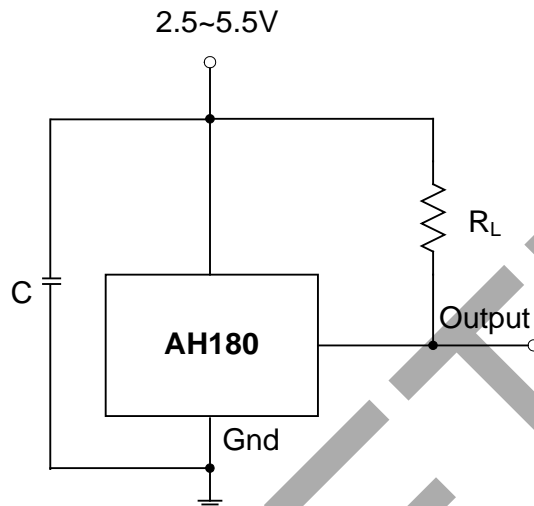


## Typical Application Circuit

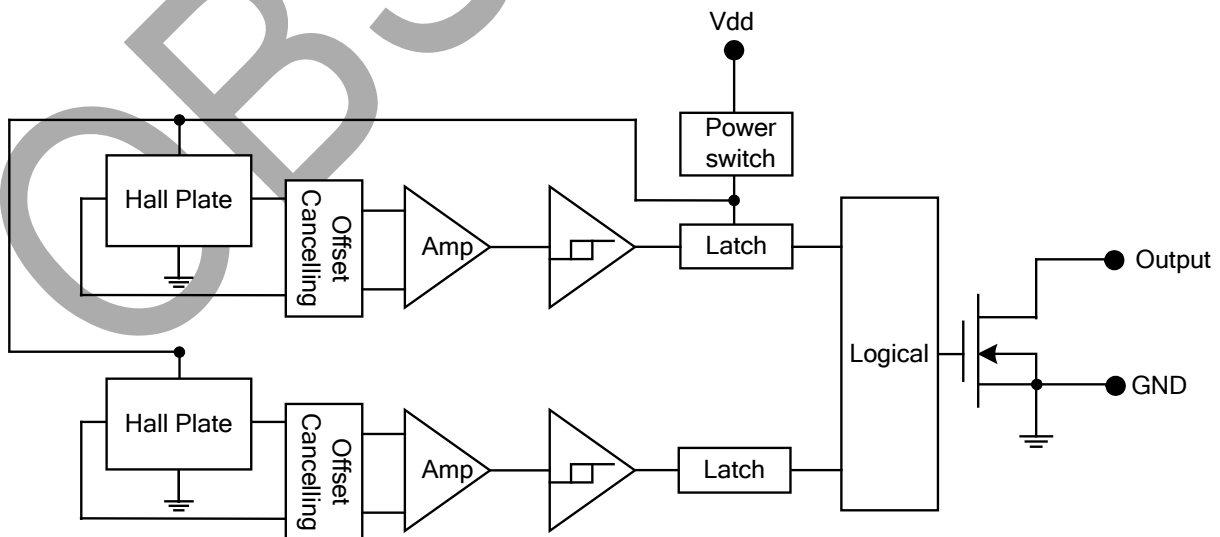


Note: C is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 10nF~100nF.  
R<sub>L</sub> is the pull-up resistor, the recommended resistance is 10Kohm~100Kohm.

## Pin Descriptions

Pin Name	P/I/O	Description
Vdd	P/I	Power Supply Input
GND	P/I	Ground
Output	O	Output Pin
NC	NC	No Connected

## Functional Block Diagram



**Absolute Maximum Ratings** ( $T_A = +25^\circ\text{C}$ )

Symbol	Characteristics	Values	Unit
V <sub>dd</sub>	Supply voltage	7	V
B	Magnetic flux density	Unlimited	
T <sub>s</sub>	Storage Temperature Range	-65 to +150	°C
P <sub>D</sub>	Package Power Dissipation	SIP-3L	550 mW
		SC59-3L/ DFN2020-6/ DFN2020-3	230 mW
T <sub>j</sub>	Maximum Junction Temperature	150	°C

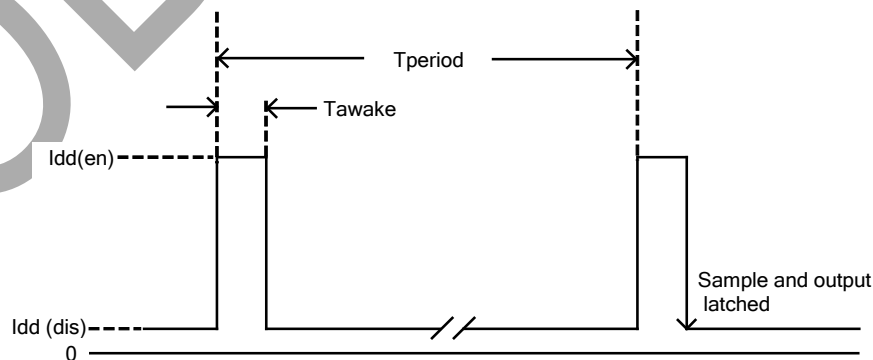
**Recommended Operating Conditions**

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>dd</sub>	Supply Voltage	Operating	2.5	5.5	V
T <sub>A</sub>	Operating Ambient Temperature	Operating	-40	85	°C

**Electrical Characteristics** ( $T_A = +25^\circ\text{C}$ , V<sub>dd</sub> = 3V; unless otherwise specified)

Symbol	Characteristic	Conditions	Min	Typ.	Max	Unit
V <sub>out</sub>	Output On Voltage	I <sub>out</sub> = 1mA	—	0.1	0.3	V
I <sub>off</sub>	Output Leakage Current	V <sub>out</sub> = 5.5V, Output off	—	<0.1	1	μA
I <sub>dd(en)</sub>	Supply Current	Chip enable, T <sub>A</sub> = +25°C, V <sub>dd</sub> = 3V	—	3	6	mA
I <sub>dd(en)</sub>		Chip enable, T <sub>A</sub> = -40~85°C, V <sub>dd</sub> = 2.5~5.5V	—	3	9	mA
I <sub>dd(dis)</sub>		Chip disable, T <sub>A</sub> = +25°C, V <sub>dd</sub> = 3V	—	5	10	μA
I <sub>dd(dis)</sub>		Chip disable, T <sub>A</sub> = -40~85°C, V <sub>dd</sub> = 2.5~5.5V	—	5	15	μA
I <sub>dd(avg)</sub>		Average supply current, T <sub>A</sub> = +25°C, V <sub>dd</sub> = 3V	—	8	16	μA
I <sub>dd(avg)</sub>		Average supply current, T <sub>A</sub> = -40~85°C, V <sub>dd</sub> = 2.5~5.5V	—	8	24	μA
T <sub>awake</sub>	Awake Time	(Note 2)	—	75	125	μs
T <sub>period</sub>	Period	(Note 2)	—	75	125	ms
D.C.	Duty Cycle		—	0.1	—	%

Note: 2. When power is initially turned on, V<sub>dd</sub> must be within its correct operating range (2.5V to 5.5V) to guarantee the output sampling. The output state is valid after the second operating phase (typical 150ms).



## Magnetic Characteristics ( $T_A = +25^\circ\text{C}$ , $V_{DD} = 3\text{V}$ , Notes 3 & 4)

Option 1:

(1mT=10 Gauss)

Symbol	Parameter	Min	Typ.	Max	Unit
Bops (south pole to brand side)	Operation Point	-	40	60	Gauss
Bopn (north pole to brand side)		-60	-40	-	
Brps (south pole to brand side)	Release Point	10	30	-	
Brpn (north pole to brand side)		-	-30	-10	
Bhy ( $ B_{opx}  -  B_{rpx} $ )	Hysteresis	-	15	-	

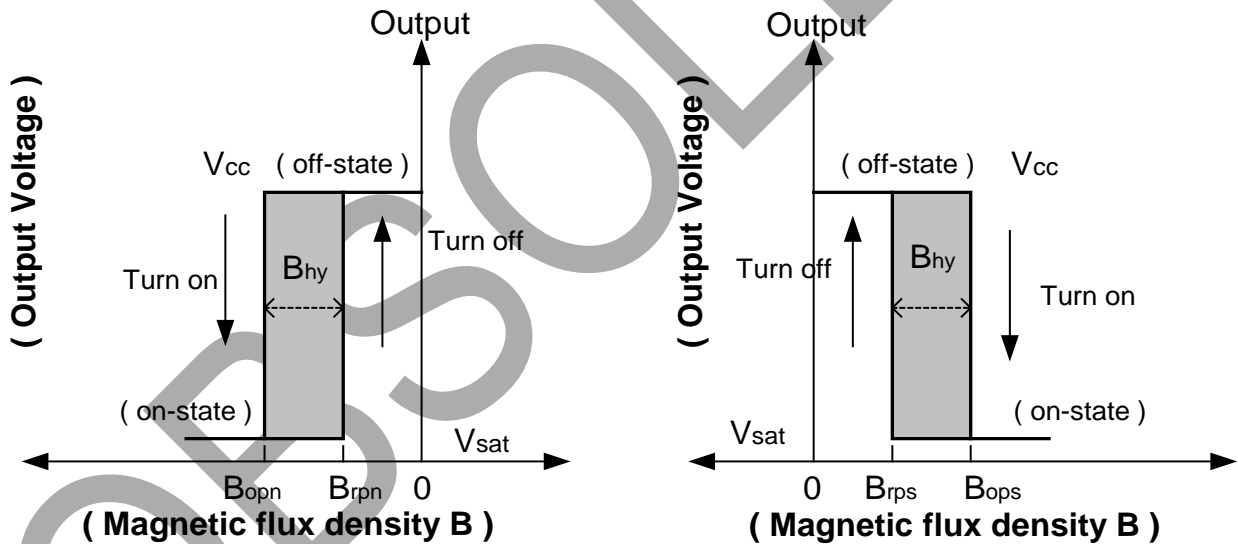
Option 2:

(1mT=10 Gauss)

Symbol	Parameter	Min	Typ.	Max	Unit
Bops (south pole to brand side)	Operation Point	-	40	60	Gauss
Bopn (north pole to brand side)		-60	-40	-	
Brps (south pole to brand side)	Release Point	20	30	-	
Brpn (north pole to brand side)		-	-30	-20	
Bhy ( $ B_{opx}  -  B_{rpx} $ )	Hysteresis	-	15	-	

Notes: 3. Typical data is at  $T_A = +25^\circ\text{C}$ ,  $V_{DD} = 3\text{V}$ , and for design information only.  
4. Magnetic characteristics may vary with supply voltage, operating temperature and after soldering.

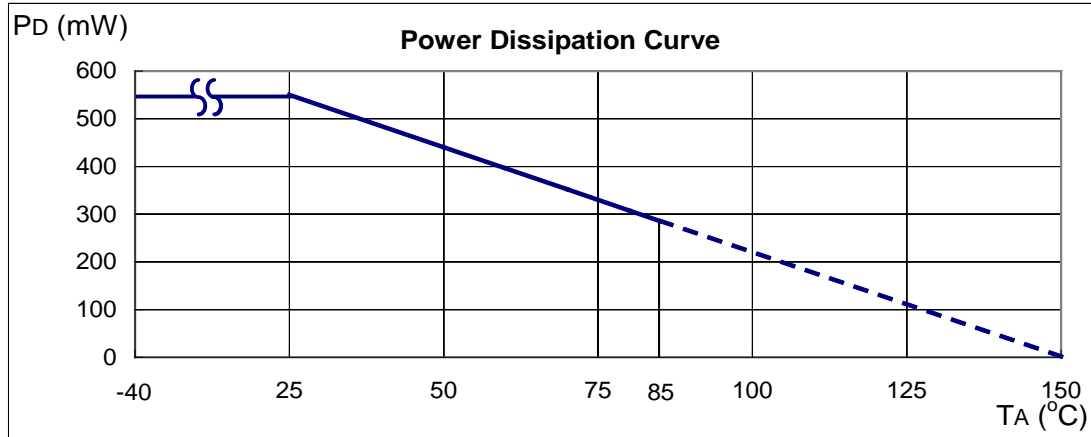
## Operating Characteristics



## Performance Characteristics

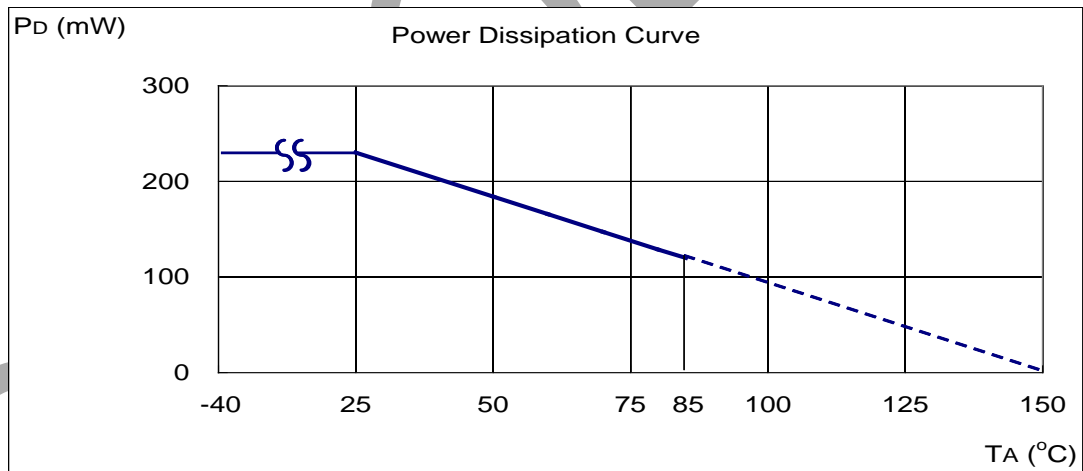
### (1) SIP-3L

$T_A$ (°C)	25	50	60	70	80	85	90	95	100
$P_D$ (mW)	550	440	396	352	308	286	264	242	220
$T_A$ (°C)	105	110	115	120	125	130	135	140	150
$P_D$ (mW)	198	176	154	132	110	88	66	44	0

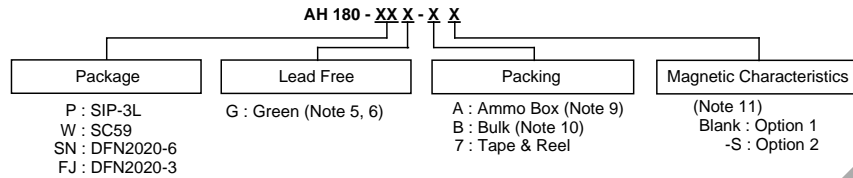


### (2) SC59 (commonly known as SOT23 in Asia), DFN2020-6 and DFN2020-3

$T_A$ (°C)	25	50	60	70	80	85	90	100	110	120	130	140	150
$P_D$ (mW)	230	184	166	147	129	120	110	92	74	55	37	18	0



## Ordering Information



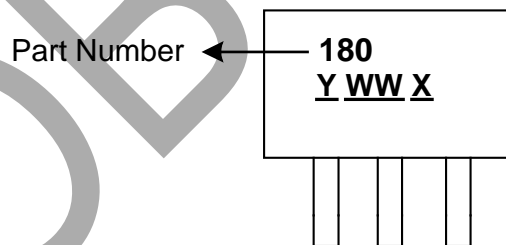
Device	Status (Note )	Package Code	Packaging (Notes 7 & 8)	Bulk		7" Tape and Reel		Ammo Box		Magnetic Characteristics (Note 11)
				Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix	
AH180-PG-B	NRND	P	SIP-3L	1000	-B	NA	NA	NA	NA	Blank
AH180-PG-A	NRND	P	SIP-3L	NA	NA	NA	NA	-A	4000/Box	Blank
AH180-PG-B-S	NRND	P	SIP-3L	1000	-B	NA	NA	NA	NA	S
AH180-PG-A-S	NRND	P	SIP-3L	NA	NA	NA	NA	-A	4000/Box	S
AH180-WG-7	NRND	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA	Blank
AH180-SNG-7	NRND	SN	DFN2020-6	NA	NA	3000/Tape & Reel	-7	NA	NA	Blank
AH180-FJG-7	NRND	FJ	DFN2020-3	NA	NA	3000/Tape & Reel	-7	NA	NA	Blank

- Notes:
5. SIP-3L, SC59, DFN2020-6 and DFN2020-3 are available in “Green”
  6. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at [http://www.diodes.com/products/lead\\_free.html](http://www.diodes.com/products/lead_free.html).
  7. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  8. Reverse taping as shown on Diodes Inc. Surface Mount (SMD) Packaging document AP02007, which can be found on our website <http://www.diodes.com/datasheets/ap02007.pdf>.
  9. Ammo Box is for SIP-3L Spread Lead.
  10. Bulk is for SIP-3L Straight Lead.
  11. Please refer the Magnetic Characteristics table, option 2 is available in SIP-3L package only.
  12. NRND = Not Recommended for New Design

## Marking Information

**(1) SIP-3L**

**(Top View)**

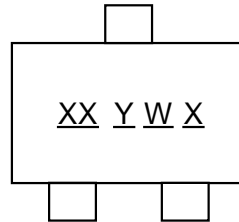


Y : Year : 0~9  
WW : Week : 01~52, "52" represents  
52 and 53 week  
X : Internal Code : A~Z : Green  
a~z : Lead Free

## Marking Information (cont.)

(2) SC59 (commonly known as SOT23 in Asia)

( Top View )



XX : Identification code

Y : Year 0~9

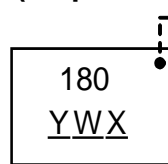
W : Week : A~Z : 1~26 week;  
a~z : 27~52 week; z represents  
52 and 53 week

X : A~Z : Green

Part Number	Package	Identification Code
AH180	SC59	K0

(3) DFN2020-6

( Top View )



Pin 1 indicator

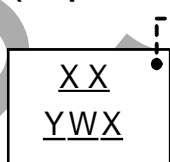
Y : Year : 0~9

W : Week : A~Z : 1~26 week;  
a~z : 27~52 week; z represents  
52 and 53 week

X : A~Z : Green

(4) DFN2020-3

( Top View )



Pin 1 indicator

XX : Identification Code

Y : Year : 0~9

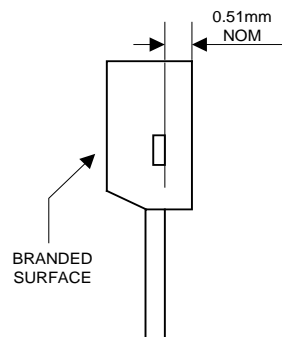
W : Week : A~Z : 1~26 week;  
a~z : 27~52 week; z represents  
52 and 53 week

X : A~Z : Green

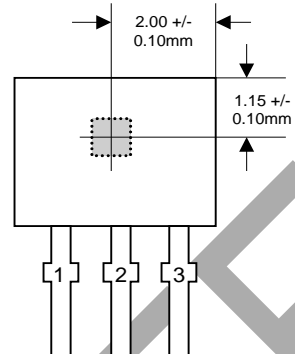
Part Number	Package	Identification Code
AH180	DFN2020-3	K0

**Package Outline Dimensions (All Dimensions in mm)**

(1) Package Type: SIP-3L for Bulk pack

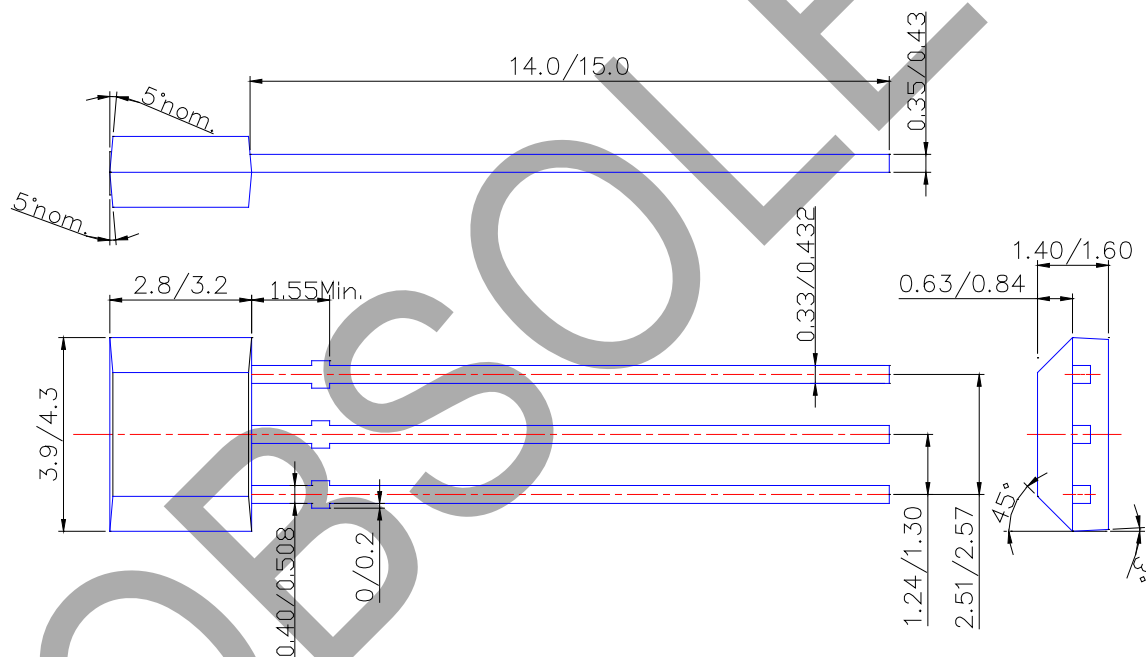


Active Area Depth

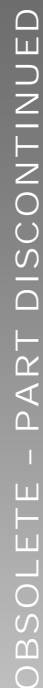


Sensor Location

**Package Dimension**

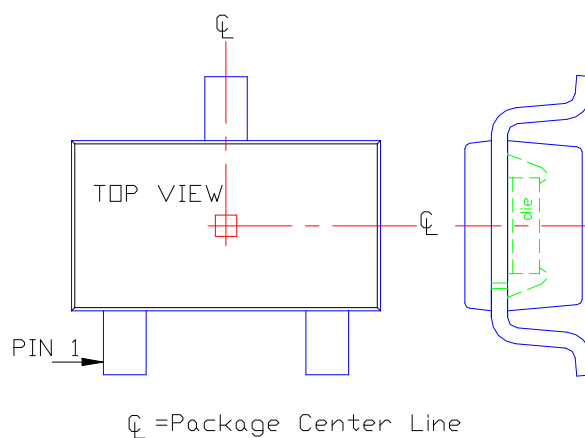


**(2) Package Type: SIP-3L for Ammo pack**



Technical drawing of a mechanical part showing three views: Top View, Front View, and Side View. The dimensions are as follows:

- Top View:**
  - Top width:  $0.35/0.50$
  - Right side height:  $1.50/1.70$
  - Bottom right corner height:  $2.70/3.00$
  - Bottom width:  $1.90$
- Front View:**
  - Top width:  $2.90/3.10$
  - Left side height:  $1.00/1.30$
  - Bottom left corner height:  $0.013/0.10$
  - Bottom width:  $0.95$
- Side View:**
  - Top width:  $0.35/0.55$
  - Right side height:  $0.10/0.20$
  - Bottom right corner height:  $0.35/0.55$
- Detail View:**
  - Angle:  $\alpha$
  - Angle:  $0^\circ/8^\circ$



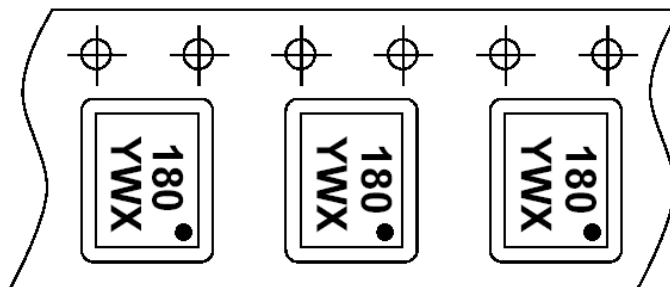


OBSELETE - PART DISCONTINUED

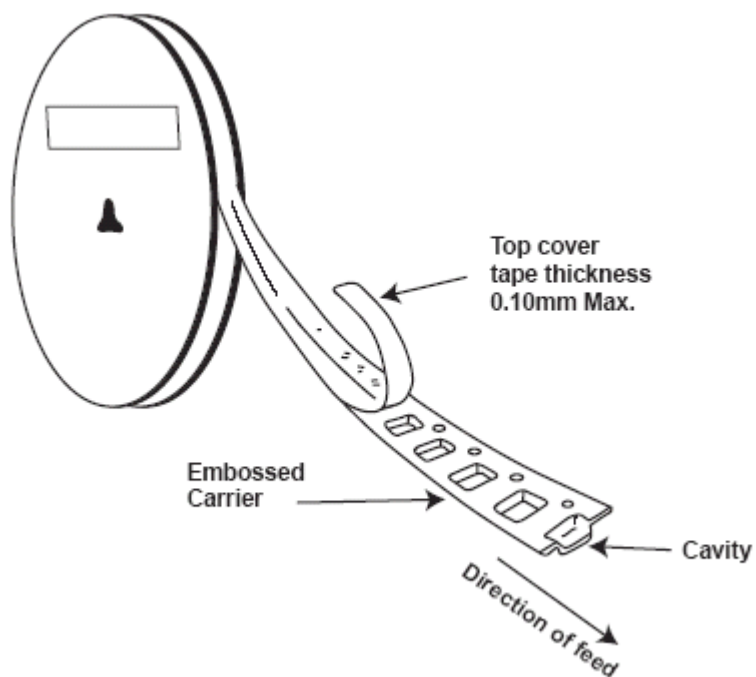
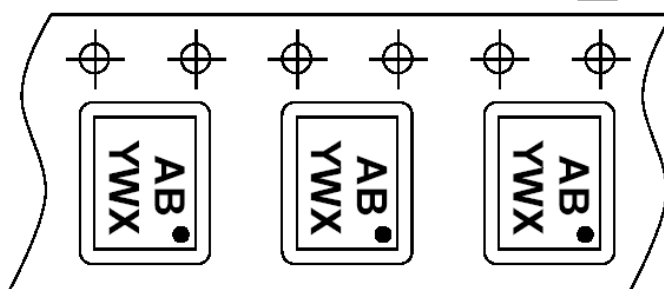
February 2019  
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# Taping Orientation (Note 12)

(1) DFN2020-6



(2) DFN2020-3



Note: 12. The taping orientation of the other package type can be found on our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

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