1 : Test current waveform



THERMAL RESISTANCE

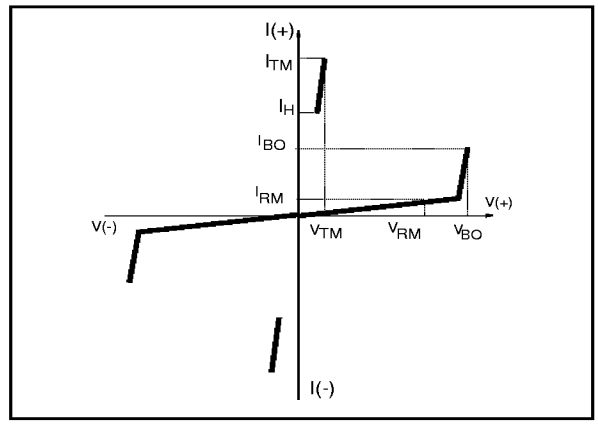
Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	100	°C/W

ORDERING INFORMATION



ELECTRICAL CHARACTERISTICS

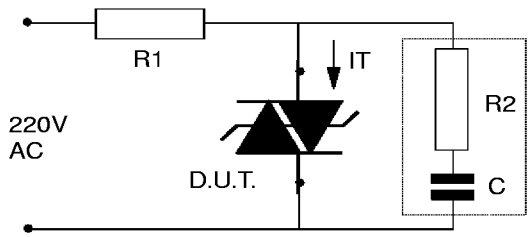
Symbol	Parameters
V_{RM}	Stand-off voltage
V_{TM}	On-state voltage
V_{BO}	Breakover voltage
I_{TM}	On-state current
I_H	Holding current
I_{BO}	Breakover current
I_{RM}	Leakage current

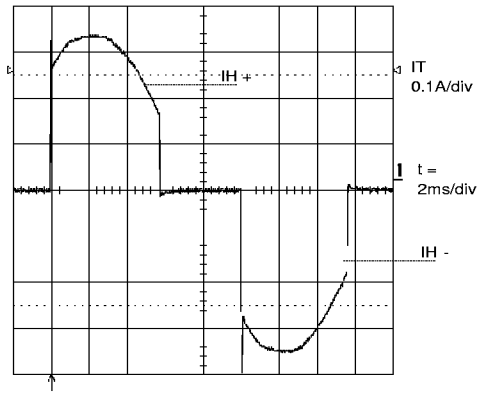


ELECTRICAL PARAMETERS

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

HOLDING CURRENT TEST CIRCUIT

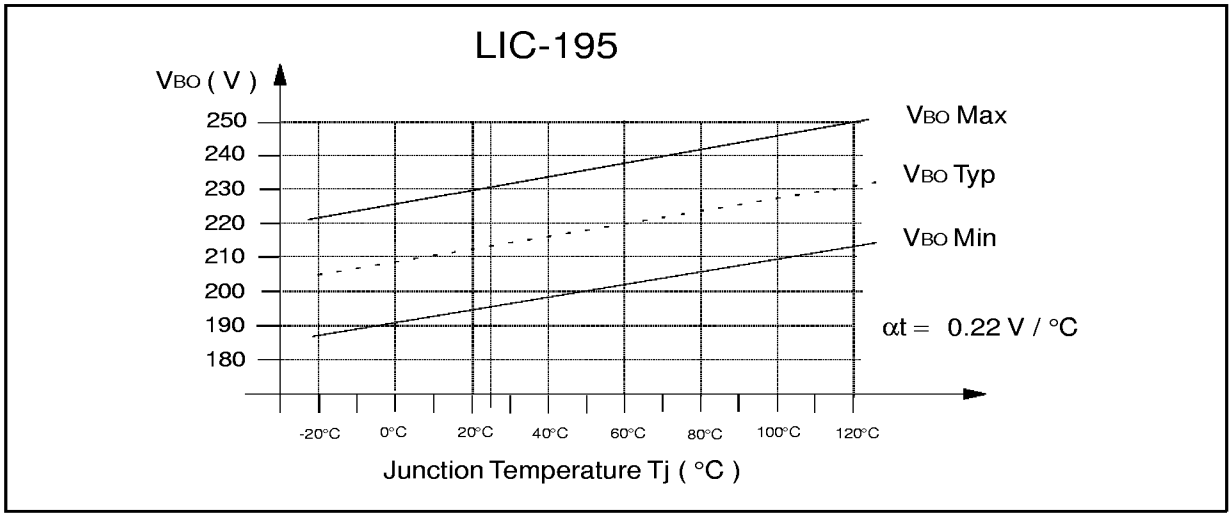




R1 = 1kΩ / 50W (a 220V / 60W bulb can be used)

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

VARIATION OF V_{BO} VERSUS JUNCTION TEMPERATURE



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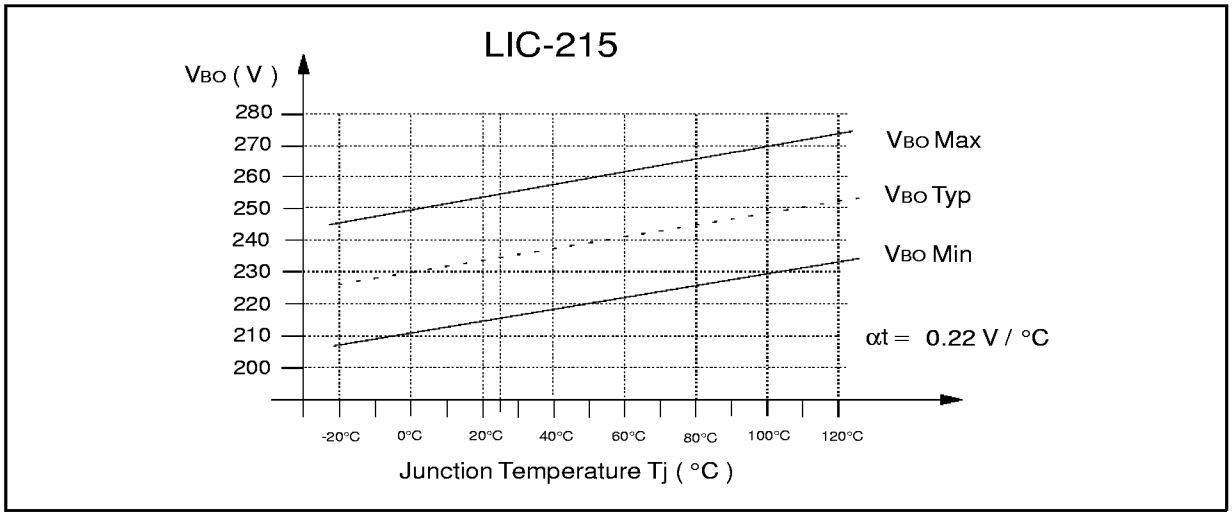
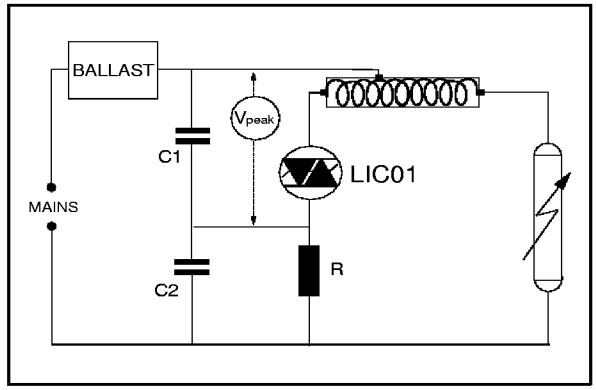
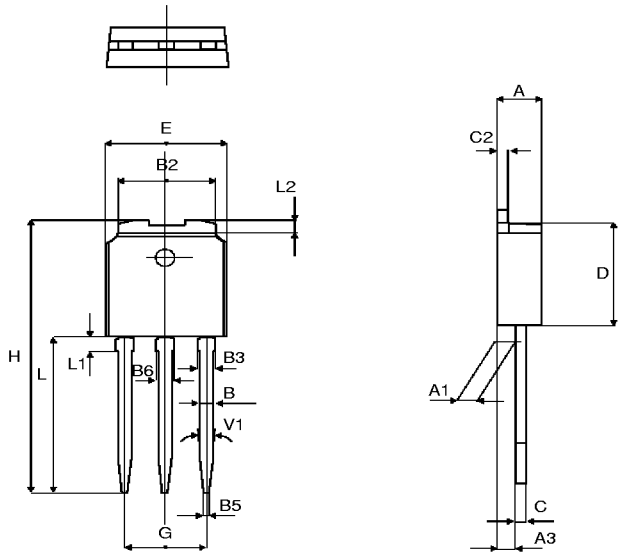


TYPICAL APPLICATION

When the peak voltage across C1 reaches the break over voltage VBO 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)

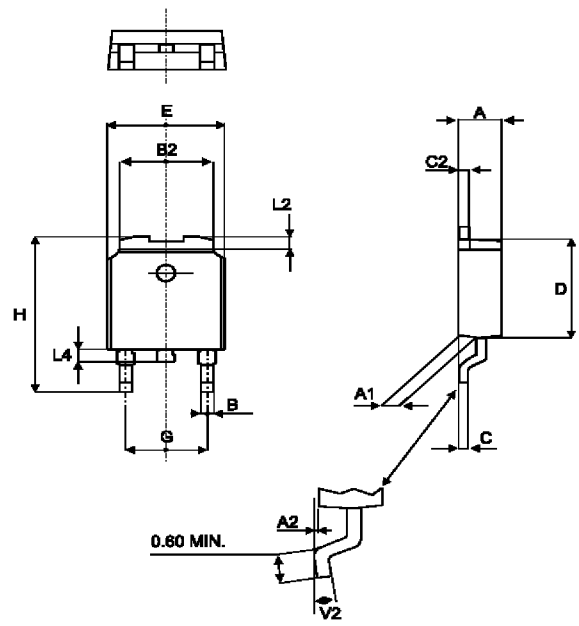


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.035	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039
V1		10°			10°	

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

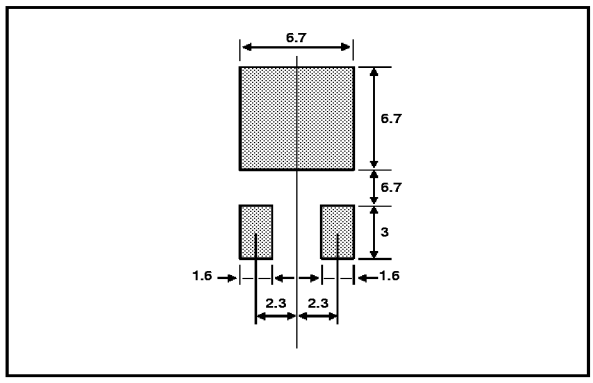
PACKAGE MECHANICAL DATA

DPAK (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.212
C	0.45		0.60	0.017		0.023
C2	0.48		0.60	0.018		0.023
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L2		0.80			0.031	
L4	0.60		1.00	0.023		0.039
V2	0°		8°	0°		8°

FOOT PRINT DIMENSIONS (in millimeters)



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