

# 5.0SMLJ11AHE3 THRU 5.0SMLJ170CAHE3

## Features

- Meet AEC-Q101 Requirement
- For surface mount application in order to optimize board space
- Low profile package
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate( duty cycle): 0.01%
- Fast response time: typical less than 1ps from 0V to BV min
- Typical I<sub>b</sub> less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Low Inductance
- Built in strain relief
- UL Recognized File # E331408
- Halogen free

## Mechanical Data

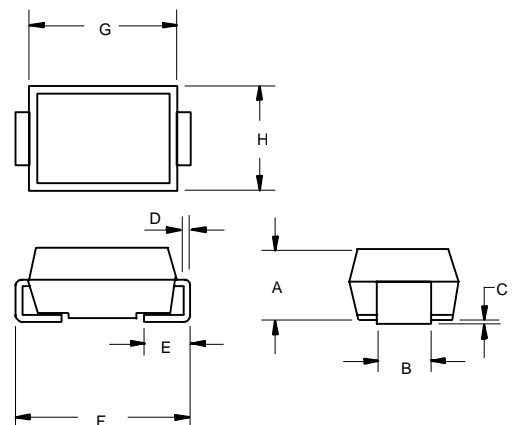
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end( cathode) except Bi-directional types.
- Standard packaging: 16mm tape per ( EIA 481).
- Weight: 0.007 ounce, 0.21 gram
- Manufacturing code added for better tracking

## Maximum Ratings @ 25°C Unless Otherwise Specified

Peak Pulse Current on 10/1000us waveform(Note2)	I <sub>PPM</sub>	See page 2,3	Amps
Peak Pulse Power Dissipation on 10/1000us waveform(Note2,3)	P <sub>PPM</sub>	Minimum 5000	Watts
Power Dissipation on infinite heat sink at T <sub>L</sub> =75°C	P <sub>D</sub>	6.5	Watts
Operation And Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55°C to +175°C	

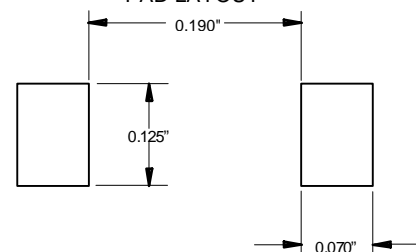
**Transient  
Voltage Suppressor  
11 to 170 Volts  
5000 Watt**

### DO-214AB (SMC) (LEAD FRAME)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.079	.103	2.00	2.62	
B	.115	.121	2.92	3.07	
C	.002	.008	0.051	0.203	
D	.006	.012	0.152	0.305	
E	.030	.060	0.76	1.52	
F	.305	.320	7.75	8.13	
G	.260	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

### SUGGESTED SOLDER PAD LAYOUT



Note:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse and derated above T<sub>A</sub>=25°C
3. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.
4. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.

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PART NUMBER	REVERSE STAND- OFF VOLTAGE $V_{RWM}(V)$	BREAKDOWN VOLTAGE $V_{BR}(V)$ MIN.@IT	BREAKDOWN VOLTAGE $V_{BR}(V)$ MAX.@IT	TEST CURRENT $I_T$ (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ $V_{RWM}$	DEVICE MARKING CODE
					$V_C(V)$		$I_D(\mu A)$	
5.0SMLJ 11AHE3	11	12.2	13.5	10	18.2	275	800	5PEN
5.0SMLJ 12AHE3	12	13.3	14.7	10	19.9	252	800	5PEP
5.0SMLJ 13AHE3	13	14.4	15.9	10	21.5	233	500	5PEQ
5.0SMLJ 14AHE3	14	15.6	17.2	10	23.2	216	200	5PER
5.0SMLJ 15AHE3	15	16.7	18.5	1	24.4	205	100	5PES
5.0SMLJ 16AHE3	16	17.8	19.7	1	26	193	50	5PET
5.0SMLJ 17AHE3	17	18.9	20.9	1	27.6	181	20	5PEU
5.0SMLJ 18AHE3	18	20	22.1	1	29.2	172	10	5PEV
5.0SMLJ 20AHE3	20	22.2	24.5	1	32.4	155	5	5PEW
5.0SMLJ 22AHE3	22	24.4	26.9	1	35.5	141	5	5PEX
5.0SMLJ 24AHE3	24	26.7	29.5	1	38.9	129	5	5PEZ
5.0SMLJ 26AHE3	26	28.9	31.9	1	42.1	119	5	5PFE
5.0SMLJ 28AHE3	28	31.1	34.4	1	45.4	110	5	5PFG
5.0SMLJ 30AHE3	30	33.3	36.8	1	48.4	103	5	5PFK
5.0SMLJ 33AHE3	33	36.7	40.6	1	53.3	93.9	5	5PFM
5.0SMLJ 36AHE3	36	40	44.2	1	58.1	86.1	5	5PFP
5.0SMLJ 40AHE3	40	44.4	49.1	1	64.5	77.6	5	5PFR
5.0SMLJ 43AHE3	43	47.8	52.8	1	69.4	72.1	5	5PFT
5.0SMLJ 45AHE3	45	50	55.3	1	72.7	68.8	5	5PFV
5.0SMLJ 48AHE3	48	53.3	58.9	1	77.4	64.7	5	5PFX
5.0SMLJ 51AHE3	51	56.7	62.7	1	82.4	60.7	5	5PFZ
5.0SMLJ 54AHE3	54	60	66.3	1	87.1	57.5	5	5RGE
5.0SMLJ 58AHE3	58	64.4	71.2	1	93.6	53.5	5	5PGG
5.0SMLJ 60AHE3	60	66.7	73.7	1	96.8	51.7	5	5PGK
5.0SMLJ 64AHE3	64	71.1	78.6	1	103	48.6	5	5PGM
5.0SMLJ 70AHE3	70	77.8	86	1	113	44.3	5	5PGP
5.0SMLJ 75AHE3	75	83.3	92.1	1	121	41.4	5	5PGR
5.0SMLJ 78AHE3	78	86.7	95.8	1	126	39.7	5	5PGT
5.0SMLJ 85AHE3	85	94.4	104	1	137	36.5	5	5PGV
5.0SMLJ 90AHE3	90	100	111	1	146	34.3	5	5PGX
5.0SMLJ 100AHE3	100	111	123	1	162	30.9	5	5PGZ
5.0SMLJ 110AHE3	110	122	135	1	177	28.3	5	5PHE
5.0SMLJ 120AHE3	120	133	147	1	193	26	5	5PHG
5.0SMLJ 130AHE3	130	144	159	1	209	24	5	5PHK
5.0SMLJ 150AHE3	150	167	185	1	243	20.6	5	5PHM
5.0SMLJ 160AHE3	160	178	197	1	259	19.3	5	5PHP
5.0SMLJ 170AHE3	170	189	209	1	275	18.2	5	5PHR

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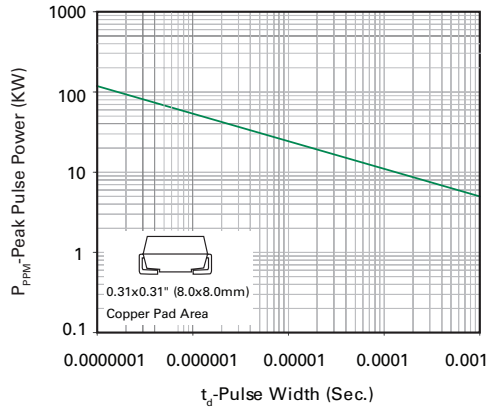
PART NUMBER	REVERSE STAND- OFF VOLTAGE $V_{RWM}(V)$	BREAKDOWN VOLTAGE $V_{BR}(V)$ MIN.@IT	BREAKDOWN VOLTAGE $V_{BR}(V)$ MAX.@IT	TEST CURRENT $I_T$ (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ $V_{RWM}$	DEVICE MARKING CODE
					$V_C(V)$		$I_D(\mu A)$	
5.0SMLJ 11CAHE3	11	12.2	13.5	10	18.2	275	800	5BEN
5.0SMLJ 12CAHE3	12	13.3	14.7	10	19.9	252	800	5BEP
5.0SMLJ 13CAHE3	13	14.4	15.9	10	21.5	233	500	5BEQ
5.0SMLJ 14CAHE3	14	15.6	17.2	10	23.2	216	200	5BER
5.0SMLJ 15CAHE3	15	16.7	18.5	1	24.4	205	100	5BES
5.0SMLJ 16CAHE3	16	17.8	19.7	1	26	193	50	5BET
5.0SMLJ 17CAHE3	17	18.9	20.9	1	27.6	181	20	5BEU
5.0SMLJ 18CAHE3	18	20	22.1	1	29.2	172	10	5BEV
5.0SMLJ 20CAHE3	20	22.2	24.5	1	32.4	155	5	5BEW
5.0SMLJ 22CAHE3	22	24.4	26.9	1	35.5	141	5	5BEX
5.0SMLJ 24CAHE3	24	26.7	29.5	1	38.9	129	5	5BEZ
5.0SMLJ 26CAHE3	26	28.9	31.9	1	42.1	119	5	5BFE
5.0SMLJ 28CAHE3	28	31.1	34.4	1	45.4	110	5	5BFG
5.0SMLJ 30CAHE3	30	33.3	36.8	1	48.4	103	5	5BFK
5.0SMLJ 33CAHE3	33	36.7	40.6	1	53.3	93.9	5	5BFM
5.0SMLJ 36CAHE3	36	40	44.2	1	58.1	86.1	5	5BFP
5.0SMLJ 40CAHE3	40	44.4	49.1	1	64.5	77.6	5	5BFR
5.0SMLJ 43CAHE3	43	47.8	52.8	1	69.4	72.1	5	5BFT
5.0SMLJ 45CAHE3	45	50	55.3	1	72.7	68.8	5	5BFV
5.0SMLJ 48CAHE3	48	53.3	58.9	1	77.4	64.7	5	5BFX
5.0SMLJ 51CAHE3	51	56.7	62.7	1	82.4	60.7	5	5BFZ
5.0SMLJ 54CAHE3	54	60	66.3	1	87.1	57.5	5	5BGE
5.0SMLJ 58CAHE3	58	64.4	71.2	1	93.6	53.5	5	5BGG
5.0SMLJ 60CAHE3	60	66.7	73.7	1	96.8	51.7	5	5BGK
5.0SMLJ 64CAHE3	64	71.1	78.6	1	103	48.6	5	5BGM
5.0SMLJ 70CAHE3	70	77.8	86	1	113	44.3	5	5BGP
5.0SMLJ 75CAHE3	75	83.3	92.1	1	121	41.4	5	5BGR
5.0SMLJ 78CAHE3	78	86.7	95.8	1	126	39.7	5	5BGT
5.0SMLJ 85CAHE3	85	94.4	104	1	137	36.5	5	5BGV
5.0SMLJ 90CAHE3	90	100	111	1	146	34.3	5	5BGX
5.0SMLJ 100CAHE3	100	111	123	1	162	30.9	5	5BGZ
5.0SMLJ 110CAHE3	110	122	135	1	177	28.3	5	5BHE
5.0SMLJ 120CAHE3	120	133	147	1	193	26	5	5BHG
5.0SMLJ 130CAHE3	130	144	159	1	209	24	5	5BHK
5.0SMLJ 150CAHE3	150	167	185	1	243	20.6	5	5BHM
5.0SMLJ 160CAHE3	160	178	197	1	259	19.3	5	5BHP
5.0SMLJ 170CAHE3	170	189	209	1	275	18.2	5	5BHR

For Bidirectional type having  $V_{RWM}$  of 20 volts and less, the  $I_r$  limit is double.

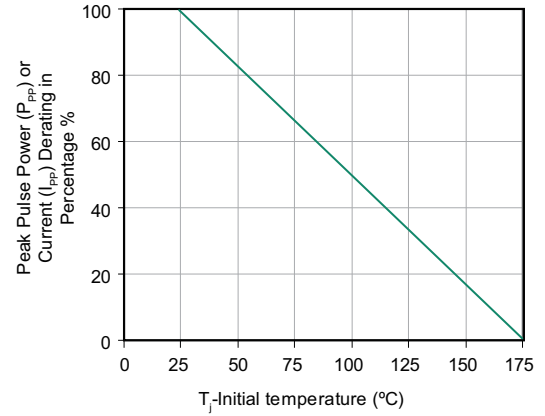
# 5.0SMLJ11AHE3~5.0SMLJ170CAHE3

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

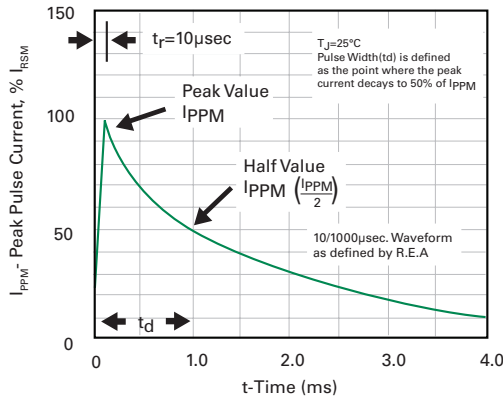
**Figure 1 - Peak Pulse Power Rating Curve**



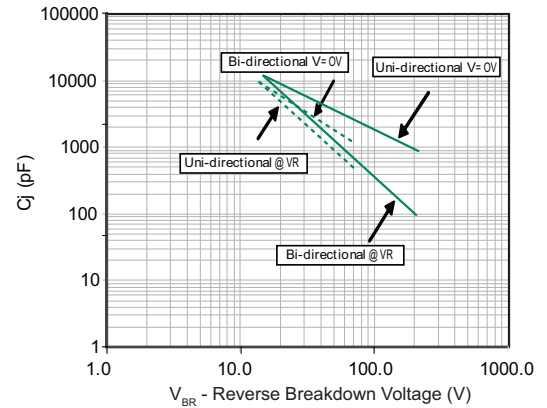
**Figure 2 - Peak Pulse Power or Current Derating Curve vs Initial Junction Temperature**



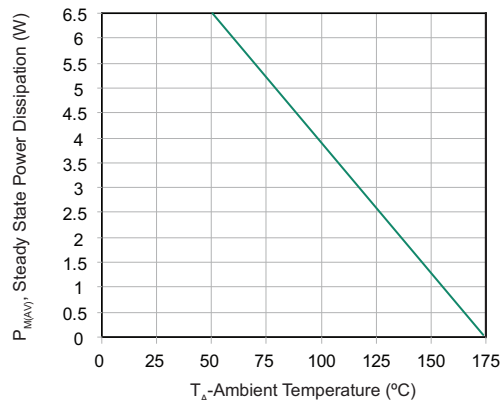
**Figure 3 - Pulse Waveform**



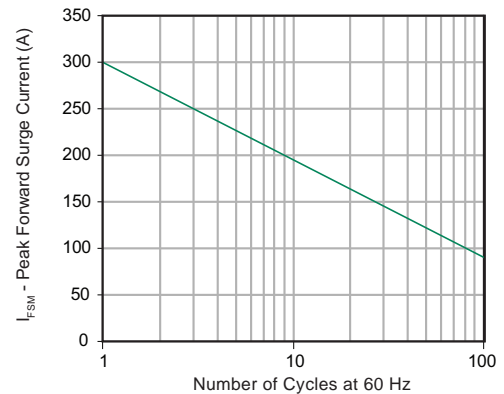
**Figure 4 - Typical Junction Capacitance**



**Figure 5 - Steady State Power Derating Curve**



**Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only**





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**Ordering Information :**

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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