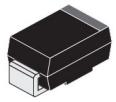
SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Reverse Voltage - 20 to 200 Volts
Forward Current - 1.0 Ampere

SS22A ~ SS220A

DO-214AC (SMA)
Surface Mount
Plastic Package
RoHS compliant



DO-214AC (SMA)

FEATURES:

1. The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
2. For surface mounted applications
3. Metal silicon junction,majority carrier conduction
4. Low power loss,high efficiency
5. Built-in strain relief,ideal for automated placement
6. High forward surge current capability
7. High temperature soldering guaranteed:250 C/10 seconds at terminals
8. This product is available in AEC-Q101 Compliant and PPAP Capable also.

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

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified) Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20%

PARAMETER	SYMBOL	SS 22A	SS 23A	SS 24A	SS 25A	SS 26A	SS 28A	SS 210A	SS 215A	SS 220A	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	80	100	150	200	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	56	70	105	140	V
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	80	100	150	200	V
Maximum average forward rectified current at T_L(see fig.1)	$I_{(AV)}$	2.0									A
Peak forward surge current8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50									A
Maximum instantaneous forward voltage at	V_F	0.55			0.70		0.85		0.95		V
Maximum DC reverse current T_A=25°C	I_R	0.5							1		mA
Maximum DC reverse current T_A=25°C		5.0							10		
Typical junction capacitance [1]	C_J	110			90						pF
Typical thermal resistance [2]	R_{qJA}	88.0									°C/W
Operating junction temperature range	T_J	-65 to +125			-65 to +150						°C
Storage temperature range	T_{STG}	-65 to +150									°C

Note:

1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2. P.C.B. mounted with 0.2x0.2”(5.0x5.0mm) copper pad areas

TYPICAL CHARACTERISTICS CURVES

Fig 1: Forward Current Derating Curve

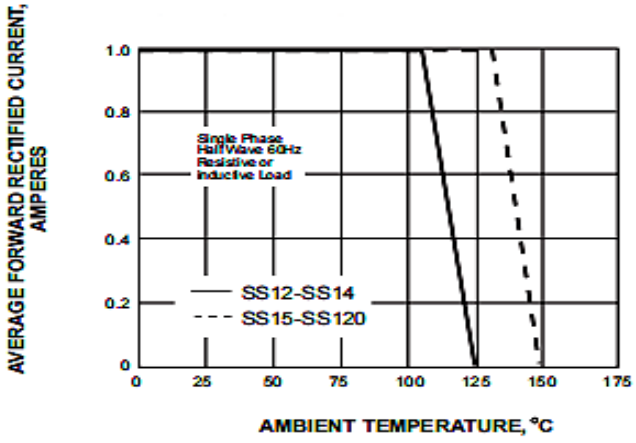


Fig 2: Typical Instantaneous Forward Characteristics

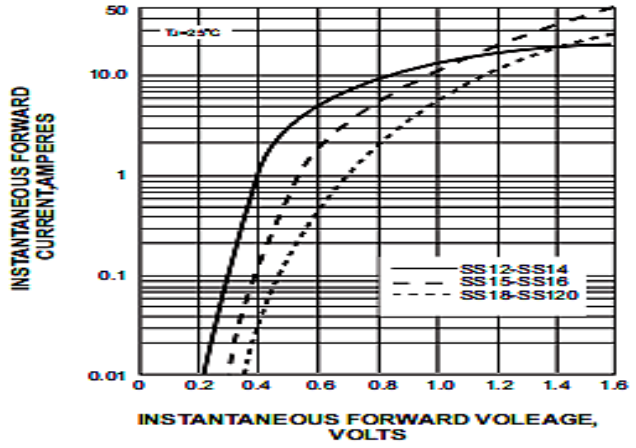


Fig 3: Typical Junction Capacitance

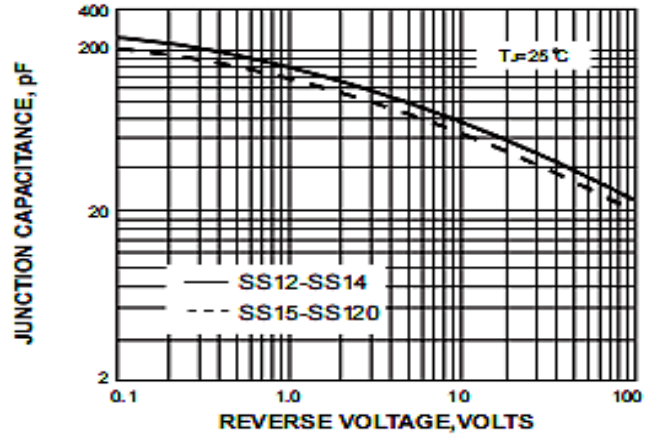


Fig 4: Maximum Non-Repetitive Peak Forward Surge Current

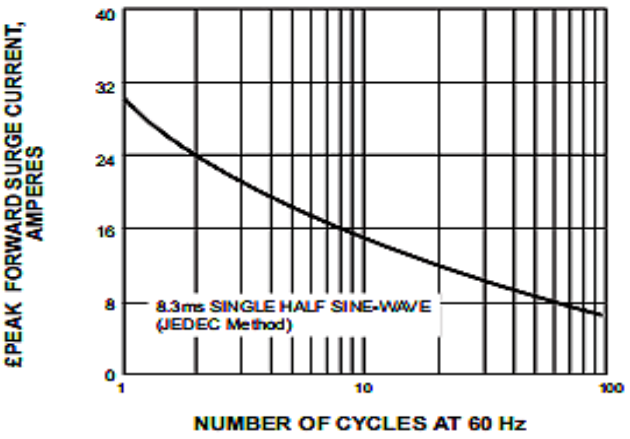


Fig 5: Typical Reverse Characteristics

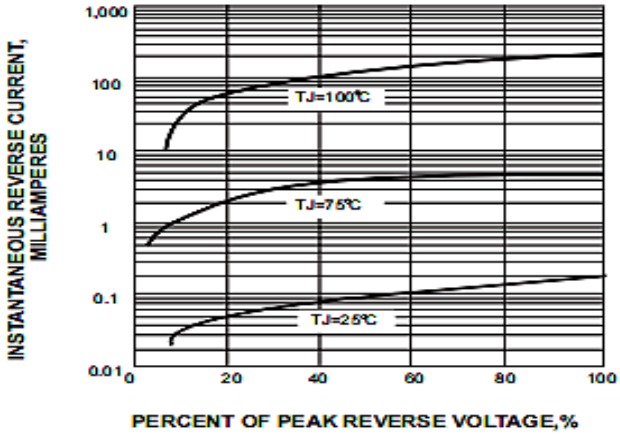
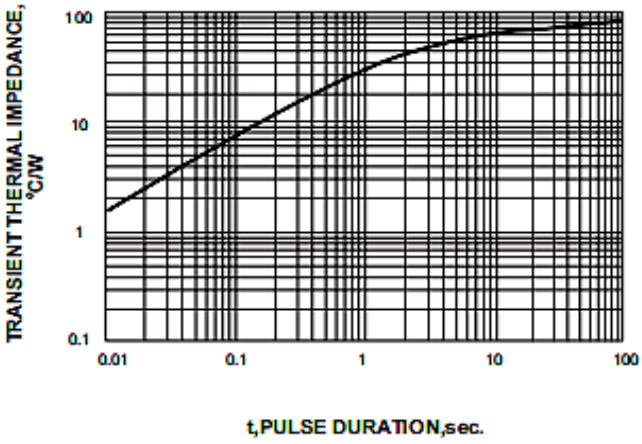


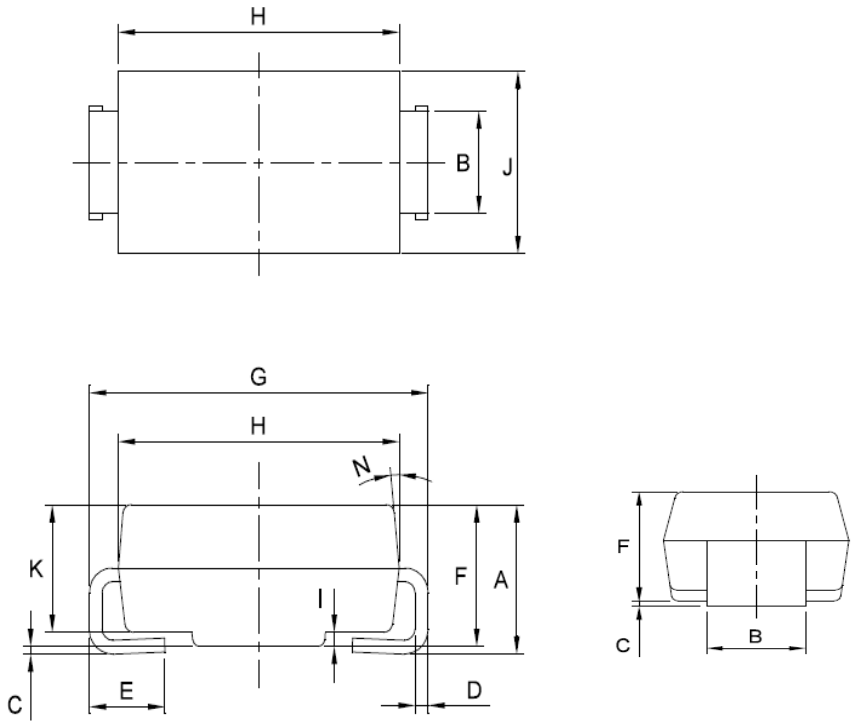
Fig 6: Typical Transient Thermal Impedance



SS22A_SS220A
Rev06_17062024M/SW/FZ

PACKAGE DETAILS

Package: DO-214AC(SMA)

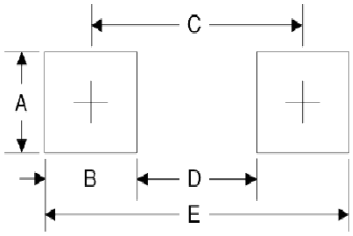


DIM	MIN	MAX
A	1.90	2.65
B	1.25	1.65
C	0.05	0.20
D	0.15	0.40
E	0.75	1.52
F	1.90	2.45
G	4.80	5.35
H*	3.95	4.60
I	0.10	0.30
J*	2.40	2.95
K	1.70	1.90
N	7º TYP.	

* *Dimensions H & J do not include mold flash, mold flash shall not exceed 0.13mm per side.*

All dimensions are in mm

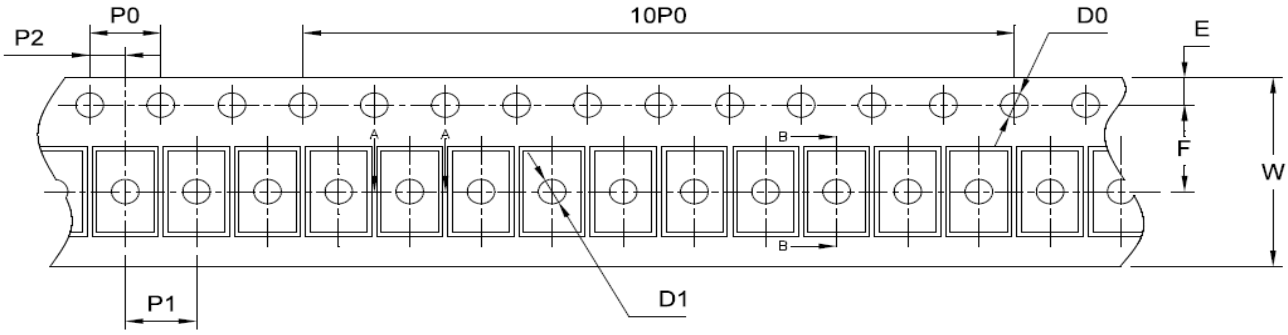
Suggested Pad Layout

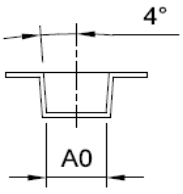


Symbol	Dim.(mm)
A	1.68 max
B	1.55 max
C	3.80 min
D	2.25 min
E	5.35 Ref

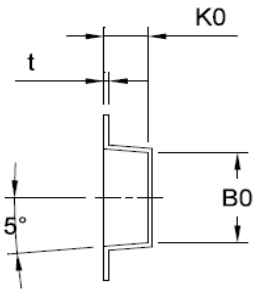
Package Information

Carrier Dimension(mm)





SECTION–AA



SECTION–BB

DIM.	SIZE/SPACIFICATION
E	1.75 ±0.10 = (1.65~1.85)
F	5.50 ±0.10 = (5.40~5.60)
P2	2.00 ±0.10 = (1.90~2.10)
D0	1.55 ±0.05 = (1.50~1.60)
D1	1.55 ±0.05 = (1.50~1.60)
P0	4.00 ±0.10 = (3.90~4.10)
10P0	40.00 ±0.20 = (39.80~40.20)

W	12.00 ±0.10 = (11.90~12.10)
P1	4.00 ±0.10 = (3.90~4.10)
A0	3.00 ±0.30 = (2.70~3.30)
B0	5.23 ±0.10 = (5.13~5.33)
K0	2.38 ±0.10 = (2.28~2.48)
t	0.25 ±0.03 = (0.22~0.28)

All dimensions are in mm

MECHANICAL DATA

Case : Molded plastic body

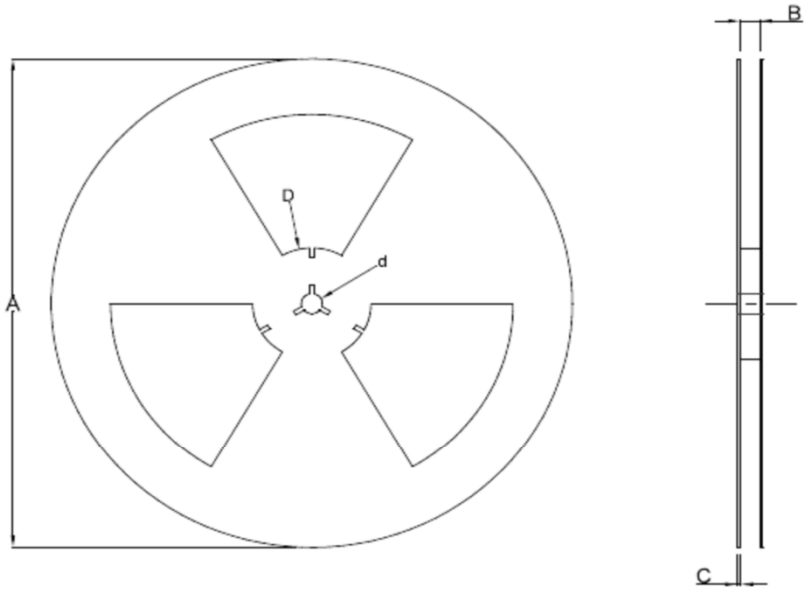
Terminals : Solder plated, Solderable per MIL-STD-750,Method 2026

Polarity : Polarity symbol marking on body .

Mounting Position : Any

Weight : 0.0023 ounce, 0.07 grams

Packaging Specifications



SIZE	13 INCH
OUTER DIA (A)	$330^{+2.0}$ MM
INTERNAL SIZE (B)	$12.5^{+0.5}$ MM
THICKNESS (C)	$1.5^{\pm0.5}$ MM
CENTRAL DIA (D)	$105.0^{\pm0.5}$ MM
INTERNAL DIA (d)	$13.5^{\pm0.5}$ MM

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

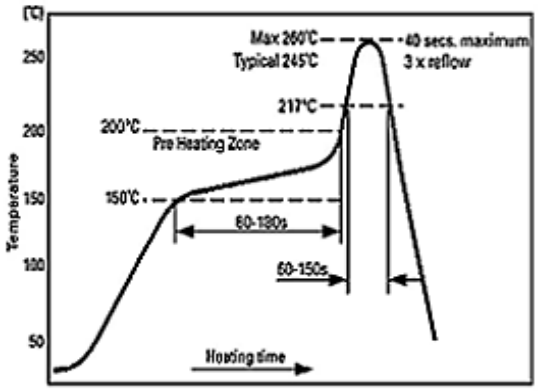
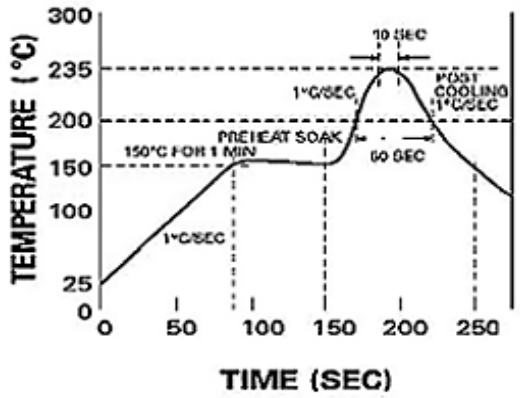


Figure 2

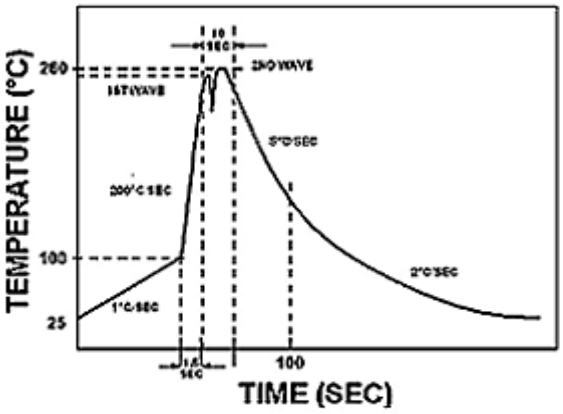


Reflow profiles in tabular form

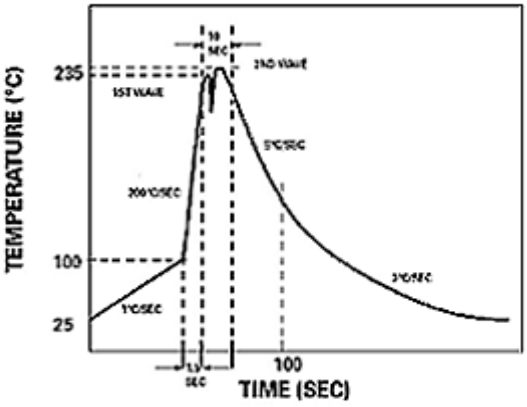
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat – Temperature Range – Time	 150-170°C 60-180 seconds	 150-200°C 60-180 seconds
Time maintained above: – Temperature – Time	 200°C 30-50 seconds	 217°C 60-150 seconds
Peak Temperature	235°C	260°C max.
Time 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 Pb-free terminal plating where a Pb-free solder is used



The Recommended solder Profile For Devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with leaded solder



Wave Profiles in Tabular Form

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 dawn. 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).
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