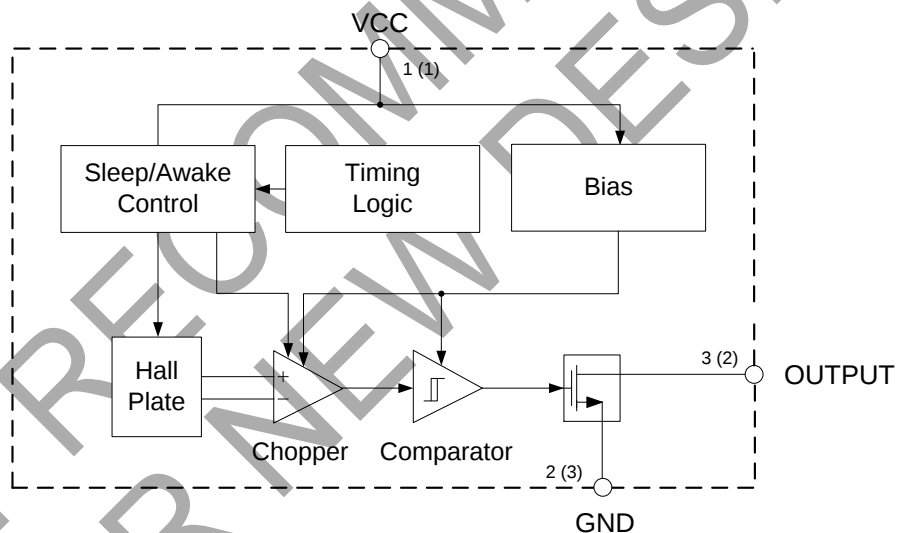


Pin Descriptions

Pin Number			Pin Name	Function
TO-92S-3	SOT-23-3	DFN-2×2-3		
1	1	1	VCC	Power supply pin
2	3	3	GND	Ground pin
3	2	2	OUTPUT	Output pin

Functional Block Diagram



A (B)
A for TO-92S-3
B for SOT-23-3 and DFN-2×2-3

Absolute Maximum Ratings (@T_A=+25°C, Note 4)

Symbol	Parameter	Rating		Unit
V _{CC}	Supply Voltage	7		V
I _{CC}	Supply Current (Fault)	6		mA
V _{OUT}	Output Voltage	7		V
I _{OUT}	Output Current	2		mA
B	Magnetic Flux Density	Unlimited		Gauss
P _D	Power Dissipation	TO-92S-3	400	mW
		SOT-23-3	230	
		DFN-2×2-3	230	
T _{STG}	Storage Temperature	-55 to +150		°C
T _J	Junction Temperature	+150		°C
ESD	ESD (Machine Model) (Note 5)	200		V

Notes: 4. Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

5. Electronic semiconductor products are sensitive to Electro Static Discharge (ESD). Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V _{CC}	Supply Voltage	2.5	5.5	V
T _{OP}	Operating Temperature	-40	+85	°C

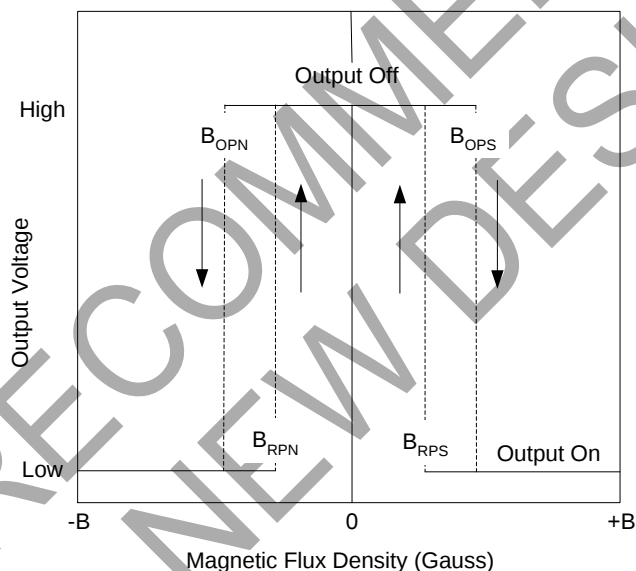
Electrical Characteristics (@T_A=+25°C, V_{CC}=3V, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CC}	Supply Voltage	Operating	2.5	3	5.5	V
I _{AW}	Supply Current	Awake	—	2	4	mA
I _{SL}		Sleep	—	6	10	μA
I _{AVG}		Average	—	10	15	μA
I _{OUT}	Output Current	—	—	—	1.0	mA
I _{LEAK}	Output Leakage Current	B < B _{RP}	—	<0.1	1	μA
V _{SAT}	Saturation Voltage	I _{OUT} = 1.0mA	—	—	0.4	V
t _{AW}	Awake Mode Time	Operating	—	150	—	μs
t _{SL}	Sleep Mode Time	Operating	—	90	120	ms
D	Duty Cycle	—	—	0.15	—	%
f _C	Chopper Frequency	—	—	15	—	kHz

Magnetic Characteristics (@ $T_A=+25^{\circ}\text{C}$, $V_{CC}=3\text{V}$, unless otherwise specified. Note 6)

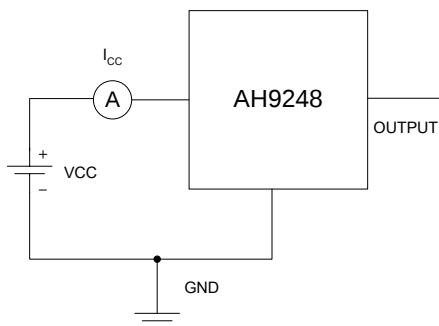
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
B_{OPS}	Operating point	South pole to branded side $B > B_{OPS}$, $V_{OUT}=\text{low}(\text{output on})$	—	30	55	Gauss
B_{OPN}		North pole to branded side $B > B_{OPN}$, $V_{OUT}=\text{low}(\text{output on})$	-55	-30	—	Gauss
B_{RPS}	Releasing Point	South pole to branded side $B < B_{RPS}$, $V_{OUT}=\text{high}(\text{output off})$	5	20	—	Gauss
B_{RPN}		North pole to branded side $B < B_{RPN}$, $V_{OUT}=\text{high}(\text{output off})$	—	-20	-5	Gauss
B_{HYS}	Hysteresis	$ B_{OPX} - B_{RPX} $ (Note 7)	—	10	—	Gauss

Notes: 6. The specifications stated here are guaranteed by design. 1 Gauss=0.1mT
7. B_{OPX} =operating point (output turns on); B_{RPX} =releasing point (output turns off)



Output Voltage vs. Magnetic Flux Density

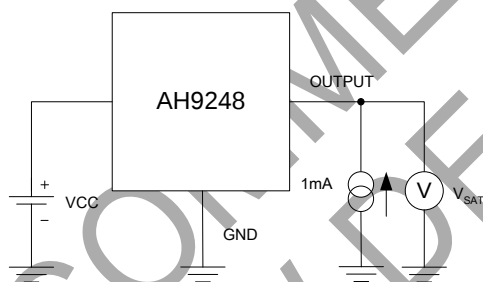
Test Conditions



Average Supply Current (Note 8, Note 9)

Note 8: I_{CC} represents the average supply current. OUTPUT is open during measurement.

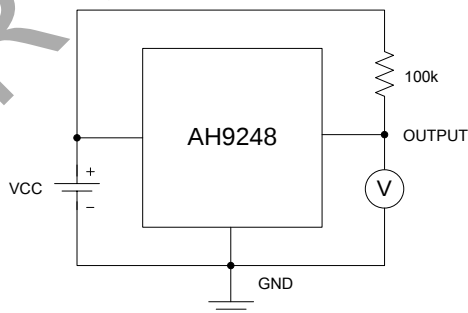
Note 9: The device is put under magnetic field with $B < B_{RP}$.



Output Saturation Voltage (Note 10, Note 11)

Note 10: The output saturation voltage V_{SAT} is measured at $V_{CC}=2.5V$ and $V_{CC}=5.5V$.

Note 11: The device is put under magnetic field with $B > B_{OP}$.



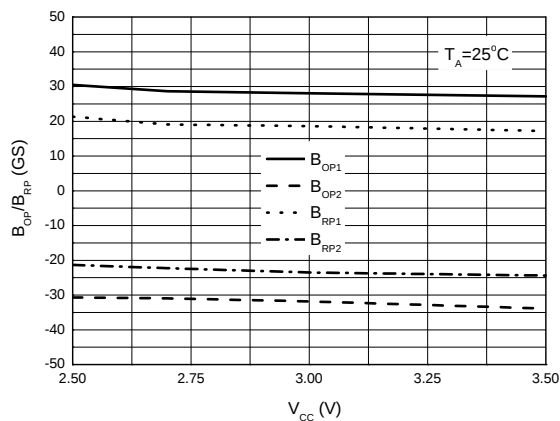
Magnetic Thresholds (Note 12, Note 13)

Note 12: B_{OP} is determined by putting the device under magnetic field swept from $B_{RP}(\min)$ to $B_{OP}(\max)$ until the output is switched on.

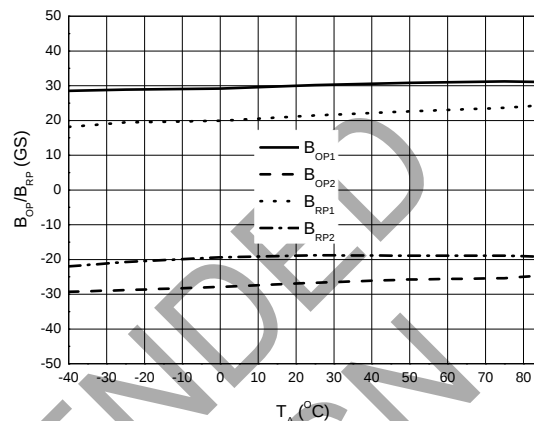
Note 13: B_{RP} is determined by putting the device under magnetic field swept from $B_{OP}(\max)$ to $B_{RP}(\min)$ until the output is switched off.

Performance Characteristics

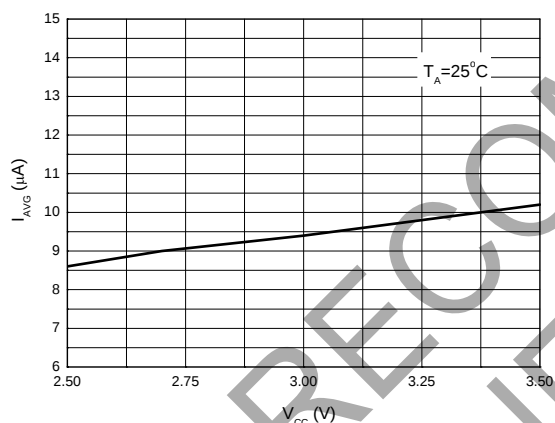
B_{OP}/B_{RP} vs. Supply Voltage



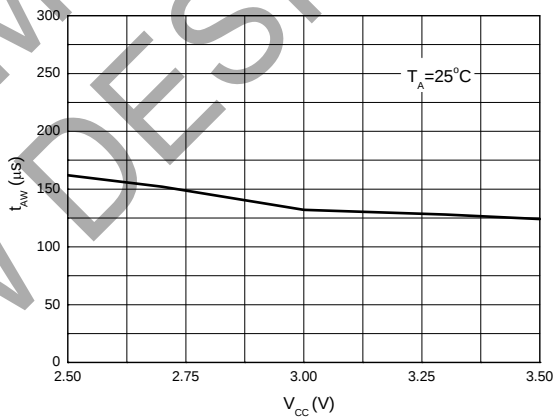
B_{OP}/B_{RP} vs. Ambient Temperature



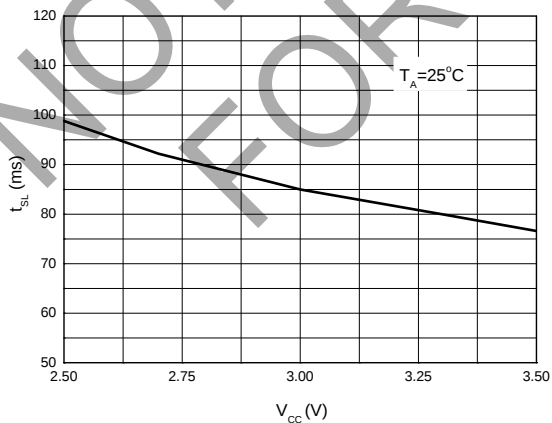
Average Supply Current vs. Supply Voltage



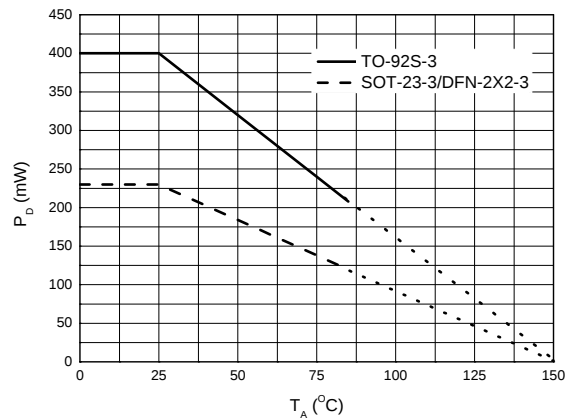
Awake Mode Time vs. Supply Voltage



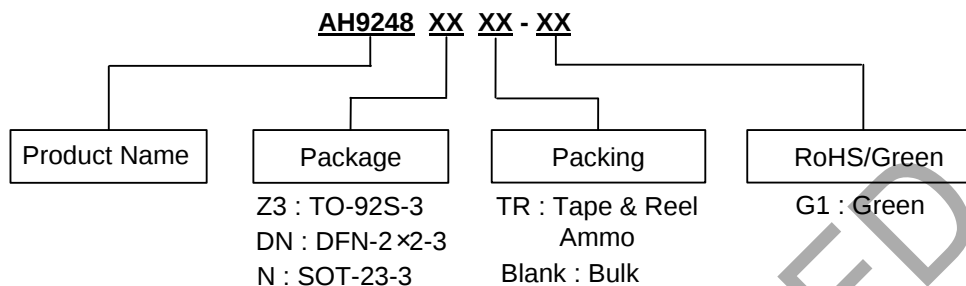
Sleep Mode Time vs. Supply Voltage



Power Dissipation vs. Ambient Temperature



Ordering Information

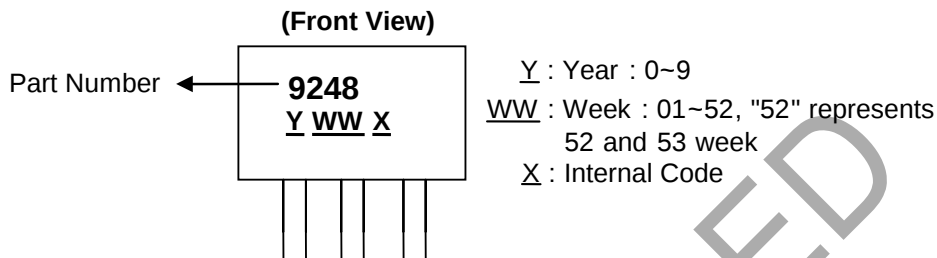


Device	Status (Note 14)	Package Code	Packaging	Bulk	Ammo	7" Tape and Reel
				Quantity	Quantity	Quantity
AH9248Z3-G1	NRND	Z3	TO-92S-3	1000/Bulk	NA	NA
AH9248Z3TR-G1	NRND	Z3	TO-92S-3	NA	3000/Ammo	NA
AH9248DNTR-G1	NRND	DN	DFN-2X2-3	NA	NA	3000/Tape & Reel
AH9248NTR-G1	NRND	N	SOT-23-3	NA	NA	3000/Tape & Reel

Note 14: NRND = Not Recommended for New Design.

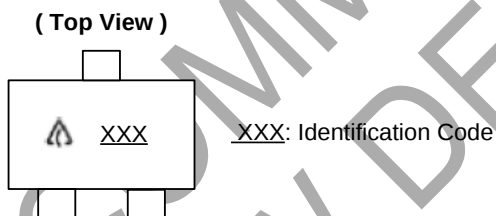
Marking Information

(1) Package Type: TO-92S-3



Part Number	Package	Identification Code
AH9248	TO-92S-3	9248

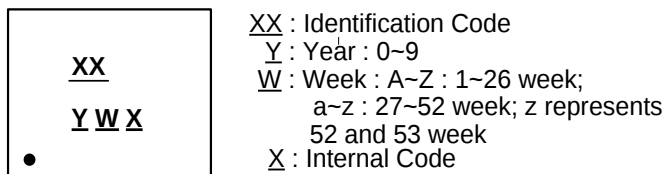
(2) Package Type: SOT-23-3



Part Number	Package	Identification Code
AH9248	SOT-23-3	GL1

(3) Package Type: DFN-2X2-3

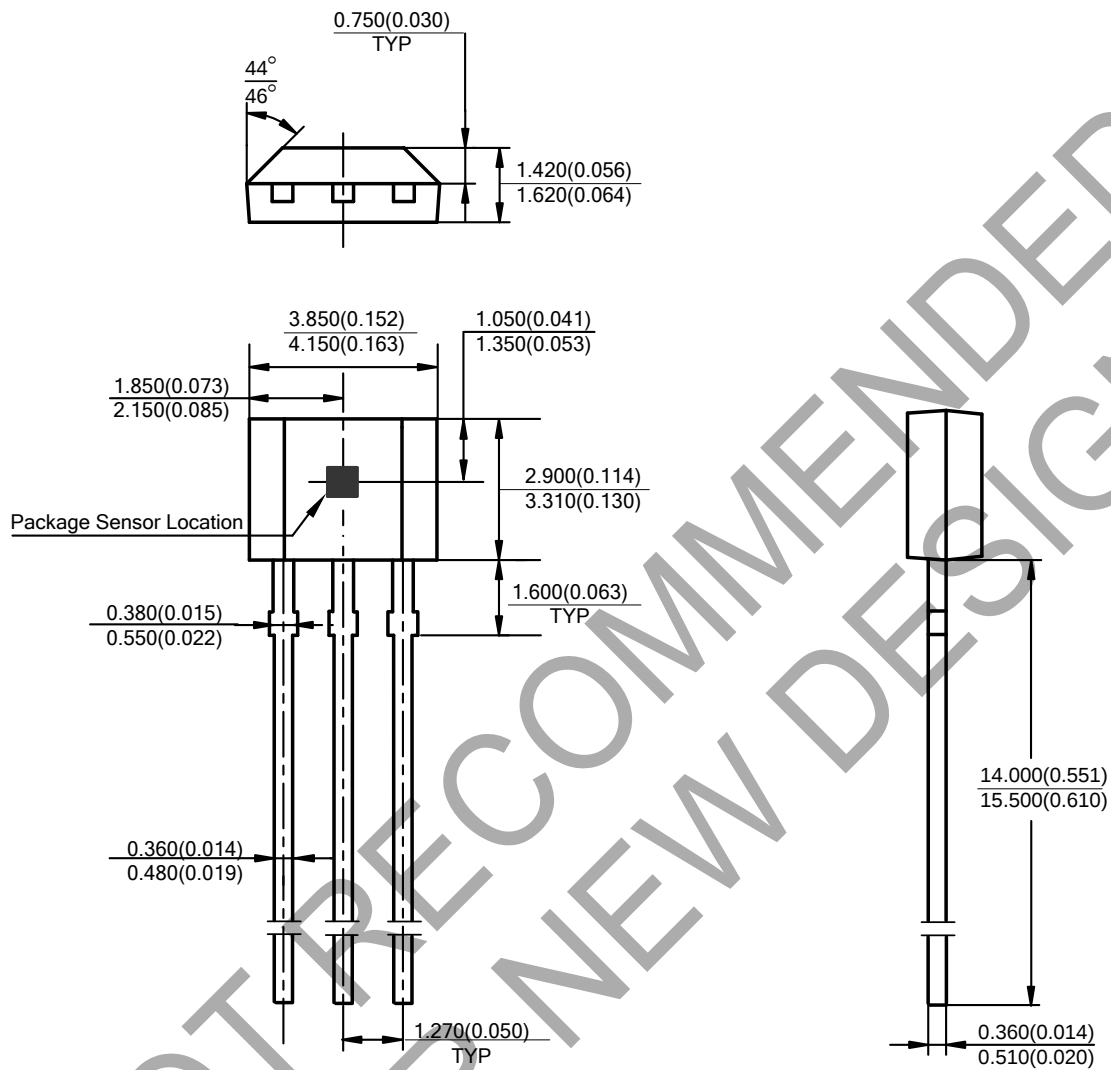
(Top View)



Part Number	Package	Identification Code
AH9248	DFN-2X2-3	JA

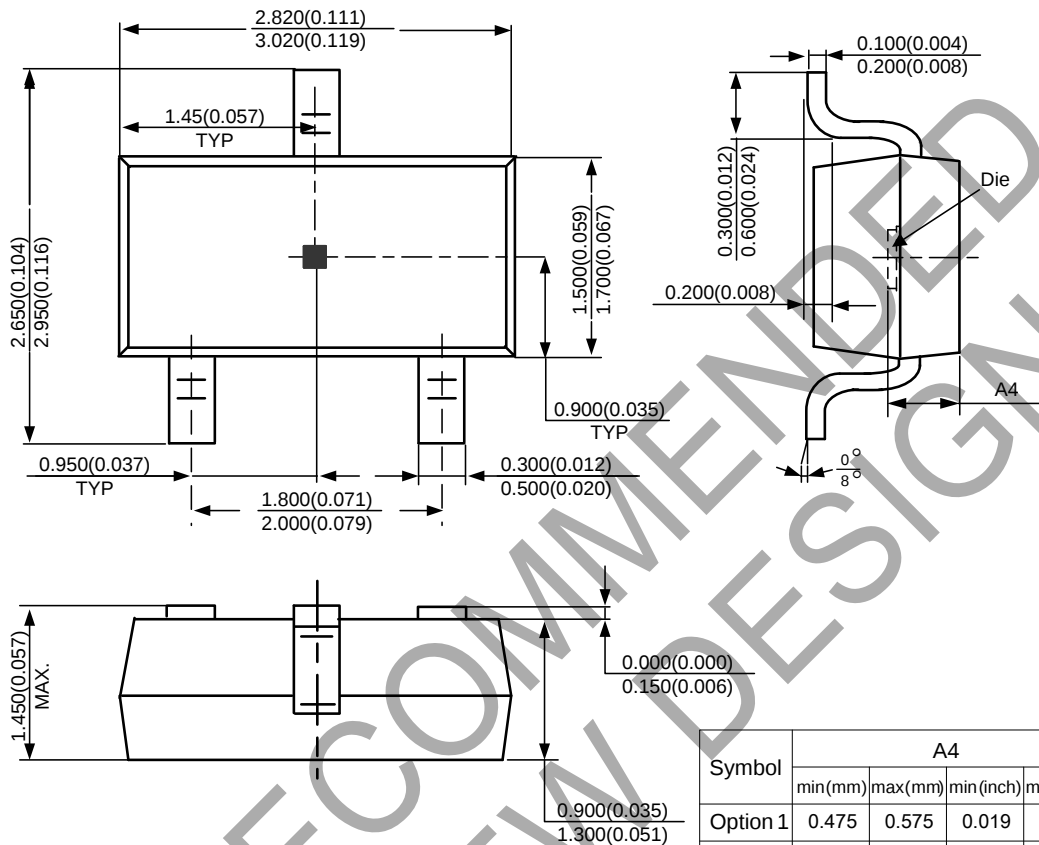
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: TO-92S-3



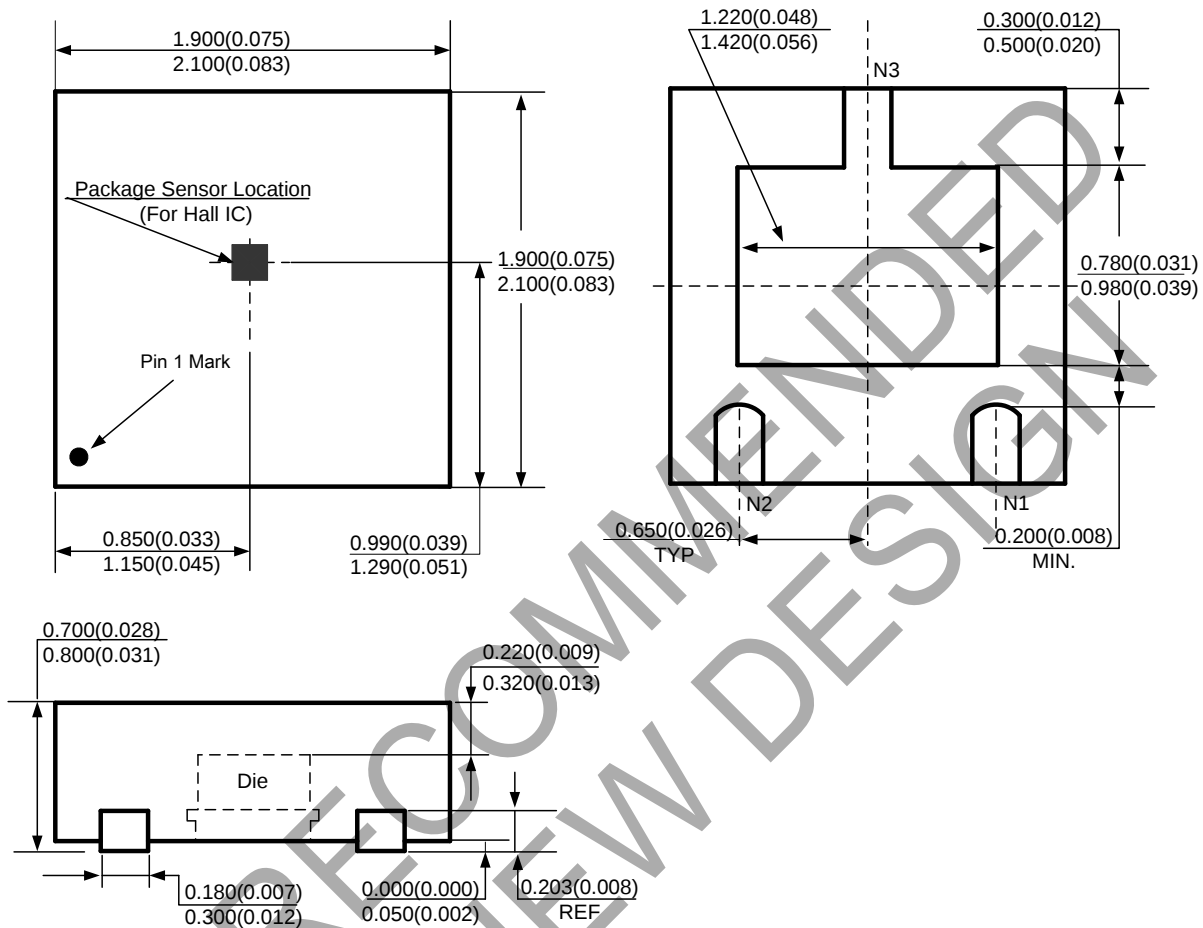
Package Outline Dimensions (cont.) (All dimensions in mm(inch).)

(2) Package Type: SOT-23-3



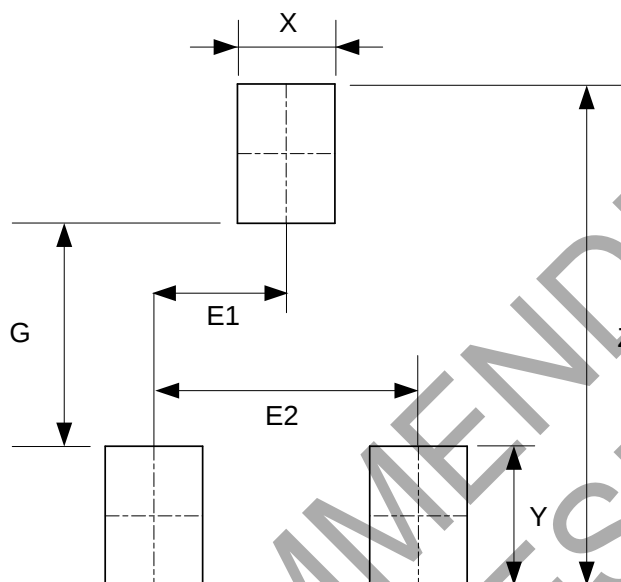
Package Outline Dimensions (cont.) (All dimensions in mm(inch).)

(3) Package Type: DFN-2x2-3



Suggested Pad Layout

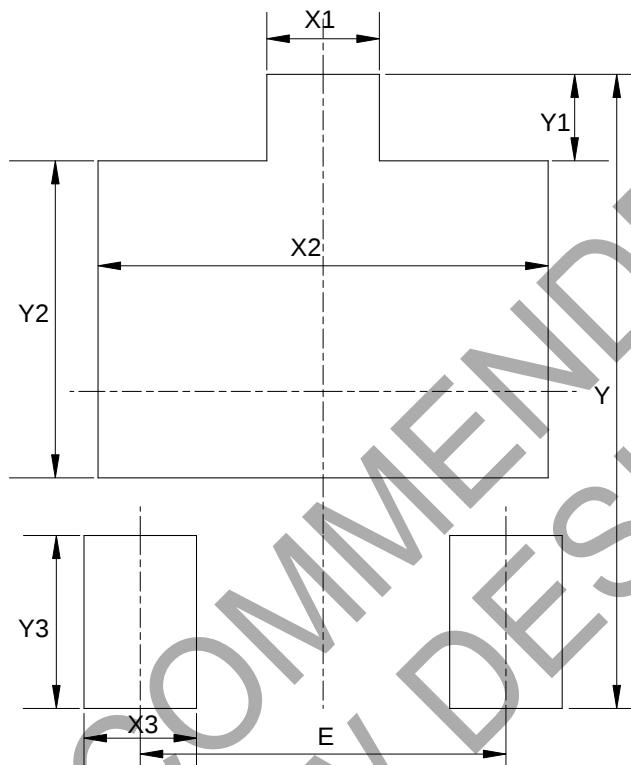
(1) Package Type: SOT-23-3



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E1 (mm)/(inch)	E2 (mm)/(inch)
Value	3.600/0.142	1.600/0.063	0.700/0.028	1.000/0.039	0.950/0.037	1.900/0.075

Suggested Pad Layout (cont.)

(2) Package Type: DFN-2x2-3



Dimensions	Y (mm)/(inch)	X1=X3 (mm)/(inch)	Y1 (mm)/(inch)	X2 (mm)/(inch)	Y2 (mm)/(inch)	Y3 (mm)/(inch)	E (mm)/(inch)
Value	2.200/0.087	0.400/0.016	0.300/0.012	1.600/0.063	1.100/0.043	0.600/0.024	1.300/0.051

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