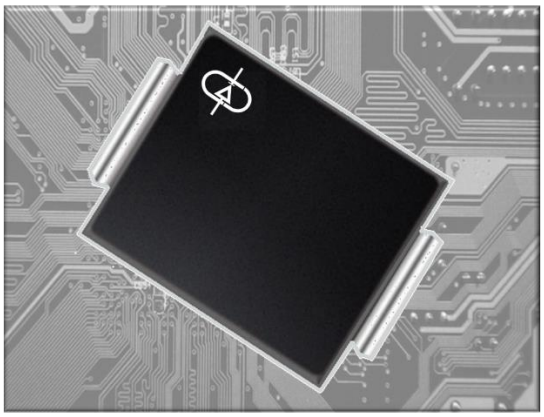
ALP1SMA4728A thru ALP1SMA4772A

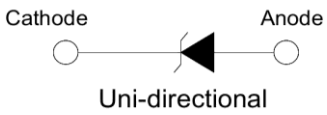
DO-214AC(SMA)

SURFACE MOUNT UNIDIRECTIONAL ZENER DIODES

DESCRIPTION:



The ALP1SMA4728A thru ALP1SMA4772A Unidriectional series is designed to protect voltage sensitive components from high voltage, high energy transients. The SMA series is supplied in cost-effective, highly reliable package and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer applications.



Uni-directional

FEATURES:

- Surface mount package.
- Low leakage current.
- Excellent stability.
- Lead free in compliance with EU RoHS directive.
- High temperature soldering guaranteed 260°C/10 Seconds.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. ALP1SMA4728A-H

APPLICATIONS:

- Communication Systems
- Numerical and Process controls
- Medical equipment
- Business machines
- Power supplies
- Industrial/consumer applications.

MECHANICAL CHARACTERISTICS

- Case: SMA
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Band denotes cathode
- Mounting position: Any
- Weight: 0.0023 ounce, 68 grams.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	**SYMBOL**	**VALUE**	**UNITS**
Peak Pulse Power Dissipation on T_A=50 ℃ Derate above 50 ℃ (Note 1)	P_D	1000	mW
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	10	A
Operating junction temperature range	T_J	−55 to +150	°C
Storage Temperature Range	T_{STG}	−55 to +175	°C

NOTE
1. Mounted on 5mm x 5mm (0.013mm thick) land areas.
2. Measured on 8.3ms, and single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
3. Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ± 5%.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified									
PART NUMBER (UNI)	**Nominal Zener Voltage (Note 2)**	**Test Current**	**Maximum Zener Impedance (Note 3)**			**Maximum Leakage Current**		**Max DC Zener Current**	**Max Surge Current 8.3ms**
	V_Z @ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @ V_R		I_{ZM}	I_{ZS}
	V	mA	Ω	Ω	mA	μA	V	mA	mA
ALP1SMA4728A	3.3	76.0	10	400	1.00	100	1.0	276	1380
ALP1SMA4729A	3.6	69.0	10	400	1.00	100	1.0	252	1260
ALP1SMA4730A	3.9	64.0	9.0	400	1.00	50	1.0	234	1190
ALP1SMA4731A	4.3	58.0	9.0	400	1.00	10	1.0	217	1070
ALP1SMA4732A	4.7	53.0	8.0	500	1.00	10	1.0	193	970
ALP1SMA4733A	5.1	49.0	7.0	550	1.00	10	1.0	178	890
ALP1SMA4734A	5.6	45.0	5.0	600	1.00	10	2.0	162	810
ALP1SMA4735A	6.2	41.0	2.0	700	1.00	10	3.0	146	730
ALP1SMA4736A	6.8	37.0	3.5	700	1.00	10	4.0	133	660
ALP1SMA4737A	7.5	34.0	4.0	700	0.50	10	5.0	121	605
ALP1SMA4738A	8.2	31.0	4.5	700	0.50	10	6.0	110	550
ALP1SMA4739A	9.1	28.0	5.0	700	0.50	10	7.0	100	500
ALP1SMA4740A	10	25.0	7.0	700	0.25	10	7.6	91	454
ALP1SMA4741A	11	23.0	8.0	700	0.25	5	8.4	83	414
ALP1SMA4742A	12	21.0	9.0	700	0.25	5	9.1	76	380
ALP1SMA4743A	13	19.0	10	700	0.25	5	9.9	69	344
ALP1SMA4744A	15	17.0	14	700	0.25	5	11.4	61	304
ALP1SMA4745A	16	15.5	16	700	0.25	5	12.2	57	285
ALP1SMA4746A	18	14.0	20	750	0.25	5	13.7	50	250
ALP1SMA4747A	20	12.5	22	750	0.25	5	15.2	45	225

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified									
PART NUMBER (UNI)	Nominal Zener Voltage (Note 2)	Test Current	Maximum Zener Impedance (Note 3)			Maximum Leakage Current		Max DC Zener Current	Max Surge Current 8.3ms
	V_Z @ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @ V_R		I_{ZM}	I_{ZS}
	V	mA	Ω	Ω	mA	μA	V	mA	mA
ALP1SMA4748A	22	11.5	23	750	0.25	5	16.7	41	205
ALP1SMA4749A	24	10.5	25	750	0.25	5	18.2	38	190
ALP1SMA4750A	27	9.5	35	750	0.25	5	20.6	34	170
ALP1SMA4751A	30	8.5	40	1000	0.25	5	22.8	30	150
ALP1SMA4752A	33	7.5	45	1000	0.25	5	25.1	27	135
ALP1SMA4753A	36	7.0	50	1000	0.25	5	27.4	25	125
ALP1SMA4754A	39	6.5	60	1000	0.25	5	29.7	23	115
ALP1SMA4755A	43	6.0	70	1500	0.25	5	32.7	22	110
ALP1SMA4756A	47	5.5	80	1500	0.25	5	35.8	19	95
ALP1SMA4757A	51	5.0	95	1500	0.25	5	38.8	18	90
ALP1SMA4758A	56	4.5	110	2000	0.25	5	42.6	16	80
ALP1SMA4759A	62	4.0	125	2000	0.25	5	47.1	14	70
ALP1SMA4760A	68	3.7	150	2000	0.25	5	51.7	13	65
ALP1SMA4761A	75	3.3	175	2000	0.25	5	56.0	12	60
ALP1SMA4762A	82	3.0	200	3000	0.25	5	62.2	11	55
ALP1SMA4763A	91	2.8	250	3000	0.25	5	69.2	10	50
ALP1SMA4764A	100	2.5	350	3000	0.25	5	76.0	9.0	45
ALP1SMA4765A	110	2.3	450	4000	0.25	5	83.6	8.6	40
ALP1SMA4766A	120	2.0	550	4500	0.25	5	91.2	7.8	37
ALP1SMA4767A	130	1.9	700	5000	0.25	5	98.8	7.0	34
ALP1SMA4768A	150	1.7	1000	6000	0.25	5	114.0	6.4	30
ALP1SMA4769A	160	1.6	1100	6500	0.25	5	121.6	5.8	28
ALP1SMA4770A	180	1.4	1200	7000	0.25	5	136.8	5.2	25
ALP1SMA4771A	200	1.2	1900	9990	0.25	5	152.0	4.7	22
ALP1SMA4772A	220	1.0	1600	8000	0.25	5	167.2	4.0	20

Note:

1. Type numbers listed have standard tolerance on the no minal zener voltage of ±5%.
2. Measured under thermal equilibrium and DC (I_{ZT}) test conditions.
3. f = 1KHz

TYPICAL DEVICE CHARACTERISTICS CURVES

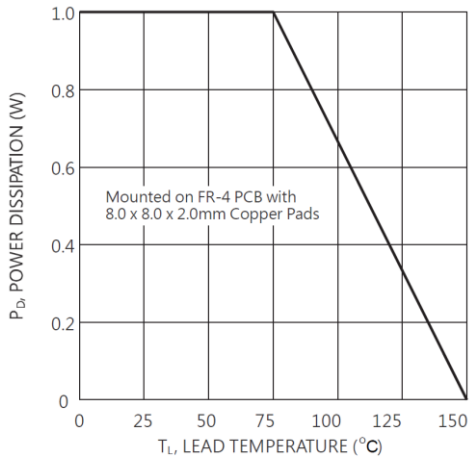


Fig1. Power Derating Curve

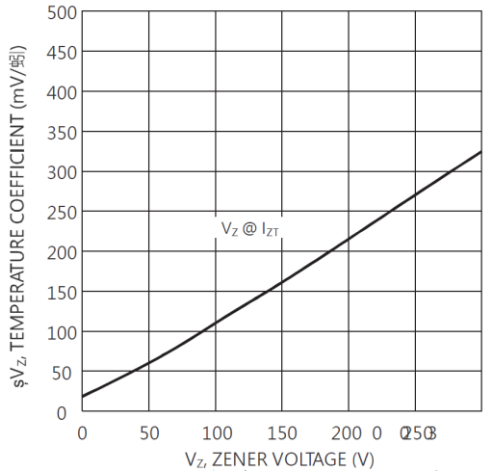


Fig2. Typical Temperature Coefficients

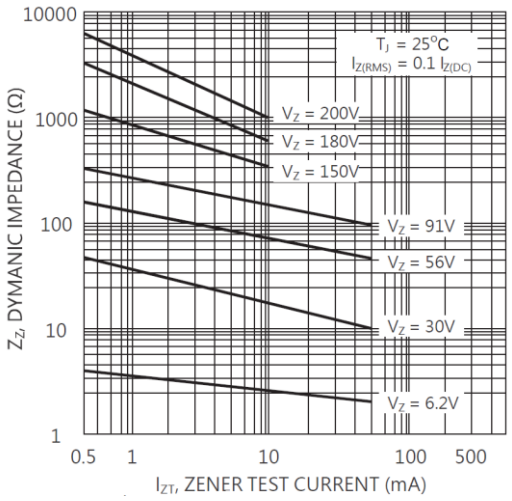


Fig3. Dynamic Resistance vs. Zener Current

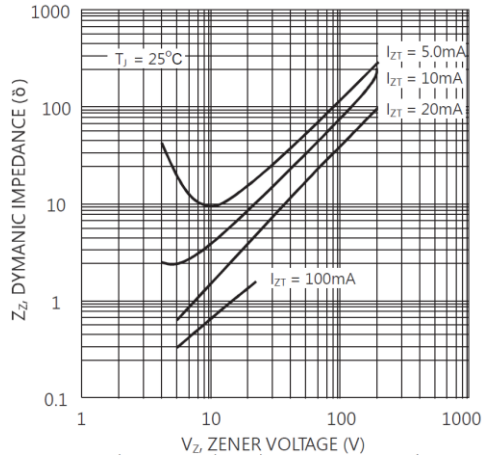


Fig4. Dynamic Resistance vs. Zener Voltage

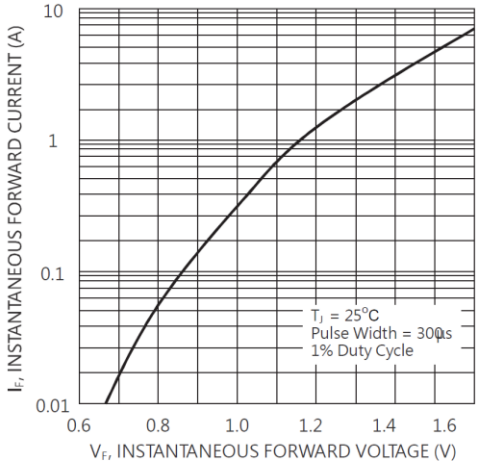


Fig.5 Typical Forward Characteristics

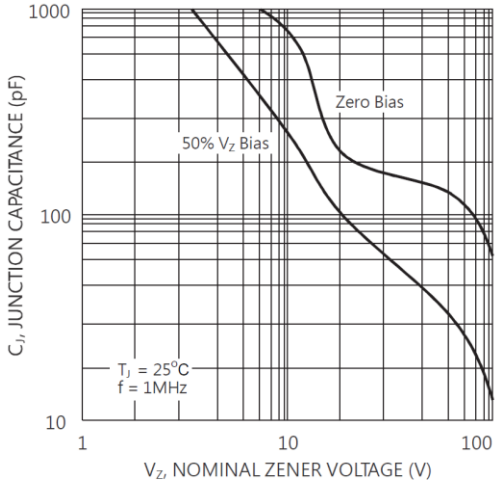


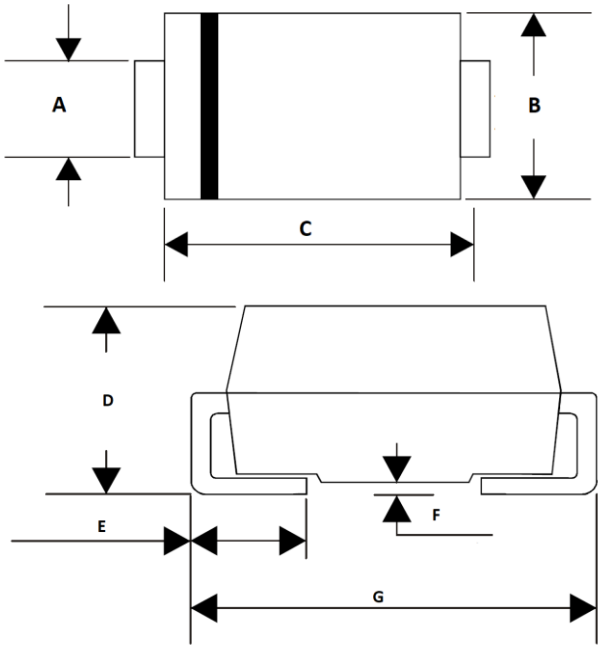
Fig.6 Junction Capacitance vs. Nominal Zener Voltage

PINNING INFORMATION

PIN	SIMPLIFIED OUTLINE	SYMBOL
Uni-Directional Pin1 cathode Pin2 anode		

PACKAGE INFORMATION

DO-214AC / SMA



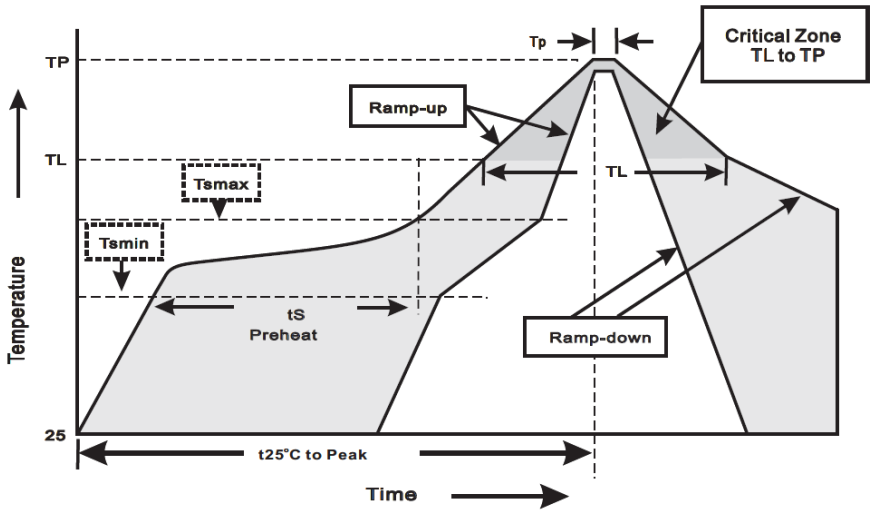
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.25	1.65	0.049	0.65
B	2.40	2.80	0.094	0.110
C	4.20	4.70	0.165	0.185
D	2.13	2.44	0.083	0.096
E	0.76	1.52	0.30	0.060
F	0.203 MAX.		0.008 MAX.	
G	4.70	5.28	0.185	0.208

NOTES
1. Dimensions are exclusive of mold flash and metal burrs.

SOLDERING PARAMETERS

SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

1. Storage environment: Temperature=5 °C~40 °C Humidity=55% ±25%
2. Reflow soldering of surface-mount devices



3. Reflow soldering

PROFILE FEATURE	SOLDERING CONDITION
Average ramp-up rate (T_L to T_P)	<3 °C/sec
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (min to max) (t_s)	 150 °C 200 °C 60 ~ 120 sec
T_{smax} to T_L - Ramp-upRate	 <3 °C/sec
Time maintained above: - Temperature (T_L) - Time(tL)	 217 °C 60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(tP)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes

PRODUCT HIGH RELIABLITY TEST CAPABILITIES

ITEM	TEST CONDITIONS	STANDARD
Solder Resistance	At 260±5°C for 10±Sec.	MIL-STD-750D METHOD-2031
Solderability	At 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
High Temperature Reverse Bias	V_{BR}= V_{BR} N_{OM}*80% at T_J=150° for 168 hrs.	MIL-STD-750D METHOD-1038
Pressure Cooker	15P_{SIG} at T_A=121°C for 4Hrs	JESD22-A102
Temperature Cycling	-55°C to +125°C dwelled for 30min and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
Humidity	At T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
High Temperature Storage Life	At 175°C for 1000hrs.	MIL-STD-750D METHOD-1031

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).

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