1W SURFACE MOUNT SILICON ZENER DIODES

DO-214AC (SMA)

1SMA4728A - 4764A

DO-214AC SMA
SURFACE MOUNT
Plastic Package
RoHS compliant

FEATURES:

1. Complete voltage range 3.3 to 100 volts
2. High peak reverse power dissipation
3. High reliability
4. Low leakage current
5. Standard zener voltage tolerance is ±5%
6. Pb / RoHS Free
7. This product is available in AEC-Q101 Qualified and PPAP Capable also.

Note: For AEC-Q101 qualified products, please use suffix -AQ in the part number while ordering.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 ℃ Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
DC Power Dissipation at T_L=75ºC (Note1)	P_D	1.0	W
Maximum Forward Voltage at I_F =200 mA	V_F	1.2	V
Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_S	-55 to +150	°C

ELECTRICAL CHARACTERISTICS at (Ta = 25 ℃ Unless otherwise specified)

DEVICE	DEVICE MARKING	NOMINAL ZENER VOLTAGE		MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE LEAKAGE CURRENT		MAXIMUM DC ZENER CURRENT	MAXIMUM SURGE CURRENT
		V_Z@ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @ V_R		I_{ZM}	I_{RM} (2)
		(V)	(mA)	(Ω)	(Ω)	(mA)	(µA)	(V)	(mA)	(mApk)
1SMA4728A	728A	3.3	76.0	10.00	400	1.00	100.0	1.0	276	1380
1SMA4729A	729A	3.6	69.0	10.00	400	1.00	100.0	1.0	252	1260
1SMA4730A	730A	3.9	64.0	9.00	400	1.00	50.0	1.0	234	1190
1SMA4731A	731A	4.3	58.0	9.00	400	1.00	10.0	1.0	217	1070
1SMA4732A	732A	4.7	53.0	8.00	500	1.00	10.0	1.0	193	970
1SMA4733A	733A	5.1	49.0	7.00	550	1.00	10.0	1.0	178	890
1SMA4734A	734A	5.6	45.0	5.00	600	1.00	10.0	2.0	162	810
1SMA4735A	735A	6.2	41.0	2.00	700	1.00	10.0	3.0	146	730
1SMA4736A	736A	6.8	37.0	3.50	700	1.00	50.0	4.0	133	660
1SMA4737A	737A	7.5	34.0	4.00	700	0.50	50.0	5.0	121	605
1SMA4738A	738A	8.2	31.0	4.50	700	0.50	50.0	6.0	110	550
1SMA4739A	739A	9.1	28.0	5.00	700	0.50	50.0	7.0	100	500

ELECTRICAL CHARACTERISTICS at (Ta = 25 ℃ Unless otherwise specified)

DEVICE	DEVICE MARKING	NOMINAL ZENER VOLTAGE		MAXIMUM ZENER IMPEDANCE			MAXIMUM REVERSE LEAKAGE CURRENT		MAXIMUM DC ZENER CURRENT	MAXIMUM SURGE CURRENT
		V_Z@ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @ V_R		I_{ZM}	I_{RM} (2)
		(V)	(mA)	(Ω)	(Ω)	(mA)	(µA)	(V)	(mA)	(mApk)
1SMA4740A	740A	10.0	25.0	7.00	700	0.25	50.0	7.6	91	454
1SMA4741A	741A	11.0	23.0	8.00	700	0.25	50.0	8.4	83	414
1SMA4742A	742A	12.0	21.0	9.00	700	0.25	5.0	9.1	76	380
1SMA4743A	743A	13.0	19.0	10.00	700	0.25	5.0	9.9	69	344
1SMA4744A	744A	15.0	17.0	14.00	700	0.25	5.0	11.4	61	305
1SMA4745A	745A	16.0	15.5	16.00	700	0.25	5.0	12.2	57	285
1SMA4746A	746A	18.0	14.0	20.00	750	0.25	5.0	13.7	50	250
1SMA4747A	747A	20.0	12.5	22.00	750	0.25	5.0	15.2	45	225
1SMA4748A	748A	22.0	11.5	23.00	750	0.25	5.0	16.7	41	205
1SMA4749A	749A	24.0	10.5	25.00	750	0.25	5.0	18.2	38	190
1SMA4750A	750A	27.0	9.5	35.00	750	0.25	5.0	20.6	34	170
1SMA4751A	751A	30.0	8.5	40.00	1000	0.25	5.0	22.8	30	150
1SMA4752A	752A	33.0	7.5	45.00	1000	0.25	5.0	25.1	27	135
1SMA4753A	753A	36.0	7.0	50.00	1000	0.25	5.0	27.4	25	125
1SMA4754A	754A	39.0	6.5	60.00	1000	0.25	5.0	29.7	23	115
1SMA4755A	755A	43.0	6.0	70.00	1500	0.25	5.0	32.8	22	110
1SMA4756A	756A	47.0	5.5	80.00	1500	0.25	5.0	35.8	19	95
1SMA4757A	757A	51.0	5.0	95.00	1500	0.25	5.0	38.8	18	90
1SMA4758A	758A	56.0	4.5	110.00	2000	0.25	5.0	42.6	16	80
1SMA4759A	759A	62.0	4.0	125.00	2000	0.25	5.0	47.1	14	70
1SMA4760A	760A	68.0	3.7	150.00	2000	0.25	5.0	51.7	12	65
1SMA4761A	761A	75.0	3.3	175.00	2000	0.25	5.0	56.0	12	60
1SMA4762A	762A	82.0	3.0	200.00	3000	0.25	5.0	62.2	11	55
1SMA4763A	763A	91.0	2.8	250.00	3000	0.25	5.0	69.2	10	50
1SMA4764A	764A	100.0	2.5	350.00	3000	0.25	5.0	76.0	9	45

Note:

1. P.C.B. Mounted on 0.31 x 0.31 x 0.08” (8 x 8 x 2 mm) copper area pad
2. The type number listed have a standard tolerance on the nominal zener voltage ±5%

TYPICAL CHARACTERISTICS CURVES

Fig 1: Maximum Continuous Power Derating

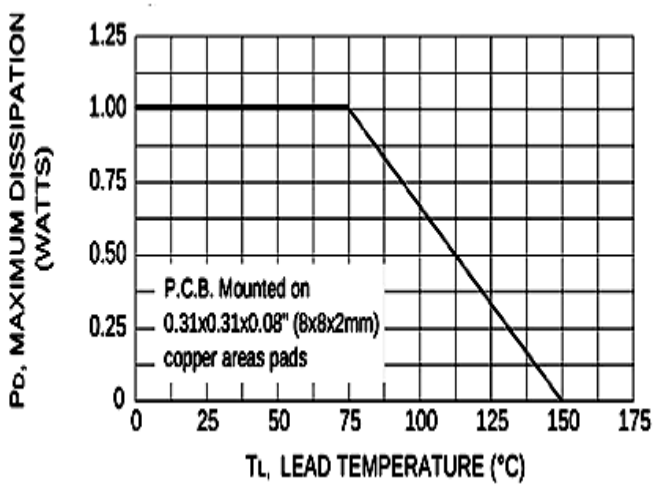
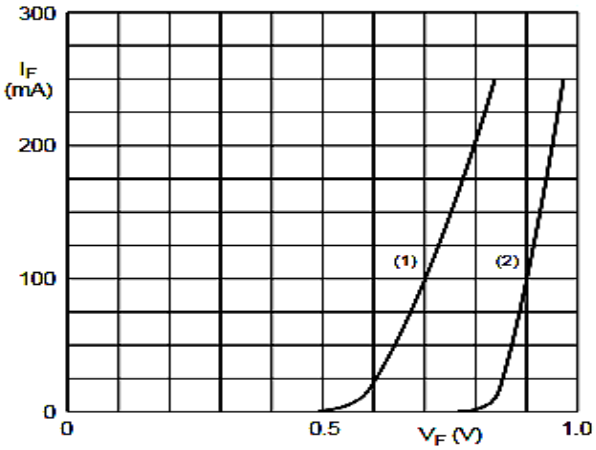
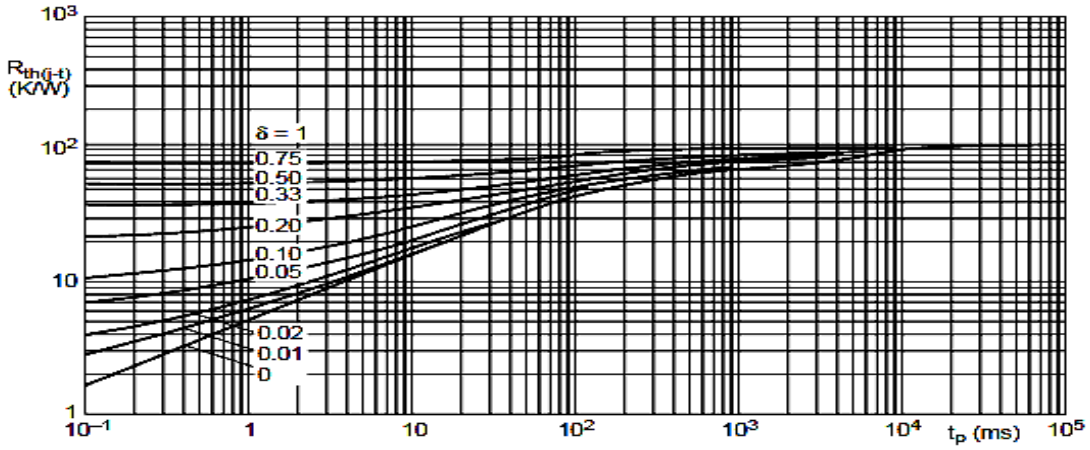


Fig 2: Forward current as a function of forward voltage; typical values



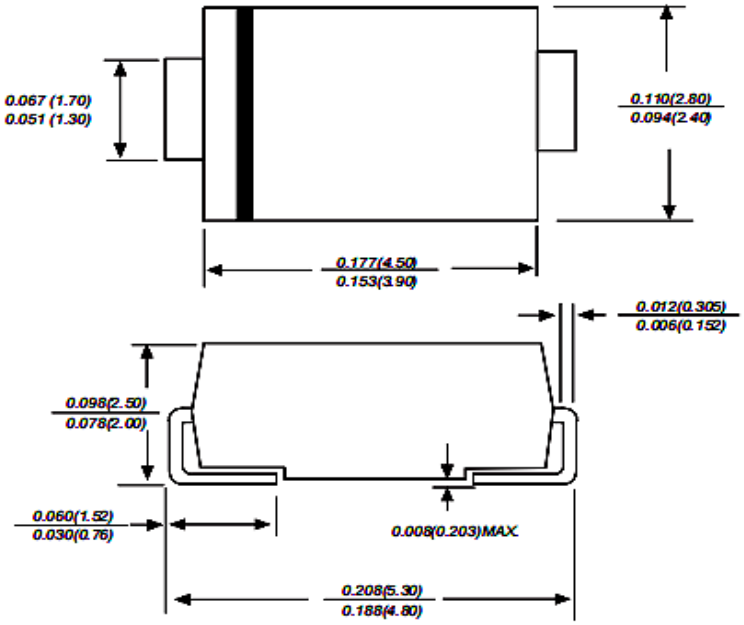
T_j = 200 °C
T_j = 25 °C

Fig 3: Thermal resistance from junction to tie-point as a function of pulse duration; lead length 4 mm



PACKAGE DETAILS

DO-214AC(SMA) PACKAGE

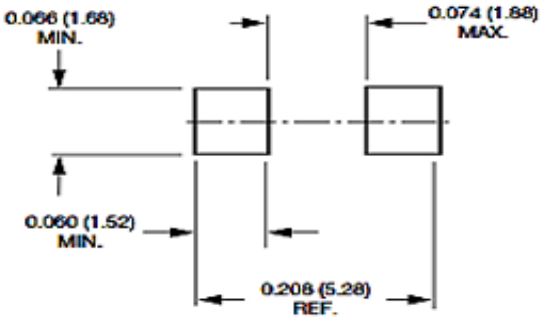


Dimensions in inches and (millimeters)

MECHANICAL DATA

1. Polarity: Color band denotes cathode end
2. Epoxy: UL94V-O rate flame retardant
3. Weight: 0.060 gms (approximately)

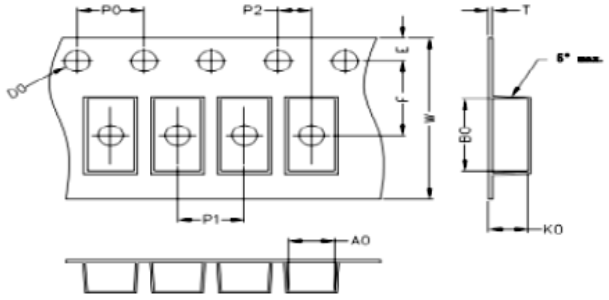
SOLDER PAD LAYOUT



Dimensions are in inches(mm)

Package Information

Carrier Dimensions(mm)



A0	B0	K0	D0	E	F
2.80	5.30	2.36	1.55	1.75	5.50
P0	P1	P2	T	W	Tolerance
4.0	4.0	2.0	0.25	12	0.1

Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMA	11'	278	5	285	10	355*310*310	80
	13'	330	7.5	340	15	360*360*360	120

Recommended Reflow Solder Profiles

The recommended reflow solder profiles for Pb and Pb-free devices are shown below.

Figure 1 shows the recommended solder profile for devices that have Pb-free terminal plating, and where a Pb-free solder is used.

Figure 2 shows the recommended solder profile for devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with a leaded solder.

Figure 1

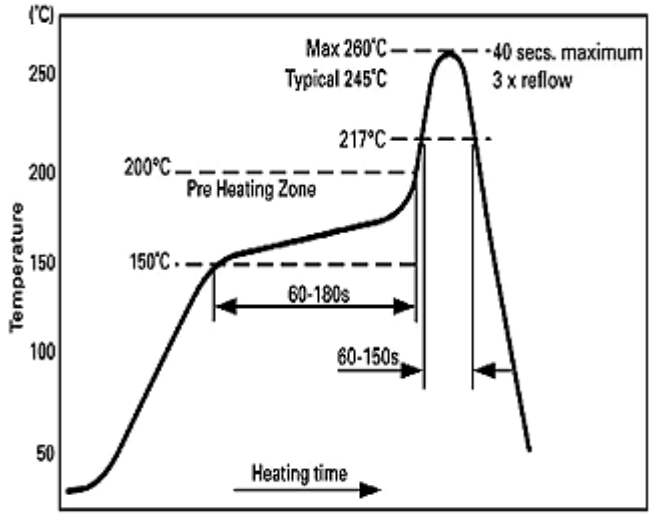
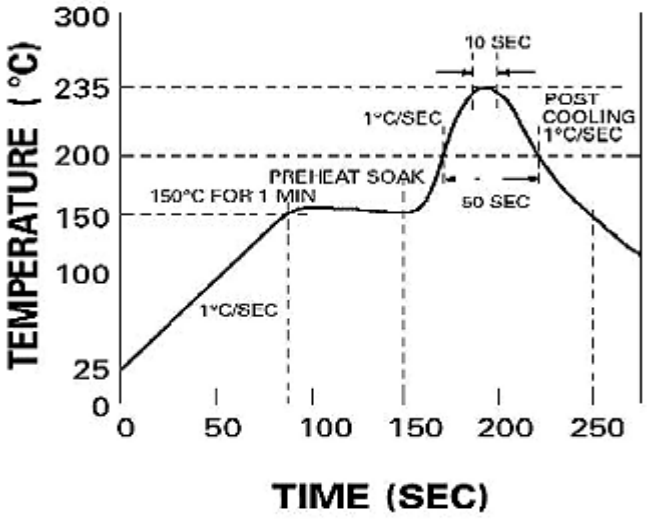


Figure 2



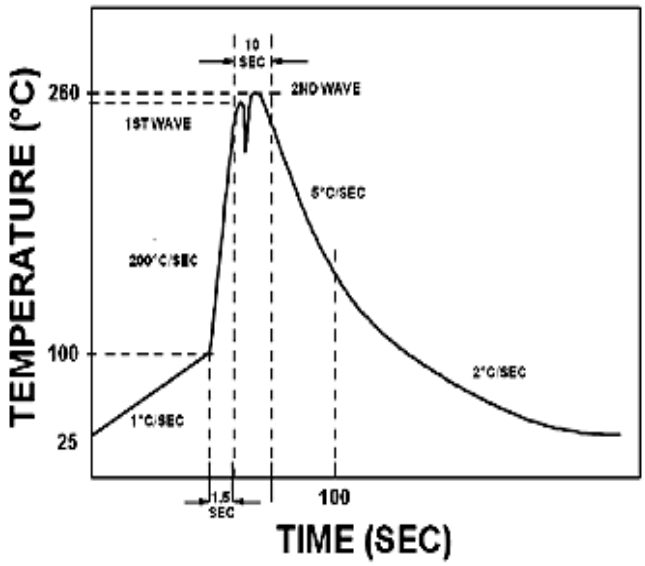
Reflow profiles in tabular form

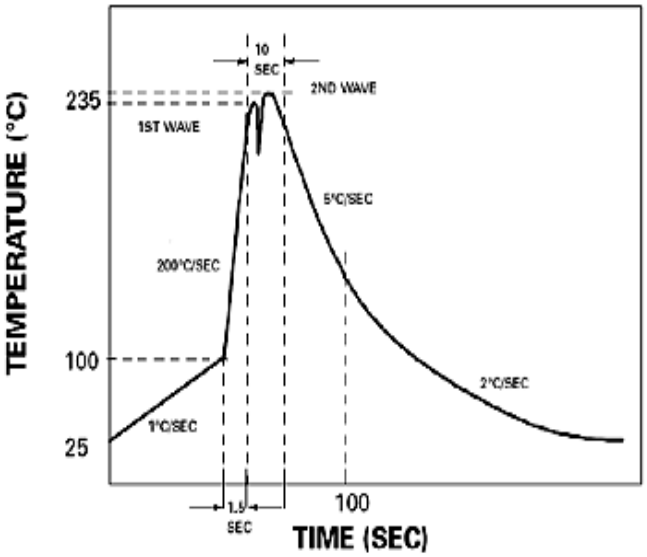
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat – Temperature Range – Time	 150-170°C 60-180 seconds	 150-200°C 60-180 seconds
Time maintained above: – Temperature – Tim	 200°C 30-50 seconds	 217°C 60-150 seconds
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	40 seconds
Ramp-Down Rate	3°C/second max.	6°C/second max

Recommended Wave Solder Profiles

The Recommended solder Profile For Devices with

The Recommended solder Profile For Devices with Pb-





Profile Feature	Sn-Pb System	Pb-free System
Average Ramp-Up Rate	~200°C/second	~200°C/second
Heating rate during preheat	Typical 1-2, Max 4°C/sec	Typical 1-2, Max 4°C/Sec
Final preheat Temperature	Within 125°C of Solder Temp	Within 125°C of Solder Temp
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	10 seconds
Ramp-Down Rate	5°C/second max.	5°C/second max.

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

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.

CDIL is a registered trademark of
Continental Device India Pvt. Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone +91-11-2579 6150, 4141 1112 Fax +91-11-2579 5290, 4141 1119
email@cdil.com www.cdil.com
CIN No. U32109DL1964PTC004291