

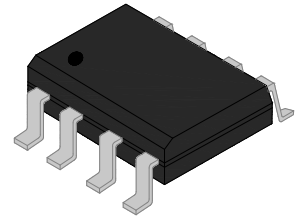


## JIP70xxL1 Triple Element Thyristor Overvoltage Protectors

Rev.2.0

### DESCRIPTION:

JIP70xxL1 series are 3-point overvoltage protectors designed for protecting against metallic (transverse mode) and simultaneous longitudinal (common mode) impulses. Each terminal pair has the same voltage limiting values and surge current capability. These devices are designed to limit overvoltages between signal, data and control port conductors, connected to terminals T1 and T2, and a protective ground, G. Each terminal pair has a symmetrical voltage-triggered bidirectional thyristor characteristic. Overvoltages are initially clipped by breakdown clamping until the voltage rises to the breakover level, which causes the device to crowbar into a low-voltage on state. This low-voltage on state causes the current resulting from the overvoltage to be safely diverted through the device. The device holding current will normally be higher than the available short circuit d.c. system current, causing the protector to switch off as the diverted current subsides.



SOP-8

### FEATURES:

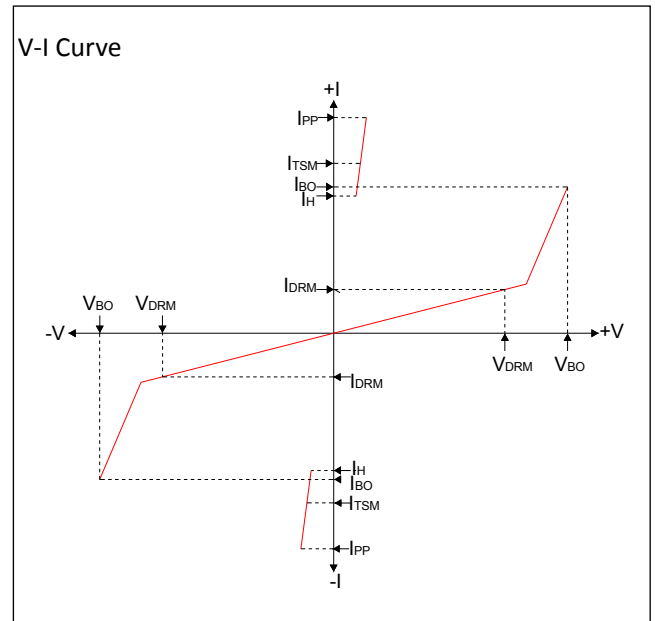
- ✧ Excellent capability of absorbing transient surge.
- ✧ Quick response to surge voltage (ns Level).
- ✧ Eliminates overvoltage caused by fast rising transients.
- ✧ Protection for signal, data and control lines
- ✧ Low capacitance.

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

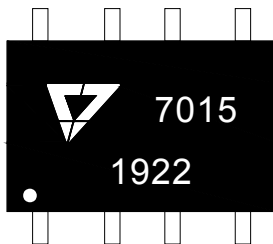
Parameter	Symbol	Value	Unit	
Storage temperature range	T <sub>STG</sub>	-40 to +150	°C	
Operating junction temperature	T <sub>J</sub>	-40 to +150	°C	
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	+/-8 +/-6	kV	
Non-repetitive peak on-state current	I <sub>TSM</sub>	50Hz,full sine wave	8	A
		60Hz,full sine wave	9	
Maximum thermal resistance junction to ambient (P <sub>tot</sub> =0.8W, T <sub>A</sub> =25°C, 5cm <sup>2</sup> , FR4 PCB)	R <sub>θJA</sub>	170	°C/W	

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ ,  $\text{RH}=45\%\sim 75\%$ , unless otherwise noted)

Symbol	Parameter
$V_{\text{DRM}}$	Peak off-state voltage
$I_{\text{DRM}}$	Off-state current
$V_{\text{BO}}$	Breakover voltage
$I_{\text{BO}}$	Breakover current
$I_{\text{TSM}}$	Non-repetitive peak on-state current
$I_{\text{H}}$	Holding current
$C_{\text{KA}}$	Off-state capacitance

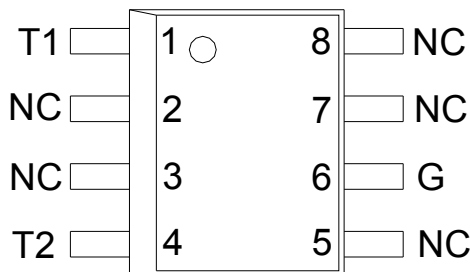


**MARKING**

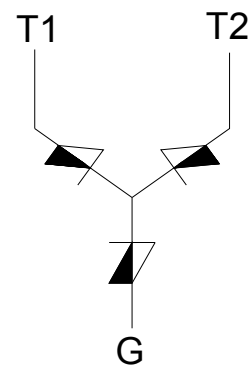


7015: Device marking code  
1922: the 22th week, 2019

**SOP PACKAGE TOP VIEW AND DEVICE SYMBOL**



Package (Top view)



Device symbol

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, continued)

Part Number	I <sub>DRM</sub> @V <sub>DRM</sub>		V <sub>BO</sub> <sup>①</sup>	I <sub>BO</sub> <sup>①</sup>	I <sub>H</sub> <sup>②</sup>	C <sub>KA</sub> <sup>③</sup>	Marking
	μA	V	V	mA	mA	pF	
	max	max	max	max	min	typ	
JIP7015L1	±4	±8	±15	±300	±30	30	7015
JIP7038L1	±4	±28	±38	±300	±30	23	7038

① dv/dt=±250V/ms.R<sub>S</sub>=300Ω

② I<sub>T</sub>=±5A,di/dt=±30mA/ms

③ Off-state capacitance is measured in V<sub>d</sub>=1V<sub>rms</sub>,V<sub>D</sub>=0,f=1MHz

## SURGE RATINGS

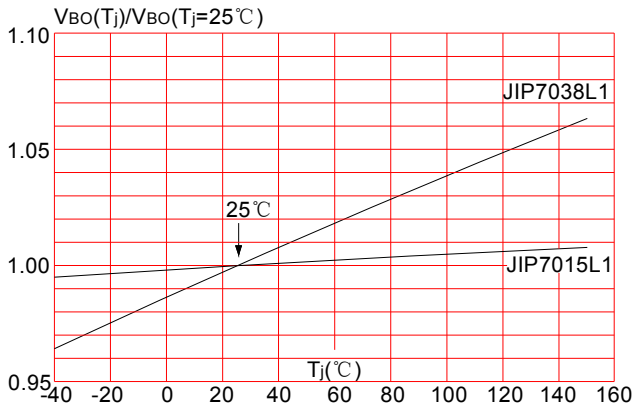
Series	I <sub>PP</sub> (A) min			
	2/10μs	1.2/50-8/20μs	10/700-5/310μs	10/1000μs
JIP70xxL1	200	150	50	30

## ORDERING INFORMATION

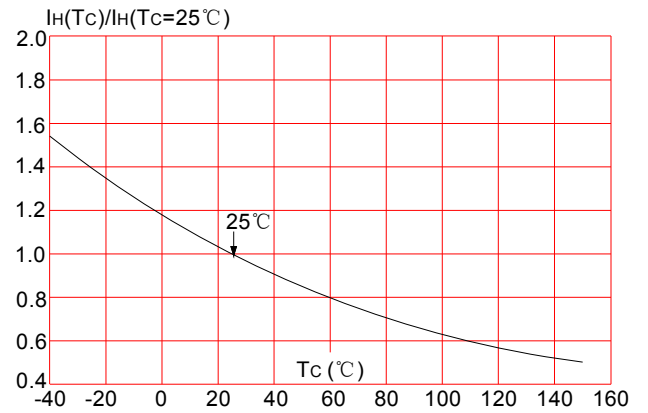
<p><b>J</b></p> <p>JieJie Microelectronics CO. , Ltd</p> <p>Integrated protection device</p>	<p><b>IP</b></p>	<p><b>70xxL1</b></p> <p>Product number</p>
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**RATINGS AND V-I CHARACTERISTICS CURVES** ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

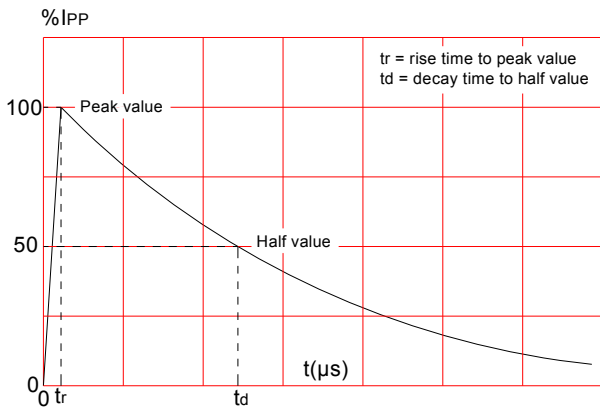
**FIG.1:** Normalized breakover voltage vs. junction temperature



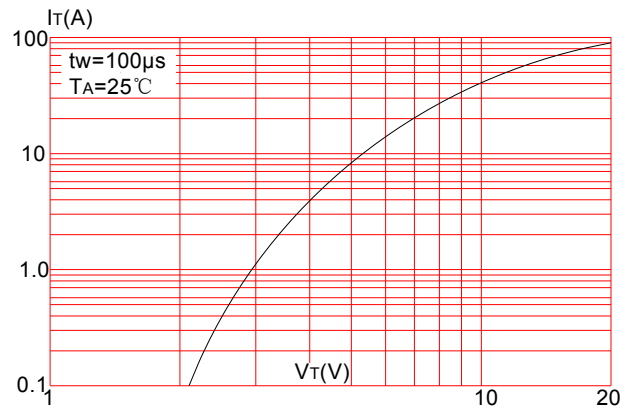
**FIG.2:** Normalized DC holding current vs. case temperature



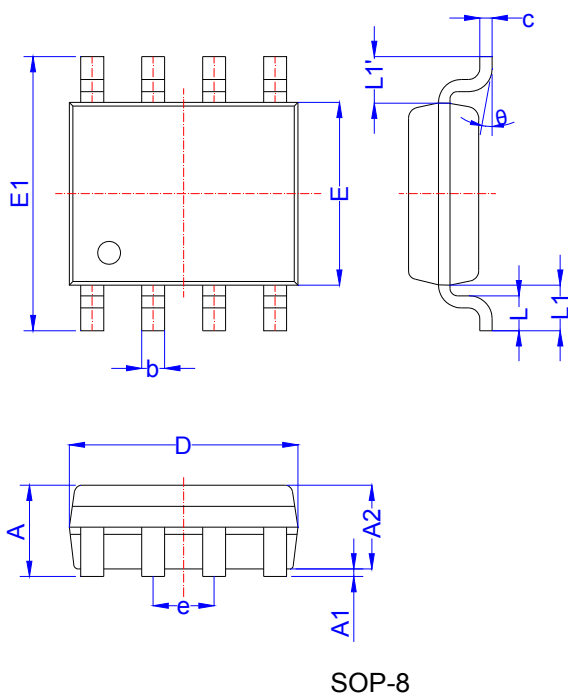
**FIG.3:**  $t_r \times t_d$  pulse waveform



**FIG.4:** On-state current vs. on-state voltage

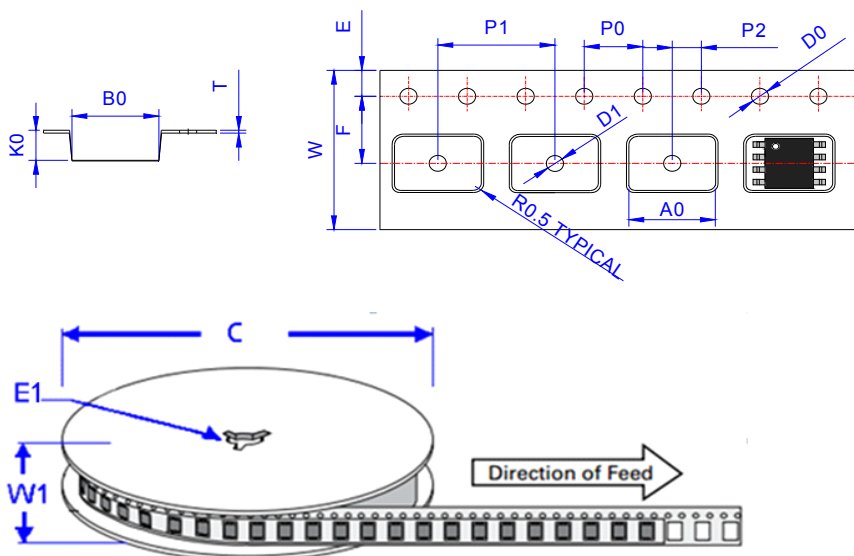


**PACKAGE MECHANICAL DATA**



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.40		1.70	0.055		0.067
A1	0.05		0.15	0.002		0.006
A2	1.35		1.55	0.053		0.061
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.70		5.10	0.185		0.201
E	3.80		4.00	0.150		0.157
E1	5.80		6.20	0.228		0.244
e	1.14	1.27	1.40	0.045	0.050	0.055
L	0.62		0.77	0.024		0.030
L1	1.00	1.10	1.20	0.039	0.043	0.047
L1-L1'			0.12			0.005
θ	0°		8°	0°		8°

TAPE AND REEL SPECIFICATION-SOP-8



Ref.	Dimensions	
	Millimeters	Inches
A0	6.6±0.10	0.260 ± 0.004
B0	5.3±0.10	0.209 ± 0.004
C	330	13.0
D0	1.50±0.10	0.059 + 0.004
D1	1.50±0.10	0.059 + 0.004
E1	13.3±0.3	0.524± 0.012
E	1.75±0.1	0.069± 0.004
F	5.5±0.05	0.217 ± 0.002
K0	2.1±0.1	0.083 ± 0.004
P0	4.0±0.1	0.157± 0.004
P1	8.0±0.1	0.315± 0.004
P2	2.0±0.05	0.079 ± 0.002
T	0.24±0.1	0.009 ± 0.002
W	12.0±0.3	0.472 ± 0.012
W1	15.7±2.0	0.618 ± 0.079


PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
JIP70xxL1	0.077	4,000	64,000	13 inch reel pack

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