

SMLJ Transient Voltage Suppressor Diode Series

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Unidirectional Device		Bidirectional Device		Breakdown Voltage V _{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V _{RWM}	Maximum Clamping Voltage @ I _{pp} (10/1000 μs)	Maximum Peak Pulse Current (10/1000 μs)	Maximum Clamping Voltage @ I _{pp} (8/20 μs)	Maximum Peak Pulse Current (8/20 μs)
Part Number	Part Marking	Part Number	Part Marking	Min.	Max.	@ I _T (mA)	V _{RWM} (V)	I _R (μA)	V _C (V)	I _{pp} (A)	V _C (V)	I _{pp} (A)
SMLJ5.0A	HDE	SMLJ5.0CA	IDE	6.40	7.00	10	5	1000	9.2	326.00	12.00	1630.50
SMLJ6.0A	HDG	SMLJ6.0CA	IDG	6.67	7.37	10	6	1000	10.3	291.30	13.40	1456.50
SMLJ6.5A	HDK	SMLJ6.5CA	IDK	7.22	7.98	10	6.5	500	11.2	267.90	14.60	1339.50
SMLJ7.0A	HDM	SMLJ7.0CA	IDM	7.78	8.60	10	7	200	12	250.00	15.60	1250.00
SMLJ7.5A	HDP	SMLJ7.5CA	IDP	8.33	9.21	1	7.5	100	12.9	232.60	16.80	1163.00
SMLJ8.0A	HDR	SMLJ8.0CA	IDR	8.89	9.83	1	8	50	13.6	220.60	17.70	1103.00
SMLJ8.5A	HDT	SMLJ8.5CA	IDT	9.44	10.4	1	8.5	25	14.4	208.40	18.70	1041.50
SMLJ9.0A	HDV	SMLJ9.0CA	IDV	10.0	11.1	1	9	10	15.4	194.80	20.00	974.00
SMLJ10A	HDX	SMLJ10CA	IDX	11.1	12.3	1	10	5	17	176.40	22.10	882.50
SMLJ11A	HDZ	SMLJ11CA	IDZ	12.2	13.5	1	11	5	18.2	164.80	23.70	824.00
SMLJ12A	HEE	SMLJ12CA	IEE	13.3	14.7	1	12	2	19.9	150.60	25.90	754.00
SMLJ13A	HEG	SMLJ13CA	IEG	14.4	15.9	1	13	2	21.5	139.40	28.00	697.50
SMLJ14A	HEK	SMLJ14CA	IEK	15.6	17.2	1	14	2	23.2	129.40	30.20	646.50
SMLJ15A	HEM	SMLJ15CA	IEM	16.7	18.5	1	15	2	24.4	123.00	31.70	615.00
SMLJ16A	HEP	SMLJ16CA	IEP	17.8	19.7	1	16	2	26	115.40	33.80	577.00
SMLJ17A	HER	SMLJ17CA	IER	18.9	20.9	1	17	2	27.6	106.60	35.90	543.50
SMLJ18A	HET	SMLJ18CA	IET	20.0	22.1	1	18	2	29.2	102.80	38.00	513.50
SMLJ20A	HEV	SMLJ20CA	IEV	22.2	24.5	1	20	2	32.4	92.60	42.10	463.00
SMLJ22A	HEX	SMLJ22CA	IEX	24.4	26.9	1	22	2	35.5	84.40	46.20	422.50
SMLJ24A	HEZ	SMLJ24CA	IEZ	26.7	29.5	1	24	2	38.9	77.20	50.60	385.50
SMLJ26A	HFE	SMLJ26CA	IFE	28.9	31.9	1	26	2	42.1	71.20	54.70	356.50
SMLJ28A	HFG	SMLJ28CA	IFG	31.1	34.4	1	28	2	45.4	66.00	59.00	330.50
SMLJ30A	HFK	SMLJ30CA	IFK	33.3	36.8	1	30	2	48.4	62.00	62.90	310.00
SMLJ33A	HFM	SMLJ33CA	IFM	36.7	40.6	1	33	2	53.3	56.20	69.30	281.50
SMLJ36A	HFP	SMLJ36CA	IFP	40	44.2	1	36	2	58.1	51.60	75.50	258.00
SMLJ40A	HFR	SMLJ40CA	IFR	44.4	49.1	1	40	2	64.5	46.40	83.90	232.50
SMLJ43A	HFT	SMLJ43CA	IFT	47.8	52.8	1	43	2	69.4	43.20	90.20	216.00
SMLJ45A	HFV	SMLJ45CA	IFV	50	55.3	1	45	2	72.7	41.20	94.50	206.50
SMLJ48A	HFX	SMLJ48CA	IFX	53.3	58.9	1	48	2	77.4	38.80	100.60	194.00
SMLJ51A	HFZ	SMLJ51CA	IFZ	56.7	62.7	1	51	2	82.4	36.40	107.10	182.00
SMLJ54A	HGE	SMLJ54CA	IGE	60	66.3	1	54	2	87.1	34.40	113.20	172.00
SMLJ58A	HGG	SMLJ58CA	IGG	64.4	71.2	1	58	2	93.6	32.00	121.70	160.50
SMLJ60A	HGK	SMLJ60CA	IGK	66.7	73.7	1	60	2	96.8	31.00	125.80	155.00
SMLJ64A	HGM	SMLJ64CA	IGM	71.1	78.6	1	64	2	103	29.20	133.90	145.50
SMLJ70A	HGP	SMLJ70CA	IGP	77.8	86.0	1	70	2	113	26.60	146.90	132.50
SMLJ75A	HGR	SMLJ75CA	IGR	83.3	92.1	1	75	2	121	24.80	157.30	124.00
SMLJ78A	HGT	SMLJ78CA	IGT	86.7	95.8	1	78	2	126	22.80	163.80	119.00
SMLJ85A	HGV	SMLJ85CA	IGV	94.4	104	1	85	2	137	20.80	178.10	109.50
SMLJ90A	HGX	SMLJ90CA	IGX	100	111	1	90	2	146	20.60	189.80	102.50
SMLJ100A	HGZ	SMLJ100CA	IGZ	111	123	1	100	2	162	18.60	210.60	92.50
SMLJ110A	HHE	SMLJ110CA	IHE	122	135	1	110	2	177	16.80	230.10	84.50
SMLJ120A	HHG	SMLJ120CA	IHG	133	147	1	120	2	193	15.60	250.90	77.50
SMLJ130A	HHH	SMLJ130CA	IHH	144	159	1	130	2	209	14.40	271.70	72.00
SMLJ150A	HHM	SMLJ150CA	IHM	167	185	1	150	2	243	12.40	315.90	61.50
SMLJ160A	HHP	SMLJ160CA	IHP	178	197	1	160	2	259	11.60	336.70	58.00
SMLJ170A	HHR	SMLJ170CA	IHR	189	209	1	170	2	275	11.00	357.50	54.50

Notes:

1. Suffix 'A' denotes a 5 % tolerance unidirectional device.
2. Suffix 'CA' denotes a 5 % tolerance bidirectional device.
3. For bidirectional devices with a V_R of 10 volts or less, the I_R limit is double.

Specifications are subject to change without notice.

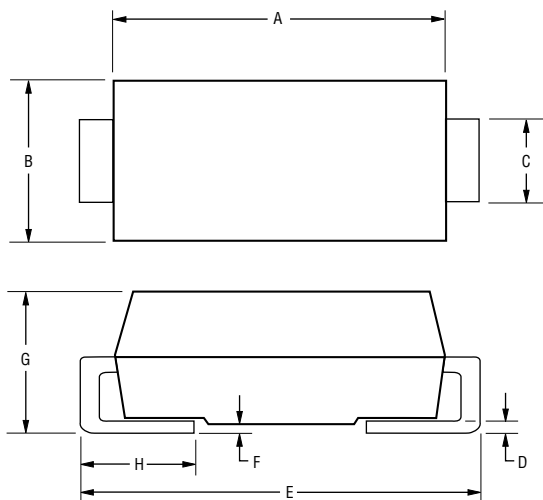
Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

SMLJ Transient Voltage Suppressor Diode Series



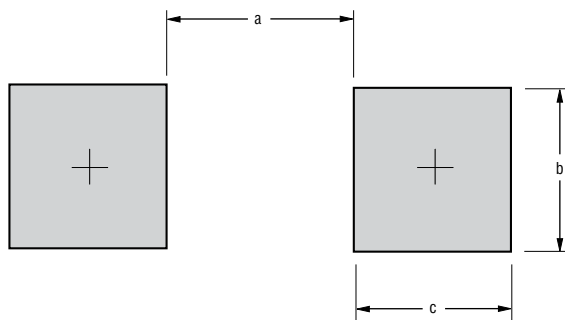
Product Dimensions



Dimension	SMC (DO-214AB)
A	$\frac{6.60 - 7.11}{(0.260 - 0.280)}$
B	$\frac{5.59 - 6.22}{(0.220 - 0.245)}$
C	$\frac{2.90 - 3.20}{(0.114 - 0.126)}$
D	$\frac{0.15 - 0.31}{(0.006 - 0.012)}$
E	$\frac{7.75 - 8.13}{(0.305 - 0.320)}$
F	$\frac{0.05 - 0.20}{(0.002 - 0.008)}$
G	$\frac{2.00 - 2.62}{(0.079 - 0.103)}$
H	$\frac{0.76 - 1.52}{(0.030 - 0.060)}$

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Recommended Footprint



Dimension	SMC (DO-214AB)
a (Max.)	$\frac{4.69}{(0.185)}$
b (Min.)	$\frac{3.07}{(0.121)}$
c (Min.)	$\frac{1.52}{(0.060)}$

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Physical Specifications

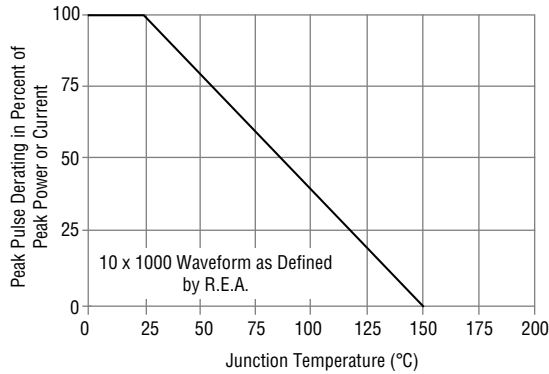
Case Molded plastic per UL Class 94V-0
 Polarity.....Cathode band indicates unidirectional device
 No cathode band indicates bidirectional device

SMLJ Transient Voltage Suppressor Diode Series

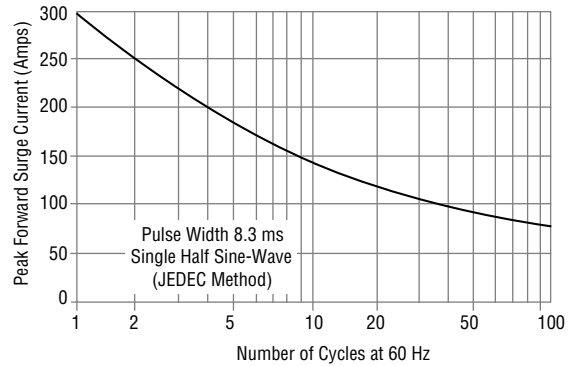


Rating & Characteristic Curves

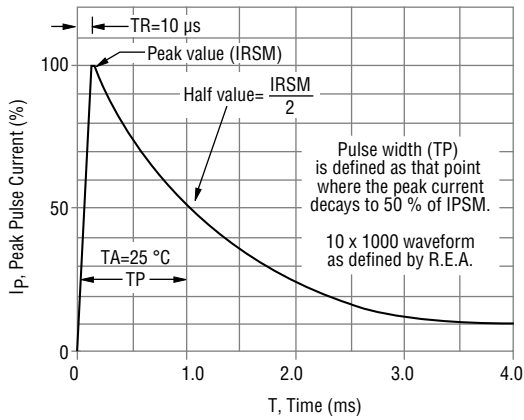
Pulse Derating Curve



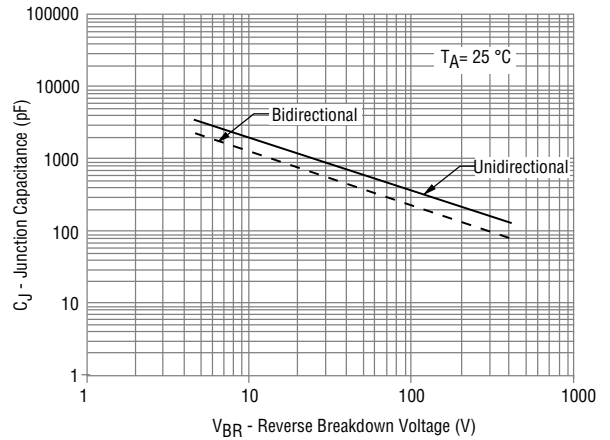
Maximum Non-Repetitive Surge Current



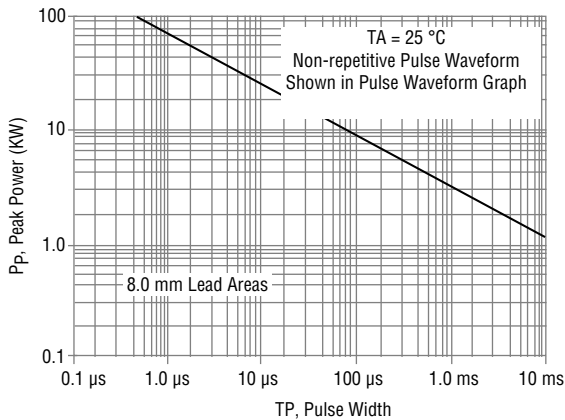
Pulse Waveform



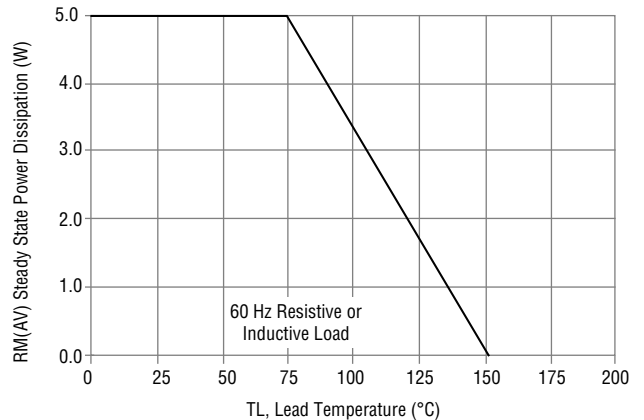
Typical Junction Capacitance



Pulse Rating Curve



Steady State Power Derating Curve



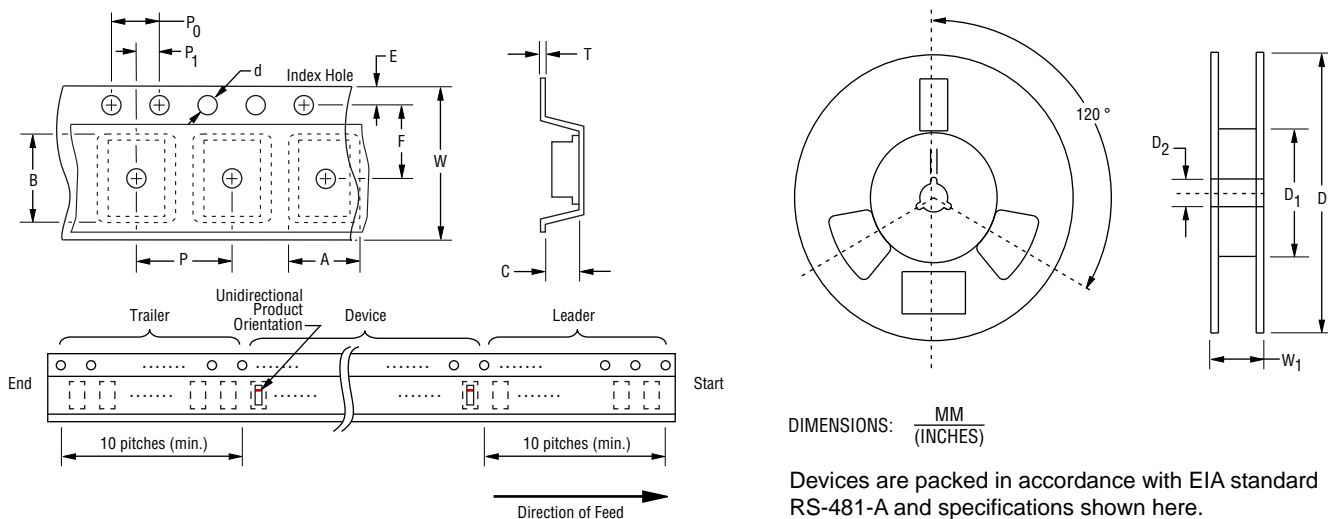
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

SMLJ Transient Voltage Suppressor Diode Series

BOURNS®

Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



Item	Symbol	SMC (DO-214AB)	
		7 Inch Reel	13 Inch Reel
Carrier Width	A	$\frac{6.0 \pm 2.0}{(0.236 - 0.079)}$	
Carrier Length	B	$\frac{8.3 \pm 0.20}{(0.327 \pm 0.008)}$	
Carrier Depth	C	$\frac{2.5 \pm 0.20}{(0.098 \pm 0.008)}$	
Sprocket Hole	d	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$	
Reel Outside Diameter	D	$\frac{178}{(7.008)}$	$\frac{330}{(12.992)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.	
Feed Hole Diameter	D ₂	$\frac{13.0 + 0.50/-0.20}{(0.512 + 0.020/-0.008)}$	
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$	
Punch Hole Position	F	$\frac{7.50 \pm 0.10}{(0.295 \pm 0.004)}$	
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$	
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	
Embossment Center	P ₁	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$	
Overall Tape Thickness	T	$\frac{0.30 \pm 0.10}{(0.012 \pm 0.004)}$	
Tape Width	W	$\frac{16.00 \pm 0.30}{(0.630 \pm 0.012)}$	
Reel Width	W ₁	$\frac{22.4}{(0.882)}$ MAX.	
Quantity per Reel	--	500	3,000

REV. 02/21

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain "typical" applications are based on Bourns' knowledge of typical requirements in generic applications. Bourns assumes that "typical" applications include failsafe/backup features to address critical risks to users and are designed to allow rework of Bourns® product to avoid scrap of a device solely due to malfunctioning Bourns® product. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Thus, users should always verify the actual performance of the Bourns® product in their specific devices and applications and make their own independent judgments regarding the suitability of Bourns® product and the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real-world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., IATF 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification even if such industry standard or qualification is a "state of art". Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage, such as without limitation nuclear, life-critical medical and certain automotive and aviation applications. Except as set forth in the bullet points below or unless expressly and specifically approved in writing on a case-by-case basis by an authorized Bourns' representative, use of any Bourns® products in such unauthorized high-risk applications is at the user's sole risk.

- Bourns considers implantable/invasive devices and devices/procedures designed as life-supporting or life-sustaining by the U.S. Food and Drug Administration or equivalent organizations outside of the United States as "life-critical" medical applications. Bourns expressly identifies those Bourns® standard products that are suitable for use in typical medical applications that are not life-critical in its publication entitled "Bourns Medical Grade Component Guide."
- Bourns expressly identifies those Bourns® standard products that are suitable for use in typical automotive applications associated with any Automate Safety Integrity Level (ASIL) in its publication entitled "Bourns Automotive Grade Component Guide." Bourns' designation of Bourns® product as compliant with the AEC-Q standard does not by itself mean that Bourns has approved such product for use in an automotive application.
- Bourns expressly identifies Bourns® standard products that are suitable for use in the typical aviation applications/systems requiring System Design Assurance Level (RTCA DO-254 DAL) of C, D or E in its publication entitled "Bourns Civilian Aerospace/Aviation Grade Component Guide." Bourns does not test its products for compliance with United States Federal Aviation Administration standards or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aviation applications. Use of Bourns® standard components in aviation applications associated with RTCA DO-254 DAL A or B without proper approval noted above shall be at the user's sole risk.
- Bourns will review and authorize on a case-by-case basis the use of Bourns® standard products which are at least AEC-Q compliant in space-related civil applications (rockets, satellites) with a negotiated cross-waiver and indemnity agreement.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Use of Bourns® products or Bourns' technology in military/defense applications must be reviewed with Bourns for compliance with applicable export control laws and embargoes. Users shall not sell, transfer, export or re-export (which includes transfers within a country) any Bourns® products or technology or technical data for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology or technical data in any facility which engages in activities relating to such devices. Further, Bourns® products and Bourns' technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products and technology may not, without prior authorization from Bourns and/or the Government of a country where such product/technology is designed and/or manufactured, be resold, transferred, or re-exported (including within the same country) to any party not eligible to receive commodities, software, and technical data originating in such country.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties (those not based on parameters specified in Bourns' data sheets and/or specifications), including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <https://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <https://www.bourns.com/docs/Legal/disclaimer.pdf>