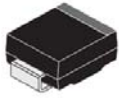


2A GENERAL PURPOSE RECTIFIER

S2A ~ S2M



DO-214AA (SMB)

DO214-AA(SMB)
Surface Mount
Plastic Package
RoHS compliant

FEATURE:

1. The Plastic package carries Underwriters Laboratory Flammability Classification 94V-0
2. Low reverse leakage
3. High Forward surge current capability
4. High temperature soldering guaranteed 250°C/10 seconds at terminals
5. Colour Band Denotes Cathode End
6. 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)

PARAMETER	SYMBOL	S2A	S2B	S2D	S2G	S2J	S2K	S2M	UNIT
Maximum Peak repetitive reverse voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V _{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V _{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current at T _L =75 °C	I _(AV)	2.0							A
Maximum Average Forward Rectified Current at T _L =125 °C		1.5							A
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I _{FSM}	50							A
Maximum Instantaneous Forward Voltage at 2.0A	V _F	1.1							V
Maximum Reverse Current	@ T _J = 25°C	1.0							µA
	@ T _J = 125°C	100							
Typical Junction Capacitance (Note 1)	C _j	30							pF
Typical Thermal Resistance, Junction to Ambient ²	R _{θJA}	53							°C/W
Typical Thermal Resistance, Junction to Lead ²	R _{θJL}	53							°C/W
Typical reverse recovery time, I _F = 0.5 A, I _R = 1.0 A, I _{tr} = 0.25 A	t _{rr}	2.0							µs
Operating Junction Temperature Range	T _j	-55 to +175							°C
Storage Temperature Range	T _{stg}	-55 to +175							°C

Note:

1. Measured at 1MHz and applied reverse voltage of 4.0 VDC
2. P.C.B. mounted on 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

S2A - S2M

Rev04_ 19112024M/SW/FZ



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TYPICAL CHARACTERISTICS CURVES

Fig 1: Forward Current Derating Curve, 0.3" x 0.3" (8.0 mm x 8.0 mm) Copper pad areas

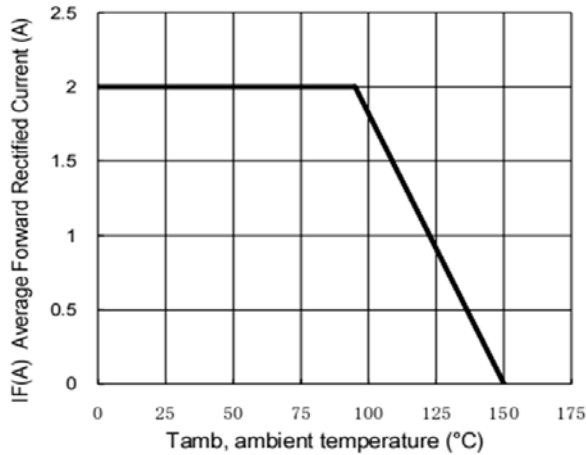


Fig 3: Maximum Non-Repetitive Peak Forward Surge Current

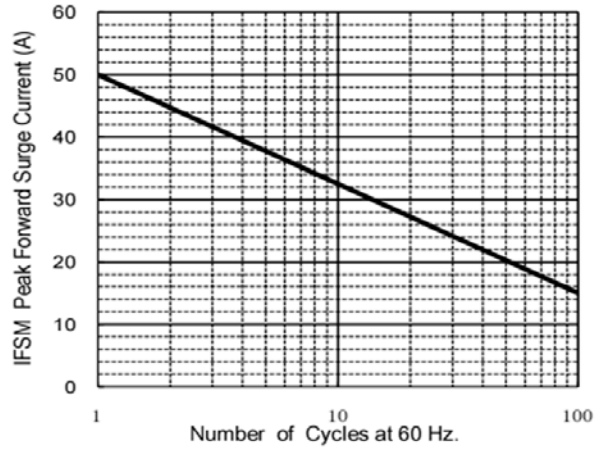


Fig 2: Typical Forward Characteristics

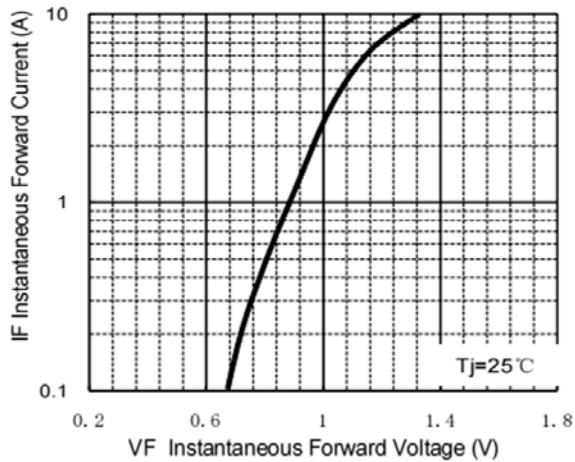
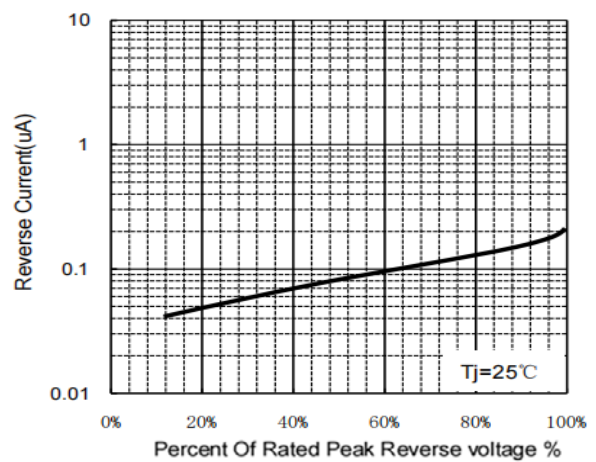


Fig 4: Typical Reverse Characteristics



TYPICAL CHARACTERISTICS CURVES

Fig 5: Typical Junction Capacitance

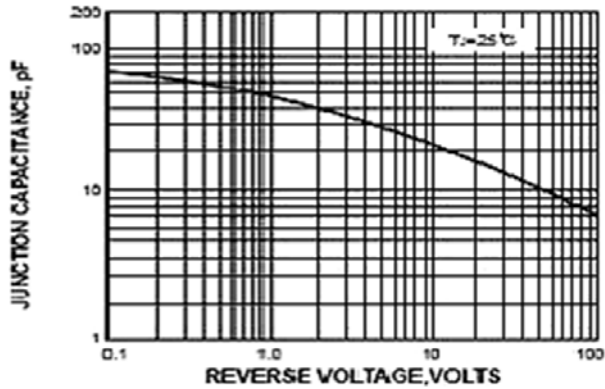


Fig 7: Typical Transient Thermal Impedance

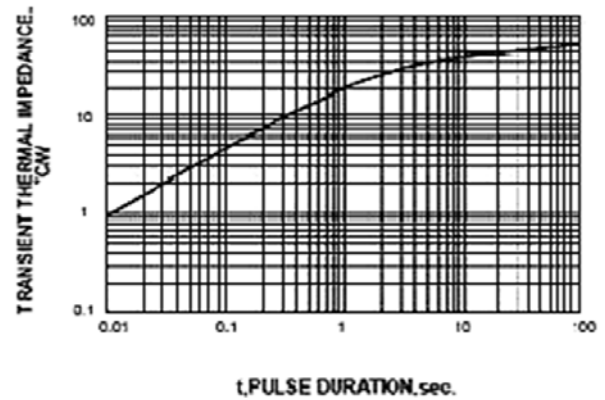
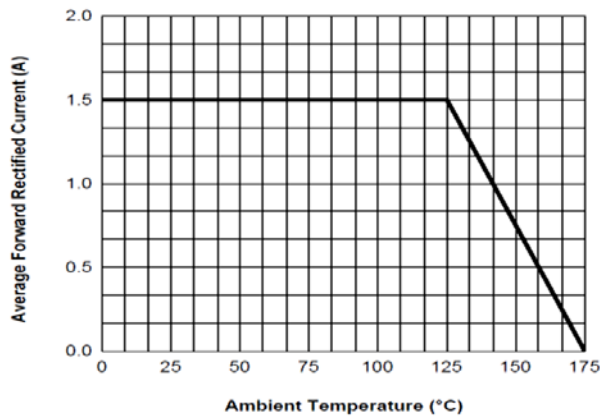


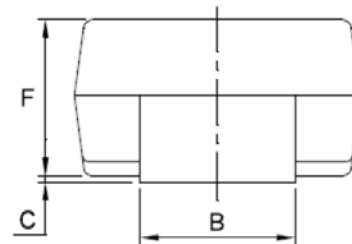
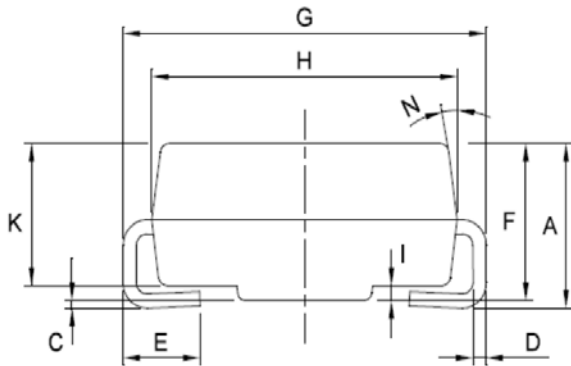
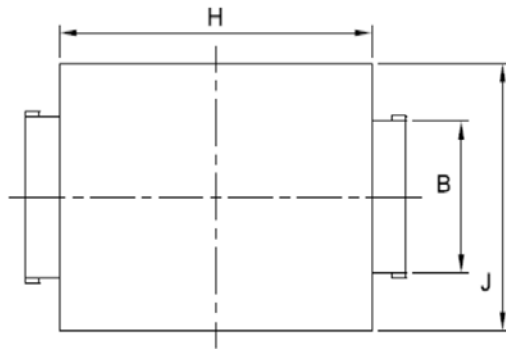
Fig 6: Forward Current Derating Curve,
0.3" x 0.3" (8.0 mm x 8.0 mm) Copper pad areas



Package Details

Package: DO-214AA(SMB)

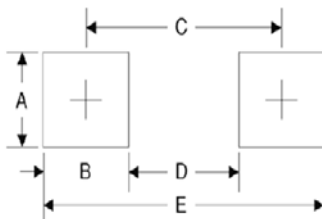
DIM	MIN	MAX
A	1.95	2.65
B	1.95	2.20
C	0.05	0.20
D	0.15	0.41
E	0.75	1.60
F	1.90	2.45
G	5.10	5.60
H*	4.05	4.60
I	0.10	0.30
J*	3.30	3.95
K	1.85	2.15
N	7° Typ.	



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

All dimensions are in mm

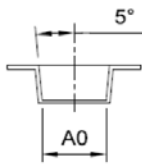
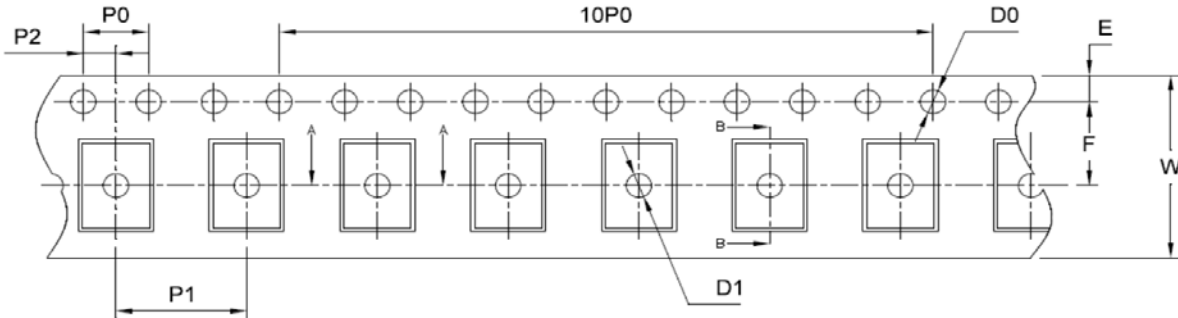
Suggested Pad Layout



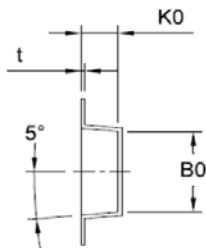
Symbol	Dim.(mm)
A	2.23 max.
B	1.63 max
C	3.97 min
D	2.34 min
E	5.60 Ref.

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	8.00 ±0.10 = (7.90~8.10)
A0	4.10 ±0.10 = (3.90~4.20)
B0	5.55 ±0.10 = (5.45~5.65)
K0	2.60 ±0.10 = (2.50~2.70)
t	0.25 ±0.03 = (0.22~0.28)

All dimensions are in mm

MECHANICAL DATA

Case : Molded plastic body

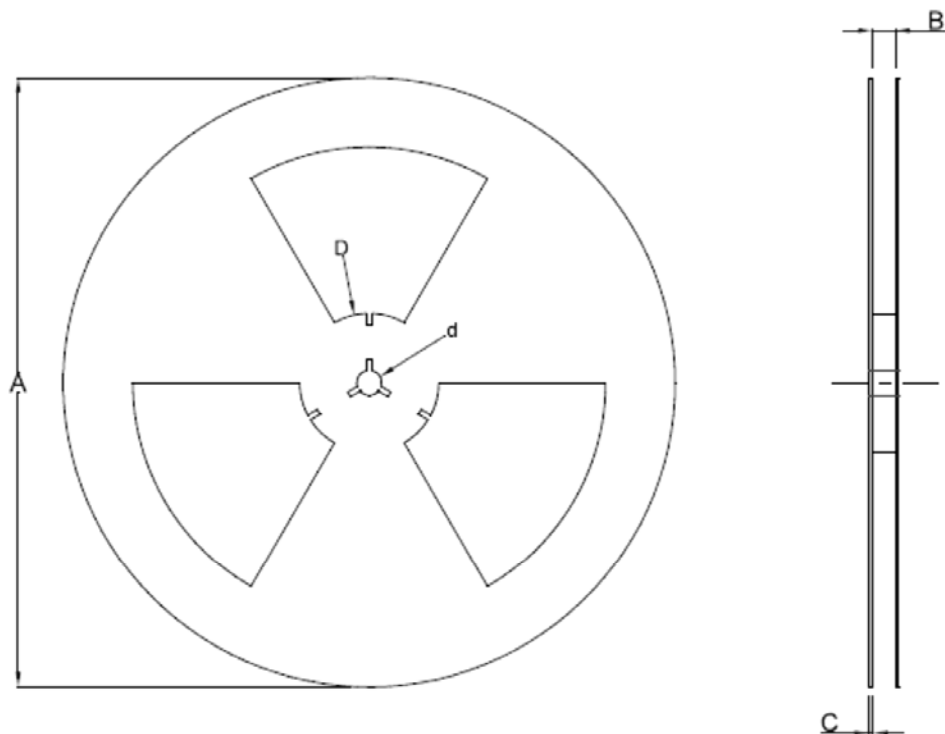
Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Polarity symbol marking on body.

Mounting Position : Any

Weight : 0.0035 ounce, 0.098 grams

Packaging Specifications



SIZE	13 INCH
OUTER DIA (A)	330 ^{+0.4} MM
INTERNAL SIZE (B)	12.5 ^{+0.3} MM
THICKNESS (C)	1.5 ^{+0.3} MM
CENTRAL DIA (D)	105.0 ^{+0.6} MM
INTERNAL DIA (d)	13.5 ^{+0.3} MM

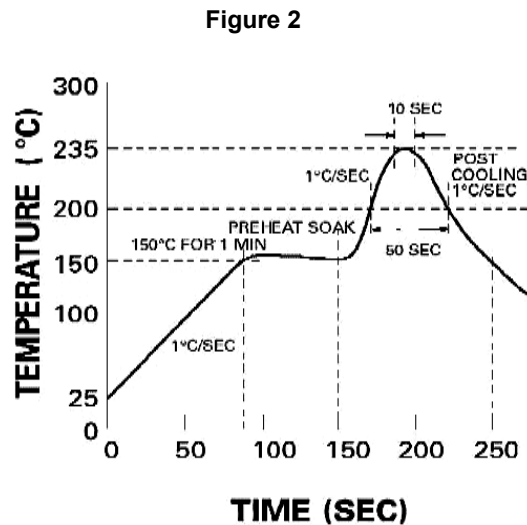
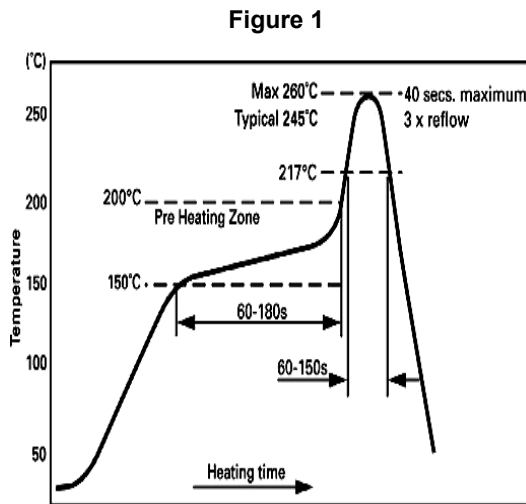
Note: 11" reel is also available.

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.

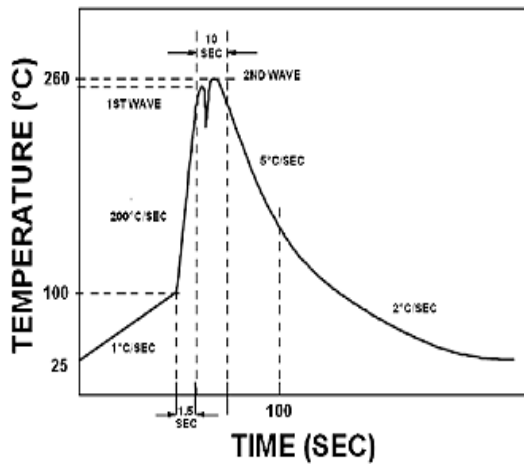


Reflow profiles in tabular form

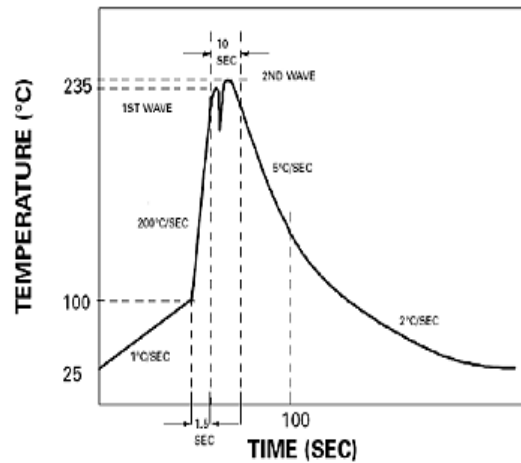
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat – Temperature Range – Time	150-170°C 60-180 seconds	150-200°C 60-180 seconds
Time maintained above: – Temperature – Time	200°C 30-50 seconds	217°C 60-150 seconds
Peak Temperature	235°C	260°C max.
Time within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



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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



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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.



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