

## Pin Descriptions

### Package: X1-DFN1216-4

Pin Number	Pin Name	Function
1	OUTPUT	Output Pin
2	GND	Ground Pin
3	NC	No Connection (Note 5)
4	V <sub>DD</sub>	Power Supply Input
Pad	Pad	The center exposed pad – No connection internally. The exposed pad can be left open (unconnected to ) on the PCB layout.

### Package: X2-DFN2015-6

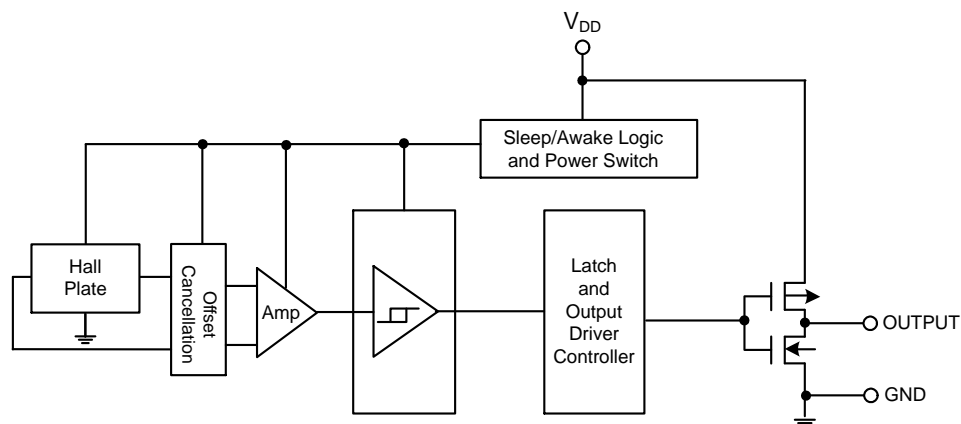
Pin Number	Pin Name	Function
1	OUTPUT	Output Pin
2	NC	No Connection (Note 5)
3	NC	No Connection (Note 5)
4	GND	Ground Pin
5	NC	No Connection (Note 5)
6	V <sub>DD</sub>	Power Supply Input
Pad	Pad	The center exposed pad – No connection internally. The exposed pad can be left open (unconnected to) on the PCB layout.

### Package: SOT553

Pin Number	Pin Name	Function
1	NC	No Connection (Note 5)
2	GND	Ground Pin
3	NC	No Connection (Note 5)
4	V <sub>DD</sub>	Power Supply Input
5	OUTPUT	Output Pin

Note: 5. NC is "No Connection" pin and is not connected internally. This pin can be left open or tied to ground.

## Functional Block Diagram



**Absolute Maximum Ratings** (Note 6) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter		Rating	Unit
V <sub>DD</sub>	Supply Voltage (Note 7)		6	V
V <sub>DD_REV</sub>	Reverse Supply Voltage		-0.3	V
I <sub>OUTPUT</sub>	Output Current (source and sink)		3	mA
B	Magnetic Flux Density		Unlimited	
P <sub>D</sub>	Package Power Dissipation	X1-DFN1216-4 and X2-DFN2015-6	230	mW
		SOT553	230	mW
T <sub>s</sub>	Storage Temperature Range		-65 to +150	°C
T <sub>J</sub>	Maximum Junction Temperature		+150	°C
ESD HBM	Human Body Model (HMB) ESD capability		8	kV

- Notes:
- Stresses greater than the 'Absolute Maximum Ratings' specified above may cause permanent damage to the device. These are stress ratings only; functional operation of the device at these or any other conditions exceeding those indicated in this specification is not implied. Device reliability may be affected by exposure to absolute maximum rating conditions for extended periods of time.
  - The absolute maximum V<sub>DD</sub> of 6V is a transient stress rating and is not meant as a functional operating condition. It is not recommended to operate the device at the absolute maximum rated conditions for any period of time.

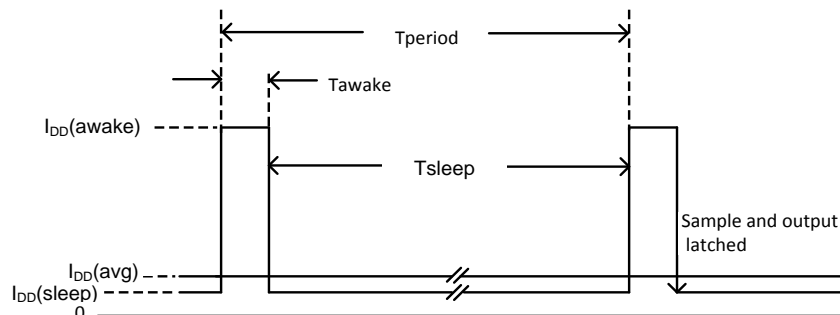
**Recommended Operating Conditions** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Rating	Unit
V <sub>DD</sub>	Supply Voltage	Operating	1.6V to 3.6V	V
T <sub>A</sub>	Operating Temperature Range	Operating	-40 to +85	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, V<sub>DD</sub> = 1.8V, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>OL</sub>	Output Low Voltage (on)	I <sub>OUT</sub> = 1mA	—	0.1	0.2	V
V <sub>OH</sub>	Output High Voltage (off)	I <sub>OUT</sub> = -1mA	V <sub>DD</sub> -0.2	V <sub>DD</sub> -0.1	—	V
I <sub>off</sub>	Output Leakage Current	V <sub>OUT</sub> = 3.6V, Output off	—	< 0.1	1	μA
I <sub>DD(awake)</sub>	Supply Current	During 'awake' period, T <sub>A</sub> = +25°C, V <sub>DD</sub> = 3V	—	2.1	—	mA
I <sub>DD(sleep)</sub>		During 'sleep' period, T <sub>A</sub> = +25°C, V <sub>DD</sub> = 3V	—	2.5	—	μA
I <sub>DD(avg)</sub>	Average Supply Current	T <sub>A</sub> = +25°C, V <sub>DD</sub> = 1.8V	—	4.3	8	μA
		T <sub>A</sub> = +25°C, V <sub>DD</sub> = 3.6V	—	7.2	13	μA
T <sub>awake</sub>	Awake Time	(Note 8)	—	50	100	μs
T <sub>period</sub>	Period	(Note 8)	—	50	100	ms
D.C.	Duty Cycle	—	—	0.1	—	%

- Note:
- When power is initially turned on, the operating V<sub>DD</sub> (1.6V to 3.6V) must be applied to guarantee the output sampling. The output state is valid after the second operating cycle (typical 100ms).

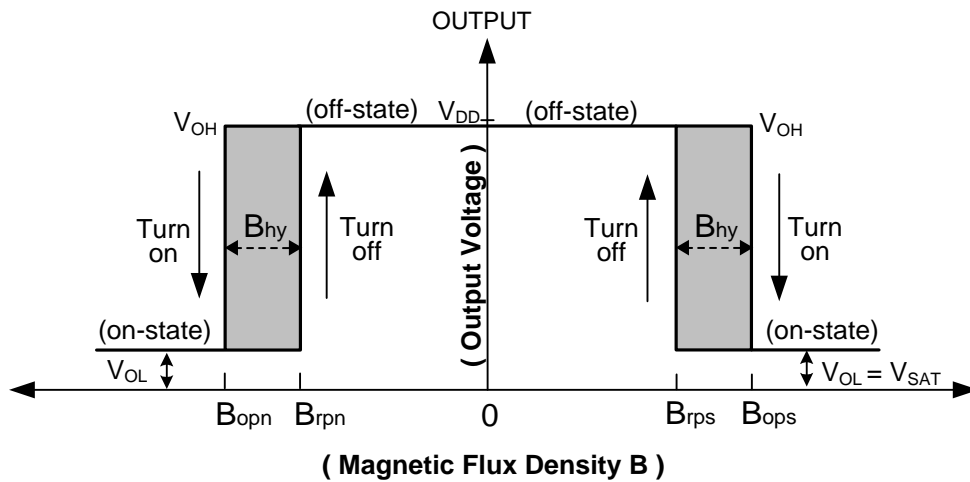


**Magnetic Characteristics** (Note 9 & 10) ( $T_A = +25^\circ\text{C}$ ,  $V_{DD} = 1.8\text{V}$ , unless otherwise specified)

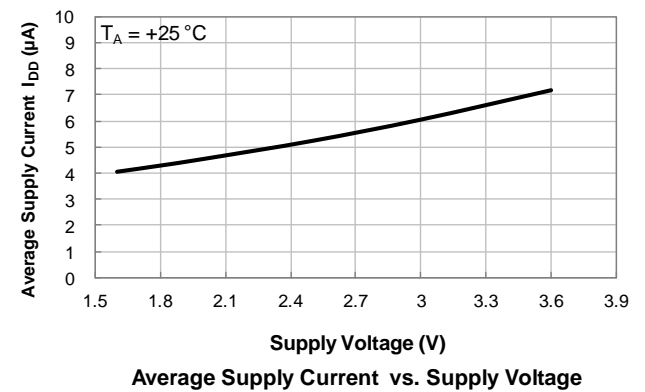
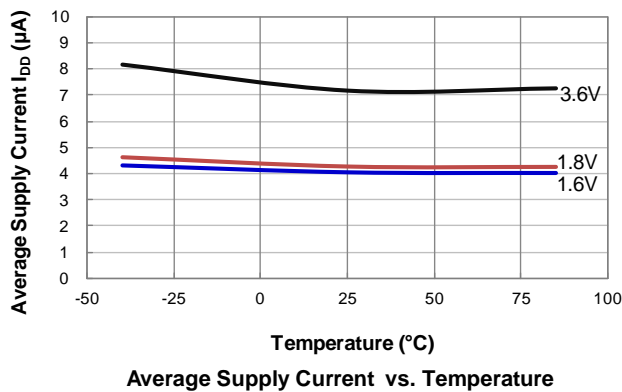
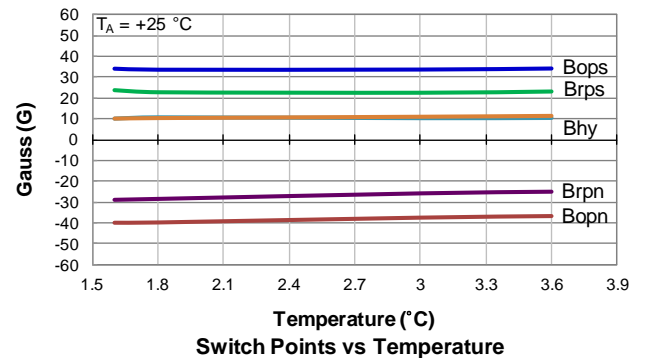
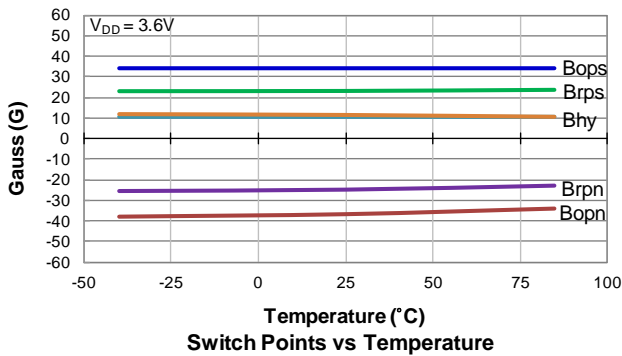
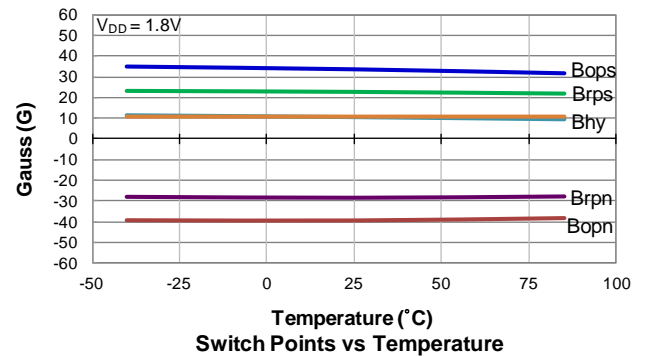
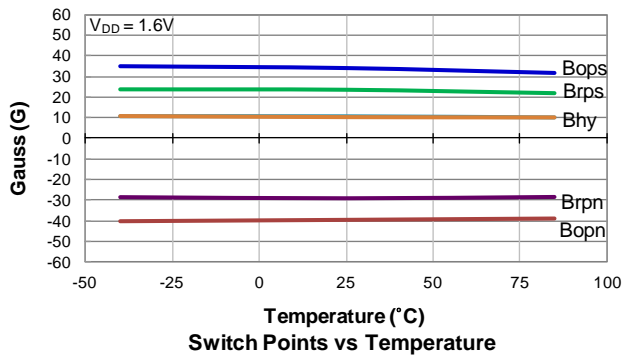
(1mT=10 Gauss)					
Symbol	Characteristics	Test Condition	Min	Typ	Max
Bops (south pole to part marking side)	Operation Point	—	23	33	47
		$V_{DD} = 1.6\text{V to } 3.6\text{V}$ $T_A = -40^\circ\text{C to } +85^\circ\text{C}$	21	33	48
Bopn (north pole to part marking side)		—	-47	-33	-24
		$V_{DD} = 1.6\text{V to } 3.6\text{V}$ $T_A = -40^\circ\text{C to } +85^\circ\text{C}$	-48	-33	-21
Brps (south pole to part marking side)	Release Point	—	12	23	35
		$V_{DD} = 1.6\text{V to } 3.6\text{V}$ $T_A = -40^\circ\text{C to } +85^\circ\text{C}$	9	23	38
Brpn (north pole to part marking side)		—	-35	-23	-12
		$V_{DD} = 1.6\text{V to } 3.6\text{V}$ $T_A = -40^\circ\text{C to } +85^\circ\text{C}$	-38	-23	-9
Bhy ( $ B_{opx}  -  B_{rpx} $ )	Hysteresis	—	—	10	—

Notes: 9. Typical data is at  $T_A = +25^\circ\text{C}$ ,  $V_{DD} = 1.8\text{V}$ .

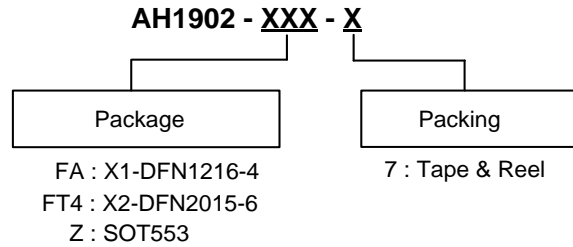
10. Maximum and minimum parameters values over operating temperature range are not tested in production, they are guaranteed by design, characterization and process control. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.



## Typical Operating Characteristics



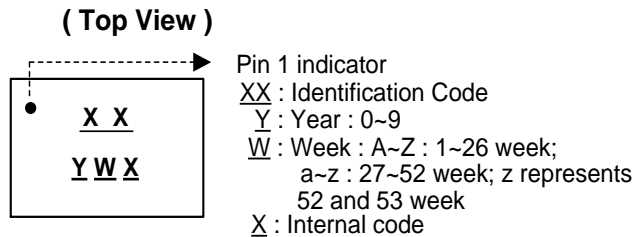
## Ordering Information



Part Number	Package Code	Packaging	7" Tape and Reel	
			Quantity	Part Number Suffix
AH1902-FA-7	FA	X1-DFN1216-4	3,000/Tape & Reel	-7
AH1902-FT4-7	FT4	X2-DFN2015-6	3,000/Tape & Reel	-7
AH1902-Z-7	Z	SOT553	3,000/Tape & Reel	-7

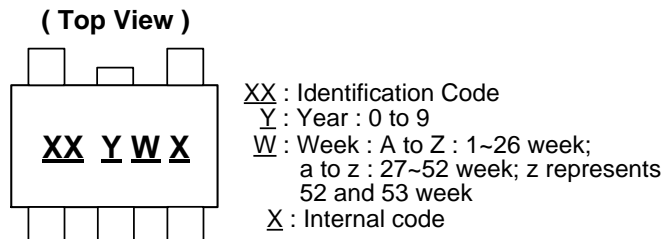
## Marking Information

(1) Package Type: X1-DFN1216-4 and X2-DFN2015-6



Part Number	Package	Identification Code
AH1902-FA-7	X1-DFN1216-4	F2
AH1902-FT4-7	X2-DFN2015-6	D2

(2) Package Type: SOT553

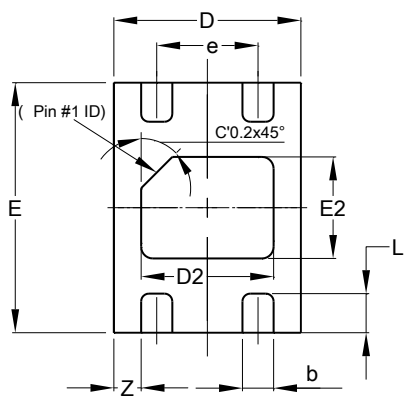
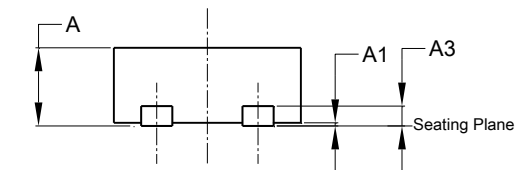


Part Number	Package	Identification Code
AH1902-Z-7	SOT553	D2

## Package Outline Dimensions (All dimensions in mm.)

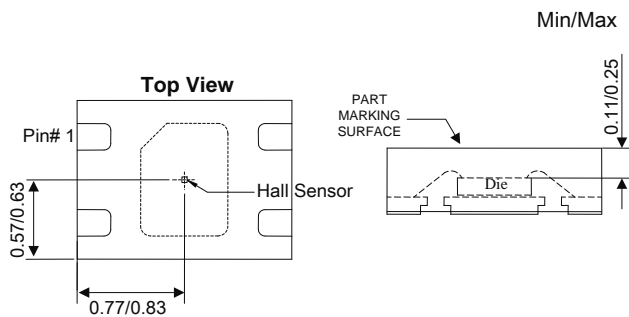
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### (1) Package Type: X1-DFN1216-4



**Bottom View**

X1-DFN1216-4			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
A3	--	--	0.13
b	0.15	0.25	0.20
D	1.15	1.25	1.20
D2	0.75	0.95	0.85
E	1.55	1.65	1.60
E2	0.55	0.75	0.65
e	-	-	0.65
L	0.20	0.30	0.25
Z	-	-	0.175
All Dimensions in mm			

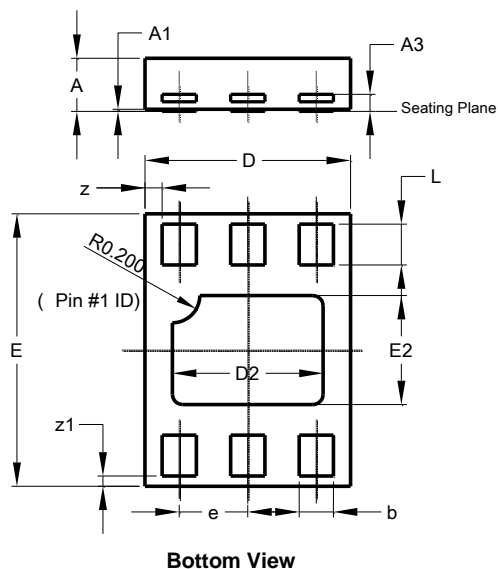


**Sensor Location**

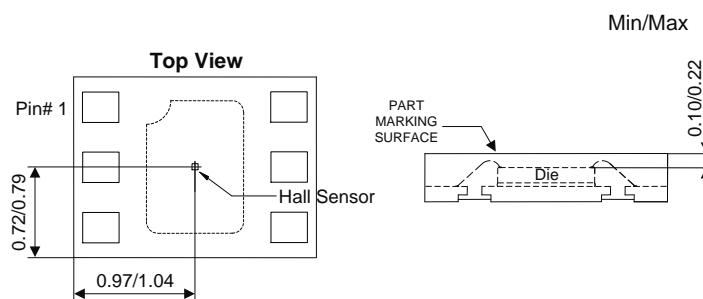
## Package Outline Dimensions (continued) (All dimensions in mm.)

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### (2) Package Type: X2-DFN2015-6



X2-DFN2015-6			
Dim	Min	Max	Typ
A	0.375	0.40	0.390
A1	0	0.05	0.02
A3	-	-	0.13
b	0.20	0.30	0.25
D	1.45	1.575	1.50
D2	1.00	1.20	1.10
e	-	-	0.50
E	1.95	2.075	2.00
E2	0.70	0.90	0.80
L	0.25	0.35	0.30
Z	-	-	0.125
Z1	-	-	0.075
All Dimensions in mm			

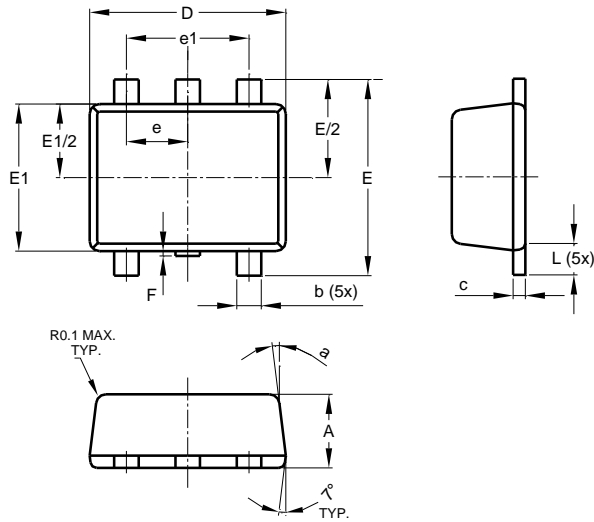


**Sensor Location**

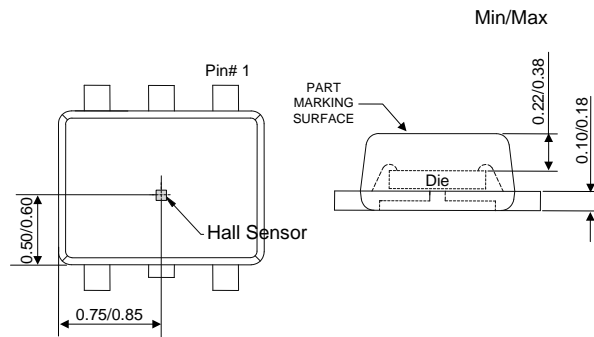
## Package Outline Dimensions (cont.) (All dimensions in mm.)

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### (3) Package Type: SOT553



SOT553			
Dim	Min	Max	Typ
A	0.55	0.62	0.60
b	0.15	0.30	0.20
c	0.10	0.18	0.15
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	0.50 BSC		
e1	1.00 BSC		
F	0.00	0.10	—
L	0.10	0.30	0.20
a	6°	8°	7°
All Dimensions in mm			



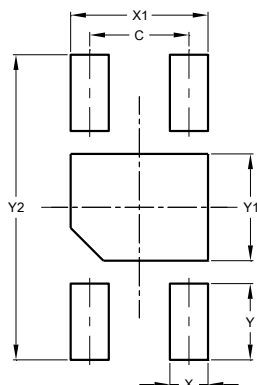
Sensor Location



## Suggested Pad Layout

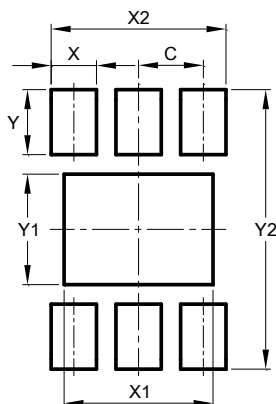
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### (1) Package Type: X1-DFN1216-4



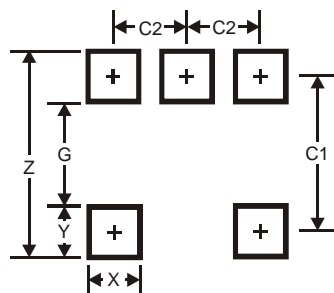
X1-DFN1216-4	
Dimensions	Value
C	0.65
X	0.25
X1	0.90
Y	0.50
Y1	0.70
Y2	2.00
All Dimensions in mm	

### (2) Package Type: X2-DFN2015-6



X2-DFN2015-6	
Dimensions	Value
C	0.500
X	0.350
X1	1.150
X2	1.350
Y	0.500
Y1	0.850
Y2	2.150
All Dimensions in mm	

### (3) Package Type: SOT553



SOT553	
Dimensions	Value
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5
All Dimensions in mm	

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