

# Specification for Approval



Customer: 立創

Customer P/N: C311472

Product Name: Super Power Inductors

Coilank P/N: APS25A12M4R7

[  New Released,  Revised ]

Approved by	Checked by	Prepared by
	Jean.lin	Bruce.lan

## Coilank Technology Co., Ltd

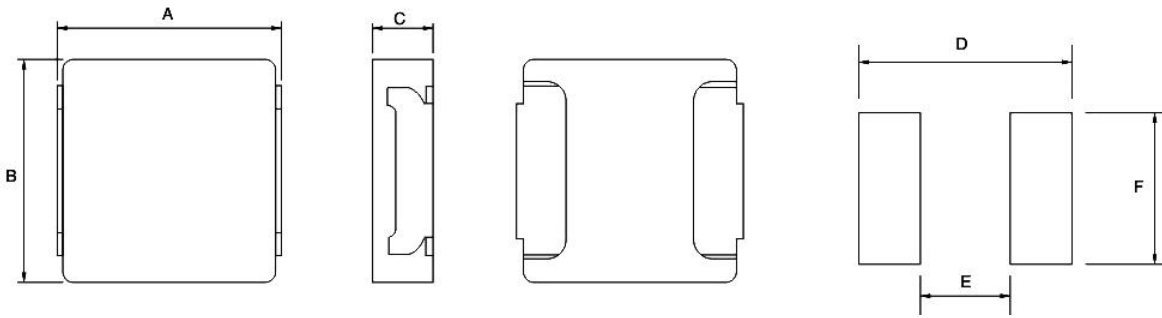
ADD: No.39, Chingao Rd.,(305)Hsinpu, Hs inchu Hsien Taiwan, R.O.C  
TEL : 00886-3-5894523 FAX : 00886-3-5894415  
ADD: Unit D, 16/F Cheuk Nang Plaze 250 Hennessy Road, Wanchai HongKong  
TEL : 00852-31135161 FAX : 00852-31121631  
SZ Office TEL : 0755-29452870/3 FAX : 0755-61658369  
HTTP : [www.coilank.com](http://www.coilank.com) E-mail : [sales@coilank.com](mailto:sales@coilank.com)

<b>【For Customer approval Only】</b>		Date: _____
Qualification Status:	<input type="checkbox"/> Full	<input type="checkbox"/> Restricted <input type="checkbox"/> Rejected
Approved By	Verified By	Checked By
Comments: _____		

# Change Note

Version	Comtent	Draw	Check	Approval	Date	Coding
1	New Design	Bruce.lan	Jean.lin	Jean.lin	2019.04.19	S158

### 1. External Dimensions (Unit:m/m)



Type	A	B	C	D	E	F	Q'TY/Reel
APS25A12	2.5±0.2	2.0±0.2	1.25Max	2.8Ref	1.2Ref	2.0Ref	3000

### 2. Part Number Code

$\frac{APS}{A}$      $\frac{25}{B}$      $\frac{A}{C}$      $\frac{12}{D}$      $\frac{M}{E}$      $\frac{4R7}{F}$

A: Series Name                      Super Power Inductors  
 B: Dimensions(mm)                25: 2.5x2.0  
 C: Materials                         NO use  
 D: Thickness(mm)                 12: 1.25 Max  
 E: Tolerance                         M: ±20%  
 F: Inductance                        4R7=4.7uH

### 3. Electrical Characteristics

Part Number	Inductance (μH)	Test Frequency (MHz)	DC Resistance (mΩ)Max.	Heat Rating Current DC(A) Max.	Saturation Current DC(A) Max.
APS25A12M4R7	4.7	1MHz	240.0	1.4	1.8

Notes:

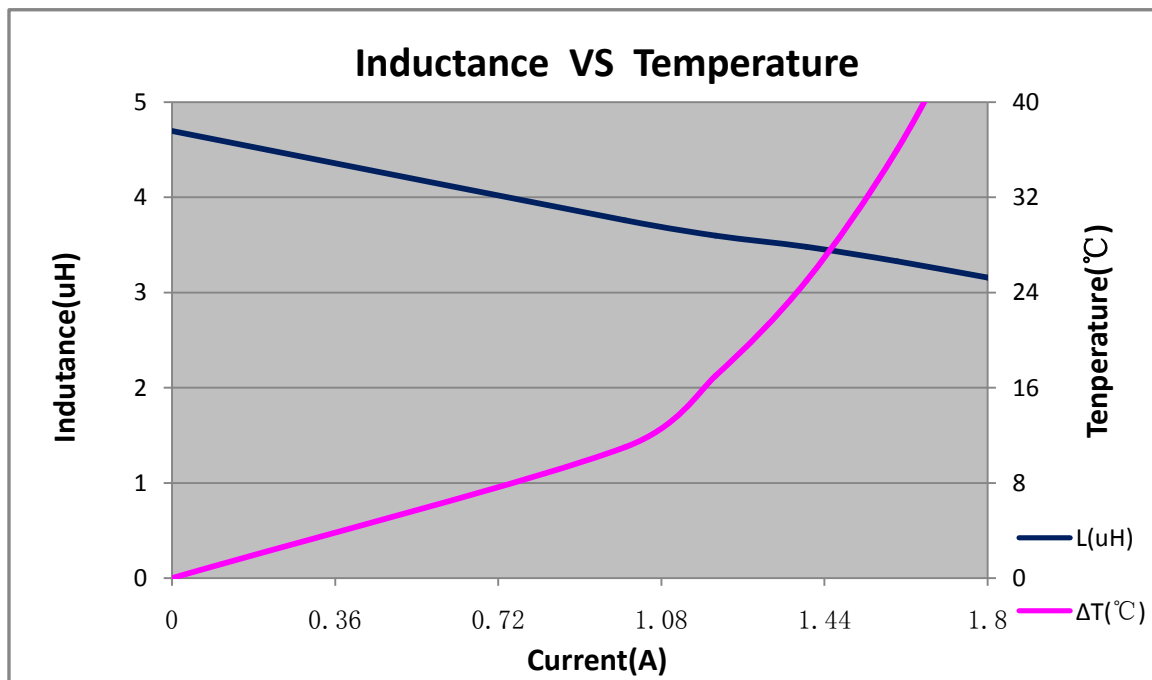
- 1) AEC-Q200 qualified.
- 2) All test data is referenced to 25°C ambient.
- 3) Operating temperature range -40°C to +125°C.
- 4) Irms :DC current(A) that will cause an approximate Δ T of 40°C.
- 5) Isat :DC current(A) that will cause I<sub>o</sub> to drop approximately 40%.
- 6) The part temperature(ambient + temp rise)should not exceed 125°C under worst case operating conditions. circuit design,component placement, PWB trace size and thickness,airflow and other cooling provisions all affect the part temperature,part temperature should be verified in the end application.

### 4. Test Data

ELECTRICAL CHARACTERISTIC				MECHANICAL DIMENSIONS				
SPEC	L(uH)	DCR(mΩ)	Isat(uH)	A(mm)	B(mm)	C(mm)	D(mm)	
TOL	4.7	240.0	1.8A	2.5	2.0	1.25	2.8	
NO	±20%	Max	(LOA-L1.8A) /LOA≈40%	±0.2	±0.2	Max	Ref	
1	4.58	184.5	3.18	2.65	2.11	1.13	OK	
2	4.78	191.2	3.15	2.67	2.12	1.16	OK	
3	4.67	182.8	3.14	2.66	2.10	1.15	OK	
4	4.61	185.5	3.16	2.66	2.12	1.16	OK	
5	4.59	184.4	3.18	2.67	2.10	1.15	OK	
6	4.68	184.7	3.12	2.66	2.11	1.16	OK	
7	4.60	182.6	3.19	2.65	2.12	1.16	OK	
8	4.64	185.5	3.10	2.68	2.11	1.15	OK	
9	4.56	182.7	3.13	2.68	2.09	1.14	OK	
10	4.62	183.4	3.19	2.67	2.10	1.18	OK	

Test Equipmets: IM3536,VR126,VR7210,Calipers

Curve:



### 5. Test and Measurement Procedures

#### 5.1 Test Conditions

5.1.1 Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- a. Ambient Temperature:  $20 \pm 15^\circ\text{C}$
- b. Relative Humidity:  $65\% \pm 20\%$
- c. Air Pressure: 86KPa to 106KPa

5.1.2 If any doubt on the results, measurements/tests should be made within the following limits:

- a. Ambient Temperature:  $20 \pm 2^\circ\text{C}$
- b. Relative Humidity:  $65\% \pm 5\%$
- c. Air Pressure: 86KPa to 106Kpa

#### 5.2 Visual Examination

- a. Inspection Equipment: 10X magnifier

#### 5.3 Electrical Test

5.3.1 Inductance (L)

- a. Refer to the third item.
- b. Test equipment: IM3536 LCR meter or equivalent.
- c. Test Frequency and Voltage: Refer to the third item.

5.3.2 Direct Current Resistance (DCR)

- a. Refer to the third item.
- b. Test equipment: VR126 or equivalent.

5.3.3 Saturation Current ( $I_{sat}$ )

- a. Refer to the third item.
- b. Test equipment: Saturation current meter
- c. Definition of saturation current ( $I_{sat}$ ): DC current at which the inductance drops approximate 40% from its value without current.

5.3.4 Temperature rise current ( $I_{rms}$ )

- a. Refer to the third item.
- b. Test equipment (see Fig.5.3.4-1): Electric Power, Electric current meter, Thermometer.
- c. Measurement method (see Fig. 5.3.4-1):
  1. Set test current to be 0mA.
  2. Measure initial temperature of choke surface.
  3. Gradually increase current and measure choke temperature for corresponding current.
  4. Definition of Temperature rise current: DC current that causes the temperature rise ( $\Delta T = 40^\circ\text{C}$ ) from  $20^\circ\text{C}$  ambient (see Fig. 5.3.4-2).

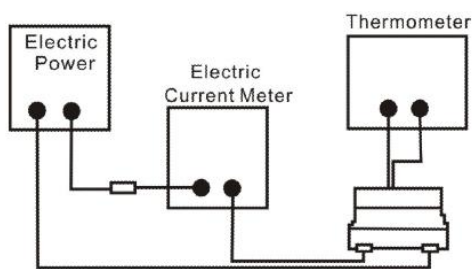


Fig.5.3.4-1

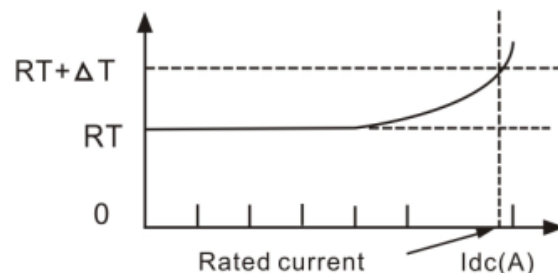
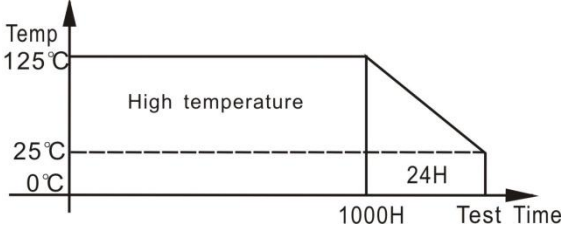
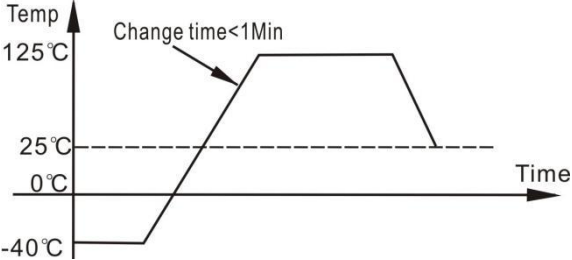
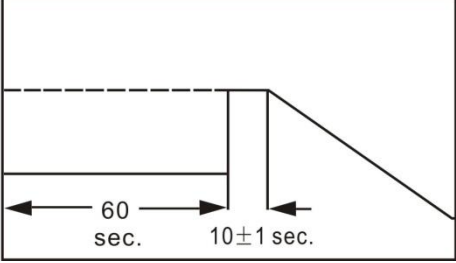
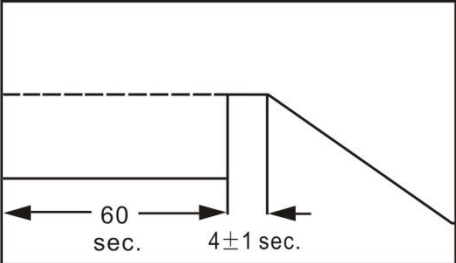


Fig.5.3.4-2

### 5.4 Reliability Test

Item	Specifications	Test conditions
5.4.1 High temperature storage test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Temperature: $125 \pm 2^\circ\text{C}$ . Duration: 1000hrs. Measured at room temperature after placing for $24 \pm 4$ hrs. 
5.4.2 Temperature cycling test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Condition for 1 cycle. Step1: $-40 \pm 2^\circ\text{C}$ 30min Min. Step2: $125 \pm 2^\circ\text{C}$ transition time 1min Max. Step3: $125 \pm 2^\circ\text{C}$ 30min Min. Step4: Low temp, transition time 1min Max. Number of cycles: 1000. Measured at room temperature after placing for $24 \pm 4$ hrs. 
5.4.3 Biased humidity test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Humidity : $85\% \pm 3$ RH. Temperature: $85^\circ\text{C} \pm 2^\circ\text{C}$ . Duration : 1000hrs. Measured at room temperature after placing for $24 \pm 4$ hrs.
5.4.4 Operational life test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Temperature: $105 \pm 2^\circ\text{C}$ . Duration : 1000hrs. Measured at room temperature after placing for $24 \pm 4$ hrs.
5.4.5 Resistance to solvent test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Add aqueous wash chemical - OKEM clean or equivalent.
5.4.6 Vibration test	No visible mechanical damage. Inductance change: Within $\pm 10\%$ .	Oscillation Frequency: $10 \sim 2\text{K} \sim 10\text{Hz}$ for 20 minute. Total Amplitude: $1.52\text{mm} \pm 10\%$ . Testing Time : 12 hours (20 minutes, 12 cycles each of 3 orientations).

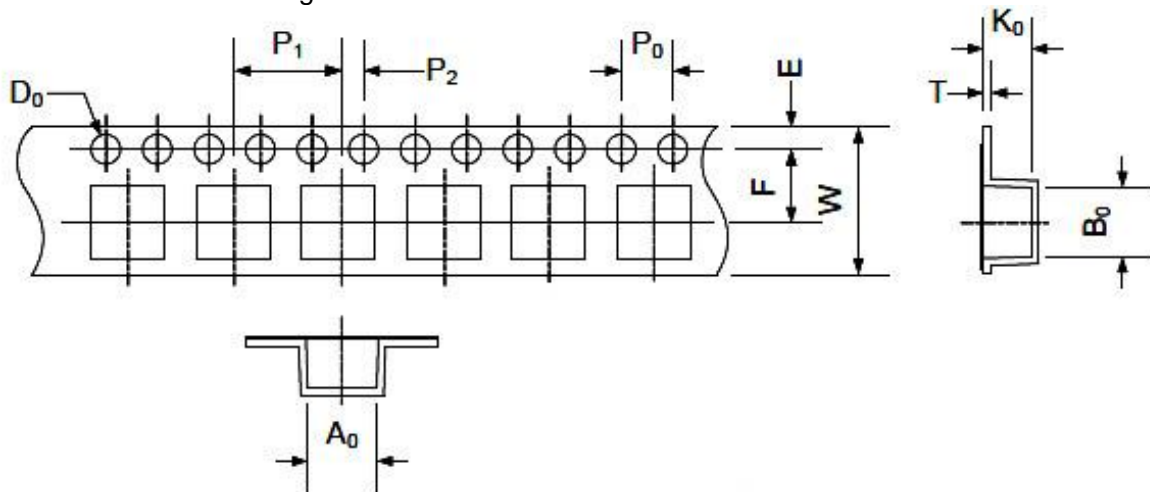
Item	Specifications	Test conditions
<p>5.4.7 Resistance to soldering heat test</p>	<p>No visible mechanical damage. Inductance change: Within <math>\pm 10\%</math>.</p>	<p>Temperature (<math>^{\circ}\text{C}</math>): <math>260 \pm 5</math> (solder temp). Time (s): <math>10 \pm 1</math>. ramp/immersion and emersion rate: <math>25\text{mm/s} \pm 6 \text{ mm/s}</math>. Number of heat cycles:1.</p> 
<p>5.4.8 Solderability test</p>	<p>More than 95% of the terminal electrode should be covered with solder.</p>	<p>Steam Aging: 8 hours <math>\pm</math> 15 min. Preheat: <math>150^{\circ}\text{C}</math>, 60sec. Solder: Sn99.5%-Cu0. 5%. Temperature: <math>245 \pm 5^{\circ}\text{C}</math>. Flux for lead free: Rosin. 9.5%. Dip time: <math>4 \pm 1</math>sec. Depth: completely cover the termination.</p> 
<p>5.4.9 Terminal strength (SMD) test</p>	<p>No visible mechanical damage.</p>	<p>With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for <math>60 \pm 1</math> seconds. Also the force shall be applied radually as not to apply a shock to the component being tested.</p>

### 6. Packaging, Storage

#### 6.1 Tape and Reel Packaging Dimensions

6.1.1 Taping Dimensions (Unit: mm)

Please refer to Fig. 6.1.1-1



6.1.1-1

TYPE	A0	B0	W	E	F	P0	P1	P2	D0	T	K0
APS25A12	2.4±0.1	2.8±0.1	8.0±0.3	1.75±0.1	3.5±0.1	4.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	0.3±0.1	1.35±0.1

6.1.2 Reel Dimensions (Unit: mm)

Please refer to Fig. 6.1.2-1.

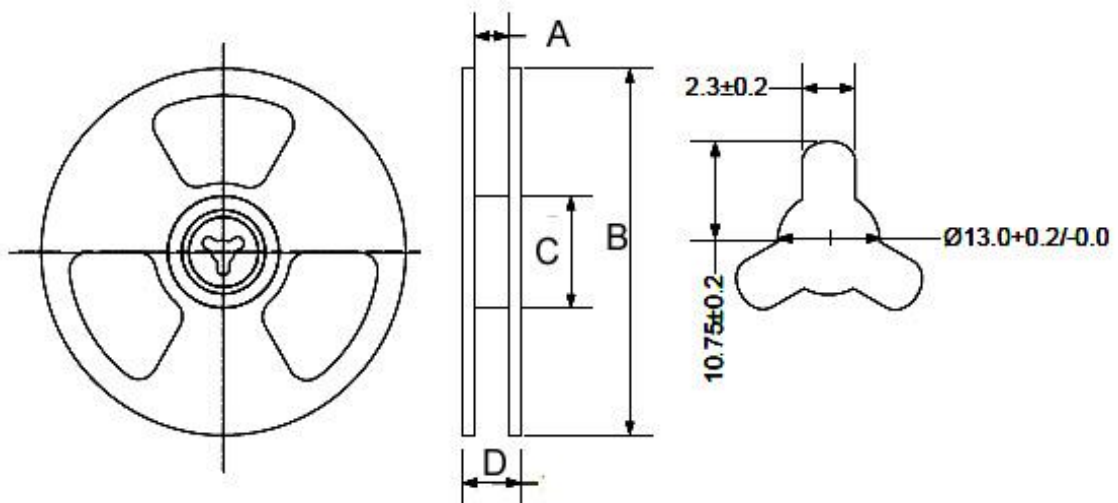


Fig. 6.1.2-1.

TYPE	A	B	C	D
APS25A12	9.0±2.0	178.0±2.0	58.0±2.0	11.0±2.0



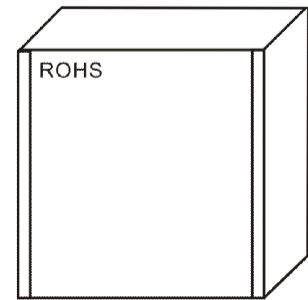
### 6.2 Packaging

6.2.1 The inner box specification: 195\*192\*65MM

Packing quantity: 15000PCS/ box

Sealing bag: 32\*23CM

Job description: putting the air sealing bag products placed inside the box.

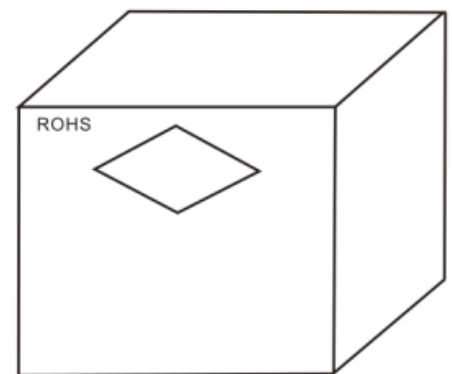


6.2.2 The outside box specification: 410\*405\*165MM

Packing quantity: 120000PCS/ box

Job description: will be outside the box bottom sealed, inner box into the box.

- a. With transparent tape sealed box at the top
- b. The specified location with a box labels in the outer box.
- c. If the mantissa box under a FCL with inner box or filling full



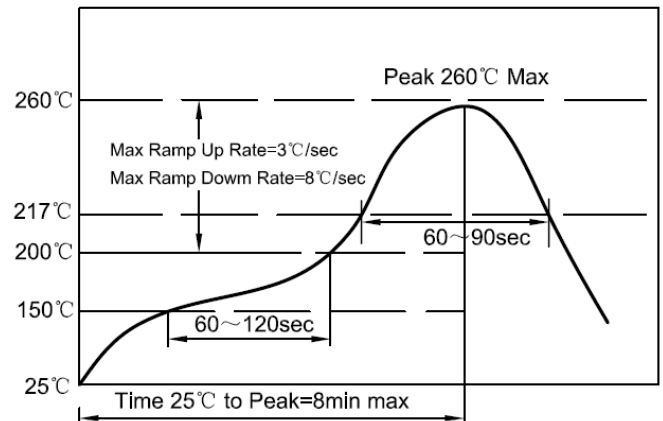
### 6.3 Storage

- a. To maintain the solderability of terminal electrodes and to keep the packing material in good condition, temperature and humidity in the storage area should be controlled.
- b. Recommended conditions: -10°C~40°C, 70%RH (Max.)
- c. The ambient temperature must be kept below 30°C. Even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, product should be used within one year from the time of delivery.
- d. In case of storage over 6 months, solderability shall be checked before actual usage.

### 7. Recommended Soldering Technologies

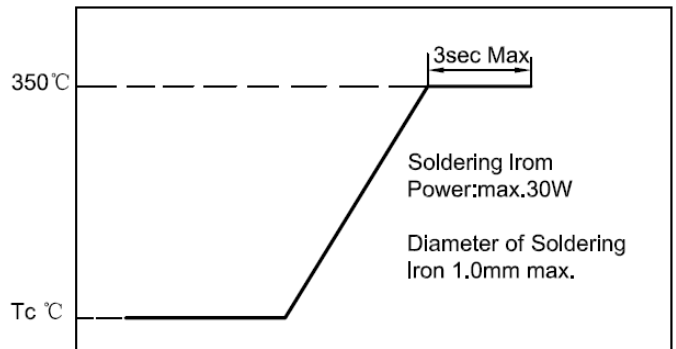
#### 7.1 Re-flowing Profile:

- △ Preheat condition: 150~200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 5sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max



#### 7.2 Iron Soldering Profile:

- △ Iron soldering power: Max.30W
  - △ Pre-heating: 150°C/60sec.
  - △ Soldering Tip temperature: 350°C Max.
  - △ Soldering time: 3sec Max.
  - △ Solder paste: Sn/3.0Ag/0.5Cu
  - △ Max.1 times for iron soldering
- [Note: Take care not to apply the tip of the soldering iron to the]



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Fixed Inductors](#) category:*

*Click to view products by [COILANK](#) manufacturer:*

Other Similar products are found below :

[MLZ1608M6R8WTD25](#) [MLZ1608N6R8LT000](#) [MLZ1608N3R3LTD25](#) [MLZ1608N3R3LT000](#) [MLZ1608N150LT000](#)  
[MLZ1608M150WTD25](#) [MLZ1608M3R3WTD25](#) [MLZ1608M3R3WT000](#) [MLZ1608M150WT000](#) [MLZ1608A1R5WT000](#)  
[MLZ1608N1R5LT000](#) [B82432C1333K000](#) [PCMB053T-1R0MS](#) [PCMB053T-1R5MS](#) [PCMB104T-1R5MS](#) [CR32NP-100KC](#) [CR32NP-151KC](#) [CR32NP-180KC](#) [CR32NP-181KC](#) [CR32NP-1R5MC](#) [CR32NP-390KC](#) [CR32NP-3R9MC](#) [CR32NP-680KC](#) [CR32NP-820KC](#)  
[CR32NP-8R2MC](#) [CR43NP-390KC](#) [CR43NP-560KC](#) [CR43NP-680KC](#) [CR54NP-181KC](#) [CR54NP-470LC](#) [CR54NP-820KC](#) [CR54NP-8R5MC](#)  
[MGDQ4-00004-P](#) [MGDU1-00016-P](#) [MHL1ECTTP18NJ](#) [MHL1JCTTD12NJ](#) [PE-51506NL](#) [PE-53601NL](#) [PE-53630NL](#) [PE-53824SNLT](#) [PE-62892NL](#) [PE-92100NL](#) [PG0434.801NLT](#) [PG0936.113NLT](#) [PM06-2N7](#) [PM06-39NJ](#) [HC2LP-R47-R](#) [HC2-R47-R](#) [HC3-2R2-R](#) [HC8-1R2-R](#)