

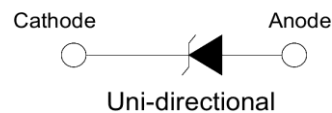
3000 WATT TVS SUPPRESSORS – 5.0V ~ 220V

DESCRIPTION:



The 3.0ALPSMCJXXA/CA (UNI/BI) Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

The 3.0ALPSMCJXXA/CA Series has a peak pulse power rating of 3000 Watts for an 10/1000 μ s waveshape.



FEATURES:

- 3000W peak pulse power capacity with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time from 0V to VBR, typically less than 1 ps for uni-directional & 5 ns for bi-directional types.
- Glass passivated chip junction in DO-214AB(SMC) package.
- Lead-free parts meet RoHS requirements.
- Suffix “-H” indicates Halogen-free part, ex. 3.0ALPSMCJ5.0A-H.

APPLICATIONS:

- TVS components are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

MECHANICAL CHARACTERISTICS

- Epoxy: UL94-V0 rated flame retardant.
- Case: Molded plastic, DO-214AB / SMC-F.
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Mounting Position: Any.
- Approximate Weight: 0.23 grams.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Operating Junction Temperature range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature range	T_{STG}	-55 to 150	$^\circ\text{C}$
Maximum instantaneous forward voltage at 100A for uni-directional types only, Note 4	V_F	3.5/5.0	V
Peak Pulse Power Dissipation with 10/1000 μs waveform, (Fig.1) (Note 1, 2)	P_{PPM}	3000	W
Peak Pulse current with a 10/1000 μs Waveform	I_{PPM}	See Table 1	A
Steady State Power Dissipation at $T_L=75^\circ\text{C}$, Note 2	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	300	A

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_J (initial) $=25^\circ\text{C}$ per Fig. 2.
2. Mounted on copper pad area of 0.31"x0.31" (8,0x8.0mm) per Fig 5
3. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
4. $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$.

TYPICAL ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified							
PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE @ I_{PP}		MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
		MIN	MAX		V_C VOLTS	@ I_{PP} AMPS	
3.0ALPSMCJ5.0A / CA	5.0	6.40	7.00	10	9.2	326.1	800
3.0ALPSMCJ6.0A / CA	6.0	6.67	7.37	10	10.3	291.3	800
3.0ALPSMCJ6.5A / CA	6.5	7.22	7.98	10	11.2	267.9	500
3.0ALPSMCJ7.0A / CA	7.0	7.78	8.60	10	12.0	250.0	200
3.0ALPSMCJ7.5A / CA	7.5	8.33	9.21	1	12.9	232.6	100
3.0ALPSMCJ8.0A / CA	8.0	8.89	9.83	1	13.6	220.6	50
3.0ALPSMCJ8.5A / CA	8.5	9.44	10.40	1	14.4	208.3	10
3.0ALPSMCJ9.0A / CA	9.0	10.00	11.10	1	15.4	194.8	5
3.0ALPSMCJ10A / CA	10.0	11.10	12.30	1	17.0	176.5	5
3.0ALPSMCJ11A / CA	11.0	12.20	13.50	1	18.2	164.8	1
3.0ALPSMCJ12A / CA	12.0	13.30	14.70	1	19.9	150.8	1
3.0ALPSMCJ13A / CA	13.0	14.40	15.90	1	21.5	139.5	1
3.0ALPSMCJ14A / CA	14.0	15.60	17.20	1	23.2	129.3	1
3.0ALPSMCJ15A / CA	15.0	16.70	18.50	1	24.4	122.9	1
3.0ALPSMCJ16A / CA	16.0	17.80	19.70	1	26.0	115.4	1
3.0ALPSMCJ17A / CA	17.0	18.90	20.90	1	27.6	108.7	1
3.0ALPSMCJ18A / CA	18.0	20.00	22.10	1	29.2	102.7	1
3.0ALPSMCJ20A / CA	20.0	22.20	24.50	1	32.4	92.6	1
3.0ALPSMCJ22A / CA	22.0	24.40	26.90	1	35.5	84.5	1
3.0ALPSMCJ24A / CA	24.0	26.70	29.50	1	38.9	77.1	1
3.0ALPSMCJ26A / CA	26.0	28.90	31.90	1	42.1	71.2	1
3.0ALPSMCJ28A / CA	28.0	31.10	34.40	1	45.4	66.1	1
3.0ALPSMCJ30A / CA	30.0	33.30	36.80	1	48.4	62.0	1
3.0ALPSMCJ33A / CA	33.0	36.70	40.60	1	53.3	56.3	1
3.0ALPSMCJ36A / CA	36.0	40.00	44.20	1	58.17	51.6	1
3.0ALPSMCJ40A / CA	40.0	44.40	49.10	1	64.5	46.5	1
3.0ALPSMCJ43A / CA	43.0	47.80	52.80	1	69.4	43.2	1
3.0ALPSMCJ45A / CA	45.0	50.0	55.30	1	72.7	41.2	1

PART NUMBER (Notes 1-2)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE @ I_{PP}		MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
		MIN	MAX		V_C VOLTS	@ I_{PP} AMPS	
3.0ALPSMCJ48A / CA	48.0	53.30	58.90	1	77.4	38.7	1
3.0ALPSMCJ51A / CA	51.0	56.70	62.70	1	82.4	36.4	1
3.0ALPSMCJ54A / CA	54.0	60.00	66.30	1	87.1	34.4	1
3.0ALPSMCJ58A / CA	58.0	64.40	71.20	1	93.6	32.1	1
3.0ALPSMCJ60A / CA	60.0	66.70	73.70	1	96.8	31.0	1
3.0ALPSMCJ64A / CA	64.0	71.10	78.60	1	103.0	29.1	1
3.0ALPSMCJ70A / CA	70.0	77.80	86.00	1	113.0	26.5	1
3.0ALPSMCJ75A / CA	75.0	83.30	92.10	1	121.0	24.8	1
3.0ALPSMCJ78A / CA	78.0	86.70	95.80	1	126.0	23.8	1
3.0ALPSMCJ85A / CA	85.0	94.40	104.00	1	137.0	21.9	1
3.0ALPSMCJ90A / CA	90.0	100.00	111.00	1	146.0	20.5	1
3.0ALPSMCJ100A / CA	100.0	111.00	123.00	1	162.0	18.5	1
3.0ALPSMCJ110A / CA	110.0	122.00	135.00	1	177.0	16.9	1
3.0ALPSMCJ120A / CA	120.0	133.00	147.00	1	193.0	15.5	1
3.0ALPSMCJ130A / CA	130.0	144.00	159.00	1	209.0	14.3	1
3.0ALPSMCJ140A / CA	140.0	155.00	171.00	1	226.8	12.3	1
3.0ALPSMCJ150A / CA	150.0	167.00	185.00	1	243.0	11.5	1
3.0ALPSMCJ170A / CA	170.0	189.00	209.00	1	275.0	10.9	1
3.0ALPSMCJ180A / CA	180.0	200.00	220.00	1	291.6	10.2	1
3.0ALPSMCJ200A / CA	200.0	224.00	247.00	1	324.0	9.2	1
3.0ALPSMCJ220A / CA	220.0	246.00	272.00	1	356.0	8.4	1

NOTE:

1. V_{BR} measured after I_T applied for 300us, I_T =square wave pulse or equivalent.
2. Surge current waveform per Fig. 3 and derated per Fig. 2
3. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
4. Part numbers with "CA" suffix are bidirectional devices, i.e., 3.0ALPSMCJ220CA
5. For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double.
6. All term and symbols are consistent with ANS/IEEE C62.35
7. Transient Voltage Suppressors (TVS) are devices used to protect vulnerable circuits from electrical overstress such as electrostatic discharge, inductive load switching and induced lightning. Within the TVS, damaging voltage pikes are limited by clamping or avalanche action of a rugged silicon pn junction which reduces the amplitude of the transient to a nondestructive level. See Fig. 7 & Fig. 8

TYPICAL DEVICE CHARACTERISTICS CURVES

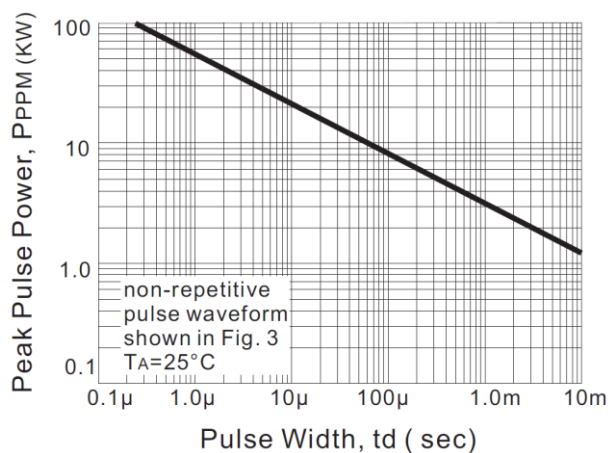


Fig1. PEAK PULSE POWER RATING CURVE

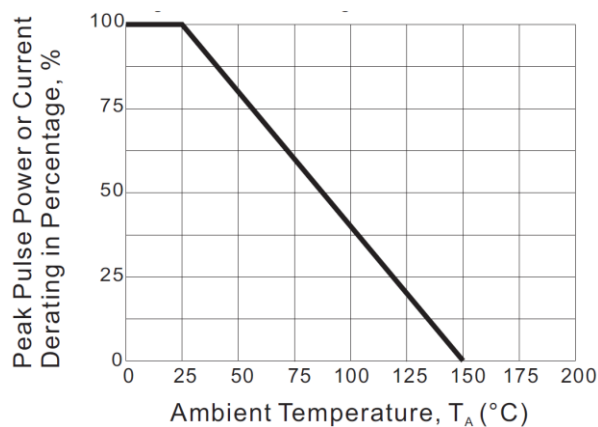


Fig2. PULSE DERATING CURVE

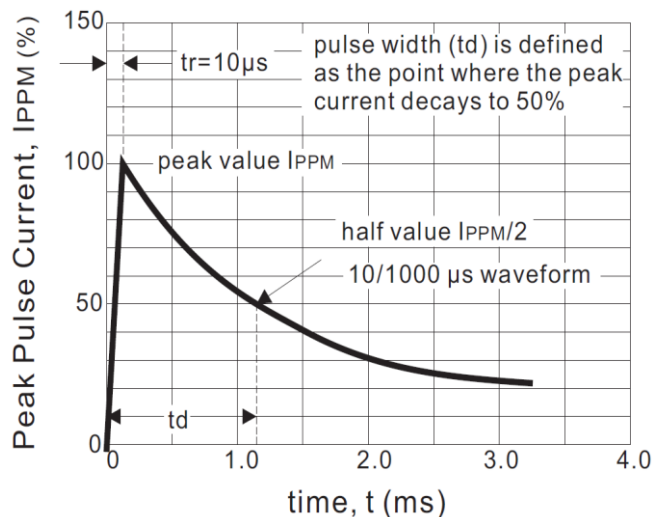


Fig3. PULSE WAVEFORM

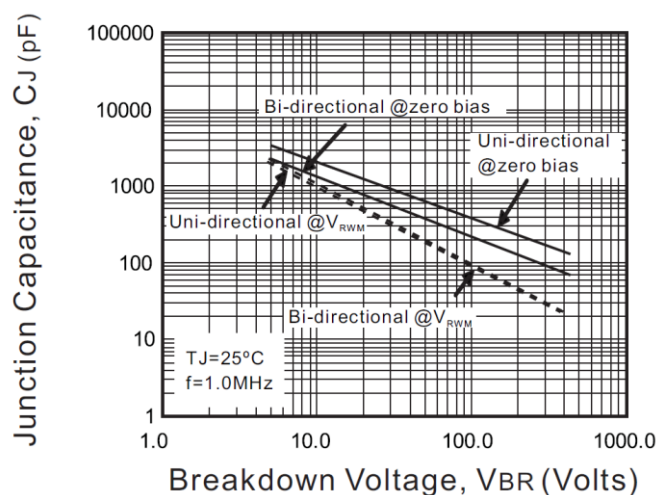


Fig4. TYPICAL JUNCTION CAPACITANCE

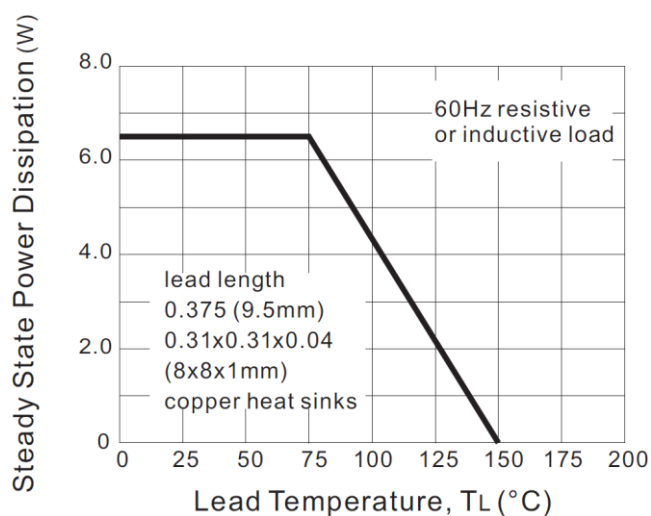


Fig5. STEADY STATE POWER DERATING CURVE

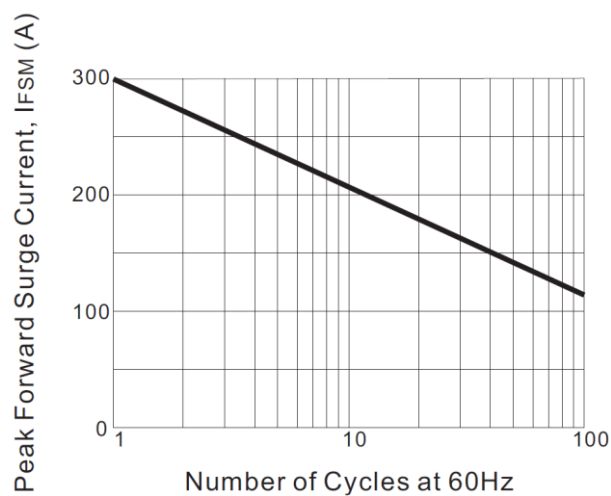


Fig.6 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

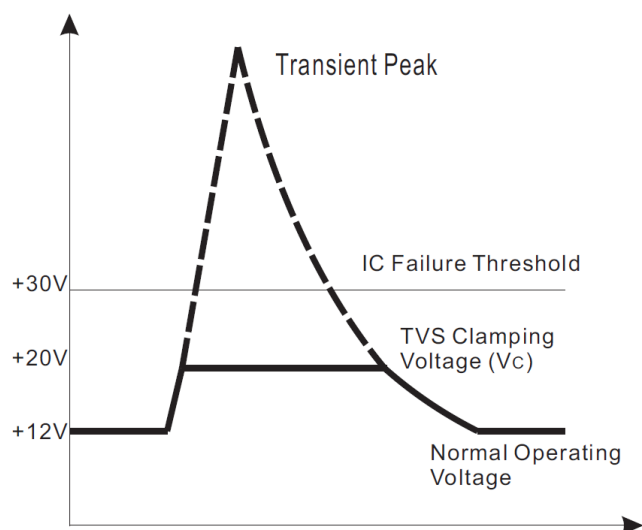


Fig.7 TRANSIENTS OF SEVERAL THOUSAND VOLTS CAN BE CLAMPED TO A SAFE LEVEL BY THE TVS

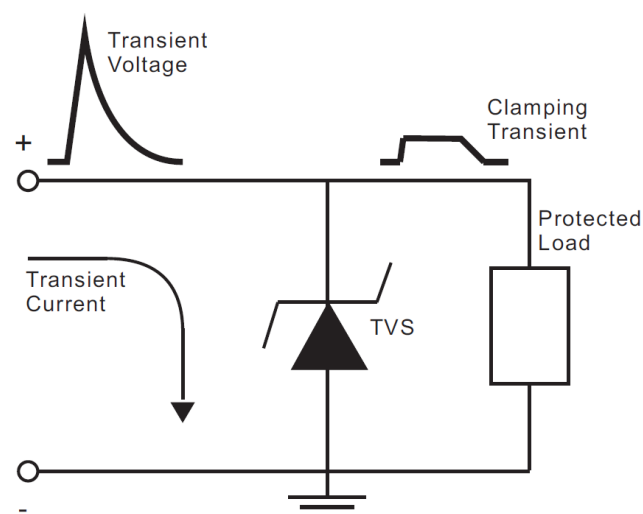
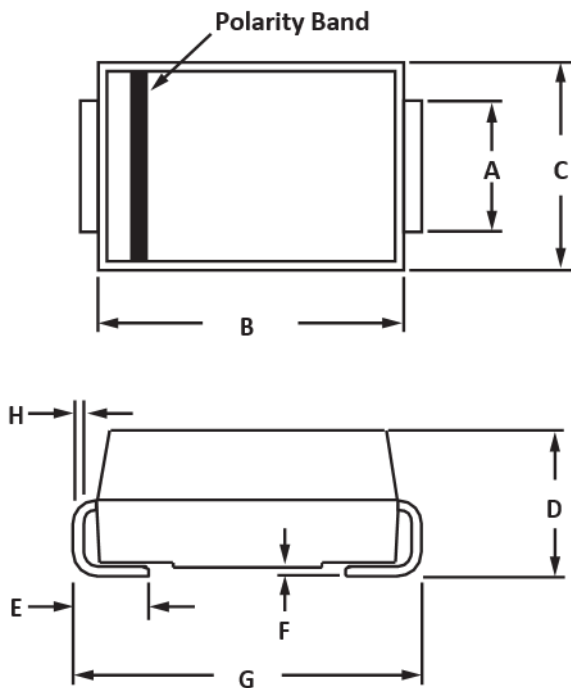
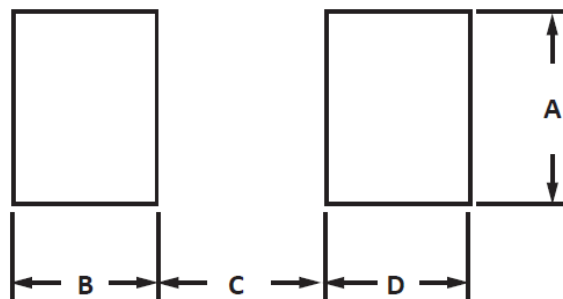


Fig.8 TRANSIENT CURRENT IS DIVERGED TO GROUND THRU TVS; THE VOLTAGE SEEN BY THE PROTECTED LOAD IS LIMITED TO THE CLAMPING VOLTAGE LEVEL

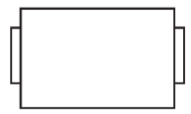
PACKAGE INFORMATION


OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.06	2.82	0.081	0.111
E	0.78	1.52	0.030	0.060
F	0.051	0.203	0.002	0.008
G	7.75	8.13	0.305	0.320
H	0.152	0.305	0.006	0.012
NOTES 1. Dimensions are exclusive of mold flash and metal burrs.				



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	-	0.132	-
B	2.50	-	0.100	-
C	-	4.40	-	0.176
D	2.50	-	0.100	-

PINNING INFORMATION

PIN	SIMPLIFIED OUTLINE	SYMBOL
Uni-Directional Pin1 Cathode Pin2 Anode		
Bi-Directional		



beyond boundaries...

3.0ALPSMCJXXA/CA Series

DO-214AB(SMC)

CUSTOMER NOTE:

DISCLAIMER

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



sales@alpinesemi.com
www.alpinesemi.com