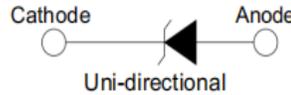


1500W Surface Mount Transient Voltage Suppressors



DO-214AB (SMC)



1.5SMCXX

DO-214AB(SMC)
Surface Mount Package
RoHS compliant

FEATURES:

1. Peak power dissipation 1500W @10 x 1000 us Pulse
2. Low profile package
3. Excellent clamping capability
4. Glass passivated junction
5. Fast response time: typically less than 1ps from 0 Volts to BV min
6. Typical I_R less than 1uA when VBR min above 12V
7. IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
8. ESD protection of data lines in accordance with IEC 61000-4-2
9. EFT protection of data lines in accordance with IEC 61000-4-4
10. RoHS compliant
11. Lead-free finish

APPLICATION: Protection of I/O Interfaces, VCC bus and other vulnerable circuits used in telecom, computer, Industrial and consumer electronic applications

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, FIG.1)	P_{PPM}	Min 1500	W
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	P_D	6.5	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	I_{PPM}	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2)	I_{FSM}	200	A
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

Notes:

- 1). Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2.
- 2). Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only. terminal.



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ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RMW}
(Uni)	(Bi)	V _{RMW} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
1.5SMC6.8A	1.5SMC6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000
1.5SMC7.5A	1.5SMC7.5CA	6.40	7.13	7.88	10	11.3	134.5	500
1.5SMC8.2A	1.5SMC8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5SMC9.1A	1.5SMC9.1CA	7.78	8.65	9.55	1	13.4	113.4	50
1.5SMC10A	1.5SMC10CA	8.55	9.50	10.50	1	14.5	104.8	10
1.5SMC11A	1.5SMC11CA	9.40	10.50	11.60	1	15.6	97.4	5
1.5SMC12A	1.5SMC12CA	10.20	11.40	12.60	1	16.7	91.0	5
1.5SMC13A	1.5SMC13CA	11.10	12.40	13.70	1	18.2	83.5	1
1.5SMC15A	1.5SMC15CA	12.80	14.30	15.80	1	21.2	71.7	1
1.5SMC16A	1.5SMC16CA	13.60	15.20	16.80	1	22.5	67.6	1
1.5SMC18A	1.5SMC18CA	15.30	17.10	18.90	1	25.2	60.3	1
1.5SMC20A	1.5SMC20CA	17.10	19.00	21.00	1	27.7	54.9	1
1.5SMC22A	1.5SMC22CA	18.80	20.90	23.10	1	30.6	49.7	1
1.5SMC24A	1.5SMC24CA	20.50	22.80	25.20	1	33.2	45.8	1
1.5SMC27A	1.5SMC27CA	23.10	25.70	28.40	1	37.5	40.5	1
1.5SMC30A	1.5SMC30CA	25.60	28.50	31.50	1	41.4	36.7	1
1.5SMC33A	1.5SMC33CA	28.20	31.40	34.70	1	45.7	33.3	1
1.5SMC36A	1.5SMC36CA	30.80	34.20	37.80	1	49.9	30.5	1
1.5SMC39A	1.5SMC39CA	33.30	37.10	41.00	1	53.9	28.2	1
1.5SMC43A	1.5SMC43CA	36.80	40.90	45.20	1	59.3	25.6	1
1.5SMC47A	1.5SMC47CA	40.20	44.70	49.40	1	64.8	23.5	1
1.5SMC51A	1.5SMC51CA	43.60	48.50	53.60	1	70.1	21.7	1
1.5SMC56A	1.5SMC56CA	47.80	53.20	58.80	1	77.0	19.7	1
1.5SMC62A	1.5SMC62CA	53.00	58.90	65.10	1	85.0	17.9	1
1.5SMC68A	1.5SMC68CA	58.10	64.60	71.40	1	92.0	16.5	1
1.5SMC75A	1.5SMC75CA	64.10	71.30	78.80	1	103.0	14.8	1
1.5SMC82A	1.5SMC82CA	70.10	77.90	86.10	1	113.0	13.5	1
1.5SMC91A	1.5SMC91CA	77.80	86.50	95.50	1	125.0	12.2	1
1.5SMC100A	1.5SMC100CA	85.50	95.00	105.00	1	137.0	11.1	1
1.5SMC110A	1.5SMC110CA	94.00	105.00	116.00	1	152.0	10.0	1
1.5SMC120A	1.5SMC120CA	102.00	114.00	126.00	1	165.0	9.2	1
1.5SMC130A	1.5SMC130CA	111.00	124.00	137.00	1	179.0	8.5	1
1.5SMC150A	1.5SMC150CA	128.00	143.00	158.00	1	207.0	7.3	1
1.5SMC160A	1.5SMC160CA	136.00	152.00	168.00	1	219.0	6.9	1
1.5SMC170A	1.5SMC170CA	145.00	162.00	179.00	1	234.0	6.5	1

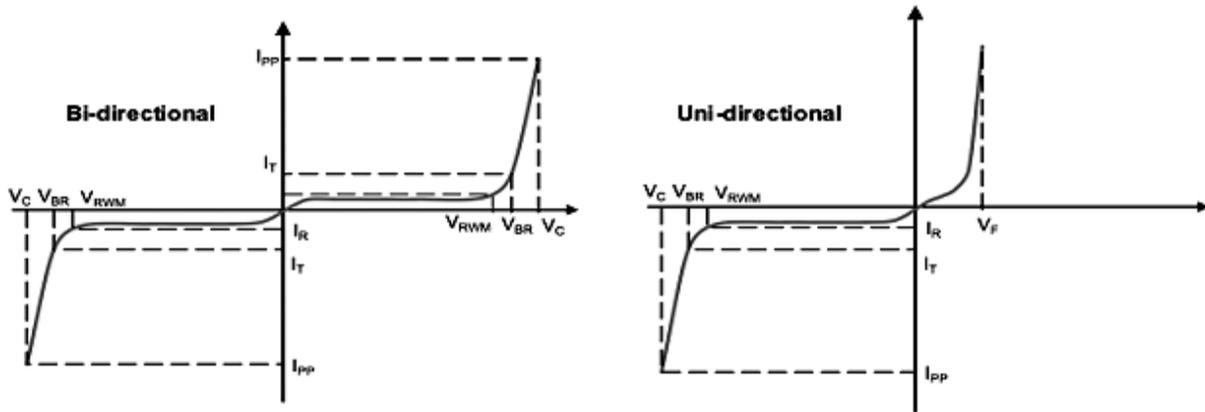
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ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
(Uni)	(Bi)	V _{RWM} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
1.5SMC180A	1.5SMC180CA	154.00	171.00	189.00	1	246.0	6.2	1
1.5SMC200A	1.5SMC200CA	171.00	190.00	210.00	1	274.0	5.5	1
1.5SMC220A	1.5SMC220CA	185.00	209.00	231.00	1	328.0	4.6	1
1.5SMC250A	1.5SMC250CA	214.00	237.00	263.00	1	344.0	4.4	1
1.5SMC300A	1.5SMC300CA	256.00	285.00	315.00	1	414.0	3.7	1
1.5SMC350A	1.5SMC350CA	300.00	332.00	368.00	1	482.0	3.2	1
1.5SMC400A	1.5SMC400CA	342.00	380.00	420.00	1	548.0	2.8	1
1.5SMC440A	1.5SMC440CA	376.00	418.00	462.00	1	602.0	2.5	1
1.5SMC480A	1.5SMC480CA	408.00	456.00	504.00	1	658.0	2.3	1
1.5SMC510A	1.5SMC510CA	434.00	485.00	535.00	1	698.0	2.2	1
1.5SMC530A	1.5SMC530CA	451.00	503.50	556.50	1	725.0	2.1	1
1.5SMC540A	1.5SMC540CA	460.00	513.00	567.00	1	740.0	2.1	1
1.5SMC550A	1.5SMC550CA	468.00	522.50	577.50	1	760.0	2.0	1
1.5SMC600A	1.5SMC600CA	512.00	570.00	630.00	1	828.0	1.8	1

* For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double.

CURVE CHARACTERISTICS



- P_{PPM}: Peak Pulse Power Dissipation - Max power dissipation
- V_{RWM}: Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- V_{BR}: Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current (IT)
- V_C: Clamping Voltage – Peak voltage measured across the TVS at a specified IPPM (peak impulse current)
- I_R: Reverse Leakage Current – Current measured at VR
- V_F: Forward Voltage Drop for Uni-directional

TYPICAL CHARACTERISTICS CURVES

Fig 1: Peak Pulse Power Rating

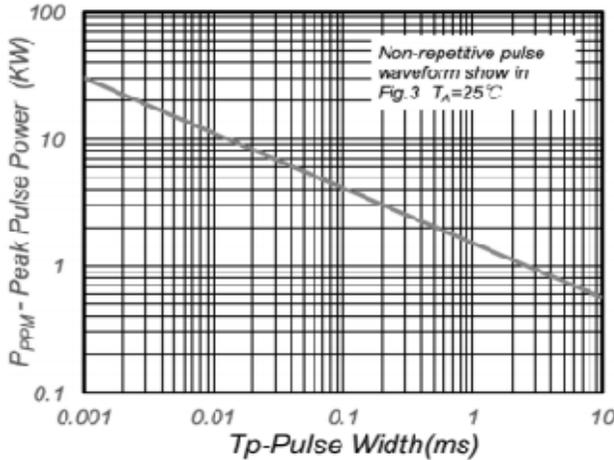


Fig 2: Pulse Derating Curves

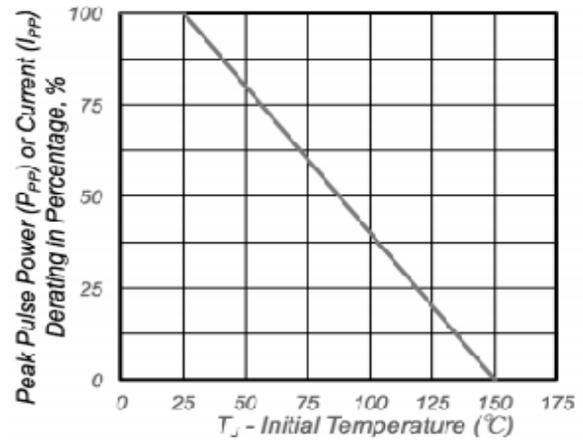


Fig 3: Pulse Waveform

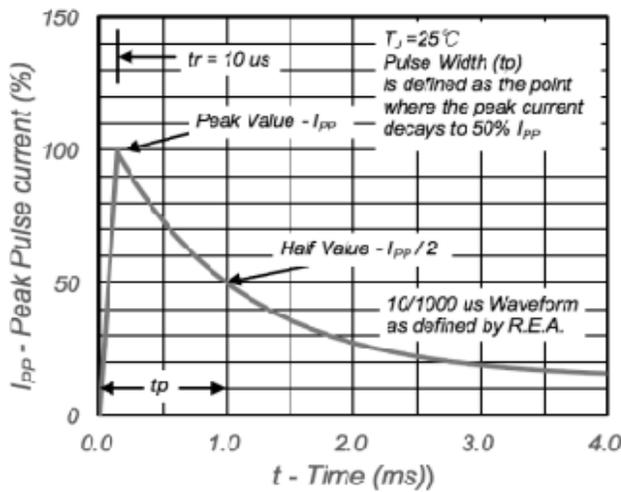
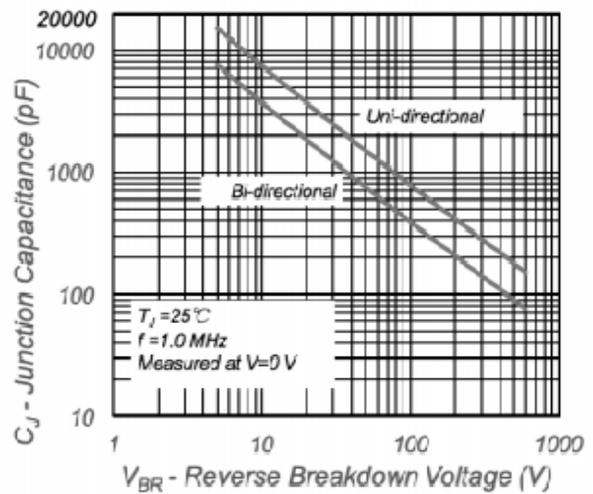
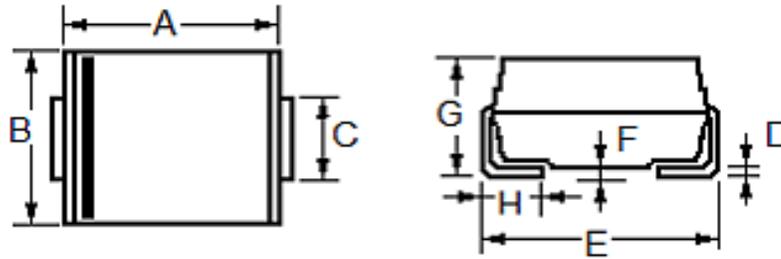


Fig 4: Typical Junction Capacitance



PACKAGE DETAIL

DO-214AB (SMC) Surface Mount Plastic Package



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	6.60	7.11	0.260	0.280
B	5.59	6.22	0.220	0.245
C	2.90	3.20	0.114	0.126
D	0.125	0.305	0.006	0.012
E	7.75	8.13	0.305	0.320
F	---	0.203	---	0.008
G	2.06	2.62	0.079	0.103
H	0.76	1.52	0.030	0.060



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Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH

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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



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