

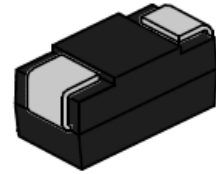


6AJxx(C)AH Series 600W Transient Voltage Suppressor

Rev.1.1

DESCRIPTION:

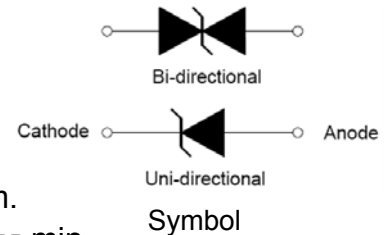
TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.



SMA

FEATURES:

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 600W peak pulse power capability at 10/1000 μ s waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature to reflow soldering: 260 $^{\circ}$ C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260 $^{\circ}$ C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ For surface mounted applications in order to optimize board space.
- ✧ High reliability application and automotive grade (AEC-Q101 qualified).



ABSOLUTE MAXIMUM RATINGS (T_A=25 $^{\circ}$ C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage and operating junction temperature range	T _{STG} / T _J	-55 to +150	$^{\circ}$ C
Peak pulse power dissipation at 10/1000 μ s waveform	P _{PP}	600	W
Steady state power dissipation at T _L =75 $^{\circ}$ C	P _{M(AV)}	5.0	W
Maximum instantaneous forward voltage at 50A for unidirectional	V _F	5.0	V
Peak forward surge current, 8.3ms single half sine wave(Note 1)	I _{FSM}	60	A
Typical thermal resistance junction to lead	R _{θJL}	30	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	R _{θJA}	120	$^{\circ}$ C/W

Notes:

- 1 . Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

MARKING



AE: Device Marking Code
1928: the 28th week, 2019

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Part Number		Marking		V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	$I_{PP}^{①}$
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
6AJ5.0AH	6AJ5.0CAH	KE	AE	5.0	120	6.40	7.00	10	9.2	65.2
6AJ6.0AH	6AJ6.0CAH	KG	AG	6.0	120	6.67	7.37	10	10.3	58.3
6AJ6.5AH	6AJ6.5CAH	KK	AK	6.5	120	7.22	7.98	10	11.2	53.6
6AJ7.0AH	6AJ7.0CAH	KM	AM	7.0	50	7.78	8.60	10	12.0	50.0
6AJ7.5AH	6AJ7.5CAH	KP	AP	7.5	50	8.33	9.21	1	12.9	46.5
6AJ8.0AH	6AJ8.0CAH	KR	AR	8.0	20	8.89	9.83	1	13.6	44.1
6AJ8.5AH	6AJ8.5CAH	KT	AT	8.5	10	9.44	10.40	1	14.4	41.7
6AJ9.0AH	6AJ9.0CAH	KV	AV	9.0	5	10.00	11.10	1	15.4	39.0

① Surge waveform: 10/1000 μs

V_R : Stand-off voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown voltage

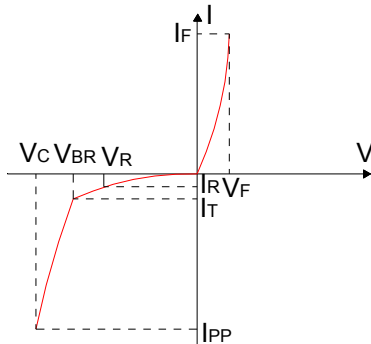
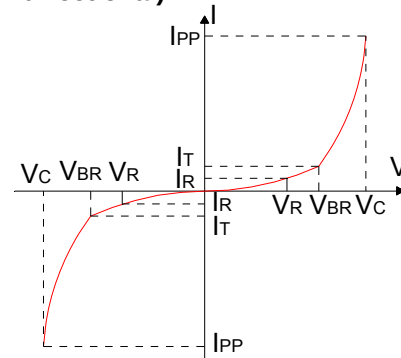
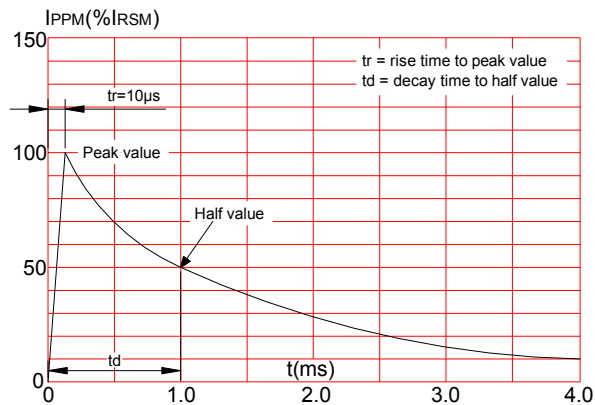
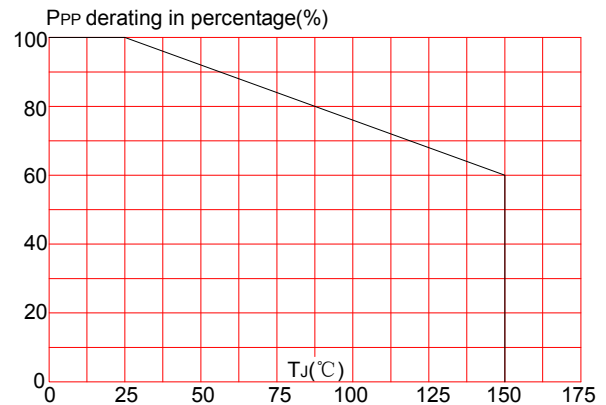
V_C : Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R : Reverse leakage current

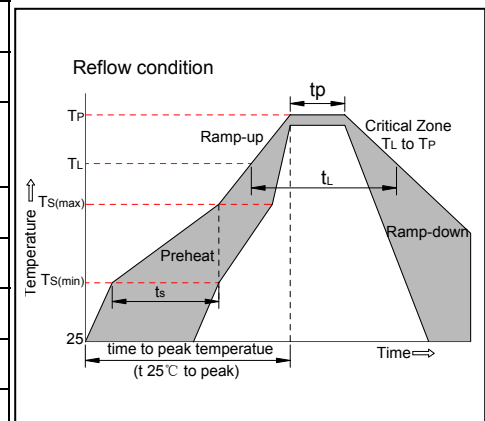
ORDERING INFORMATION

<u>6AJ</u>	<u>xx</u>	<u>C</u>	<u>A</u>	<u>H</u>
600W SMA Series	V_R Voltage	C:Bi-directional	5% V_{BR} Voltage tolerance	For AEC-Q101

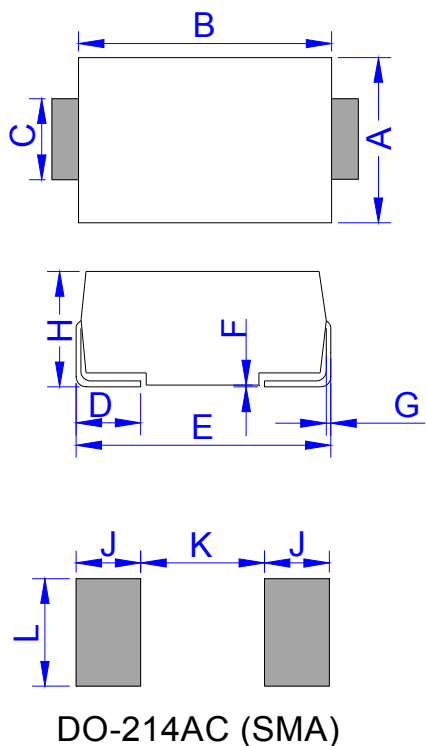
RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)

**FIG.1:V- I curve characteristics
(Uni-directional)**

**FIG.2:V- I curve characteristics
(Bi-directional)**

FIG.3: Pulse waveform

FIG.4: Pulse derating curve

SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

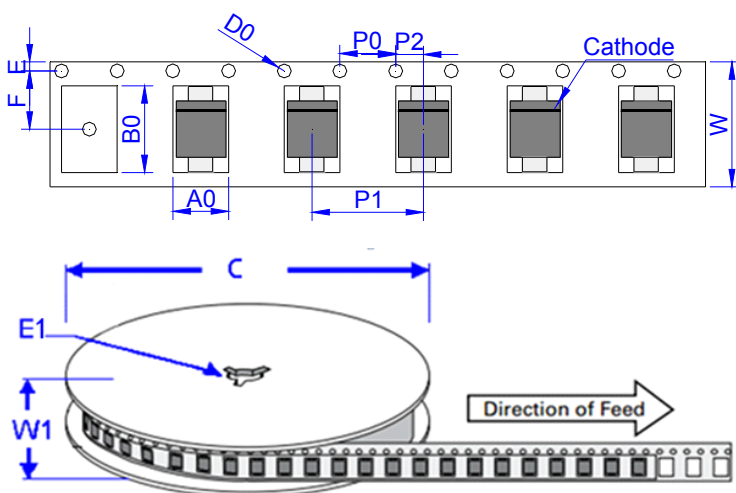


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
6AJxxAH/CAH	0.068	7,500	120,000	13 inch reel pack

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