HIGH-VOLTAGE AUTOMOTIVE HALL-EFFECT LATCH

Description

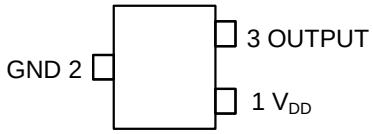
The AH372XQ is an AEC-Q100 qualified high-voltage, high-sensitivity Hall-effect latch IC designed for brushless DC-motor commutation speed measurement, angular or linear encoders and position sensors in automotive applications. To support a wide range of the demanding applications, the design is optimized to operate over the supply range of 3.0V to 28V. With chopper stabilized architecture and an internal bandgap regulator to provide temperature compensated supply for internal circuits, the AH372XQ provides a reliable solution over the whole operating range. For robustness and protection, the device has a reverse blocking diode with a Zener clamp on the supply. The output has an overcurrent limit and a Zener clamp.

The single open-drain output can be switched on with South pole of sufficient strength and switched off with North pole of sufficient strength. When the magnetic flux density (B) perpendicular to the package is larger than the operate point (B_{OP}) the output is switched on (pulled low). The output is held latched until magnetic flux density reverses and becomes lower than the release point (B_{RP}).

The magnetic operating and release polarity is opposite for SOT23 (Type S) and SC59 packages. SOT23 (Type S), SIP-3 (Ammo Pack), and SIP-3 (Bulk Pack) packages will require south pole to the part marking side to operate while SC59 will require south pole to the non-part marking side.

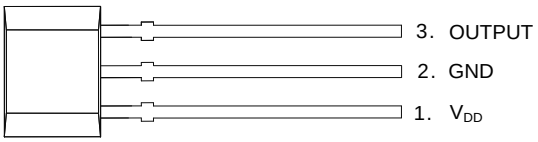
Pin Assignments

(Top View)



SC59 and SOT23 (Type S)

(Top View)



SIP-3 (Ammo Pack) and SIP-3 (Bulk Pack)

Features

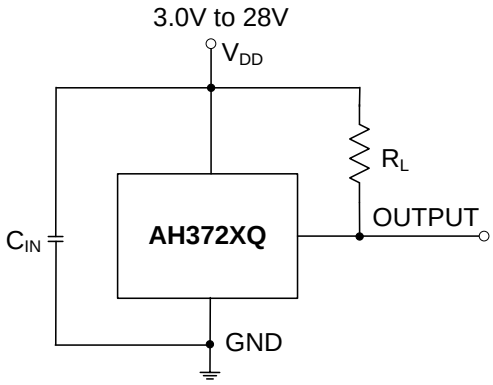
- Bipolar Latch (South Pole: On, North Pole: Off)
- 3.0V to 28V Operating Voltage Range
- High Sensitivity: B_{OP} and B_{RP} of 25G to 220G and -25G to -220G (typ)
- Single Open-Drain Output with Overcurrent Limit
- Chopper Stabilized Design Provides
  - Superior Temperature Stability
  - Minimal Switch Point Drift
  - Enhanced Immunity to Stress
- Good RF Noise Immunity
- Reverse Blocking Diode and Zener Clamp on Supply
- -40°C to +150°C Operating Temperature
- High ESD HBM: 8kV, CDM: 1kV
- AEC-Q100 Grade 0 Qualified for High Reliability
- Industry Standard SC59, SOT23 (Type S), SIP-3 (Ammo Pack) and SIP-3 (Bulk Pack) Packages
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The AH372XQ is suitable for automotive applications requiring specific change control; this part is AEC-Q100 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Applications

- Brushless DC motor commutation
- Revolution per minute (RPM) measurement
- Flow meters
- Angular and linear encoders and position sensing/indexing
- Flow meters
- Contactless commutation, speed measurement and angular position sensing/indexing in automotive applications

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Typical Applications Circuit



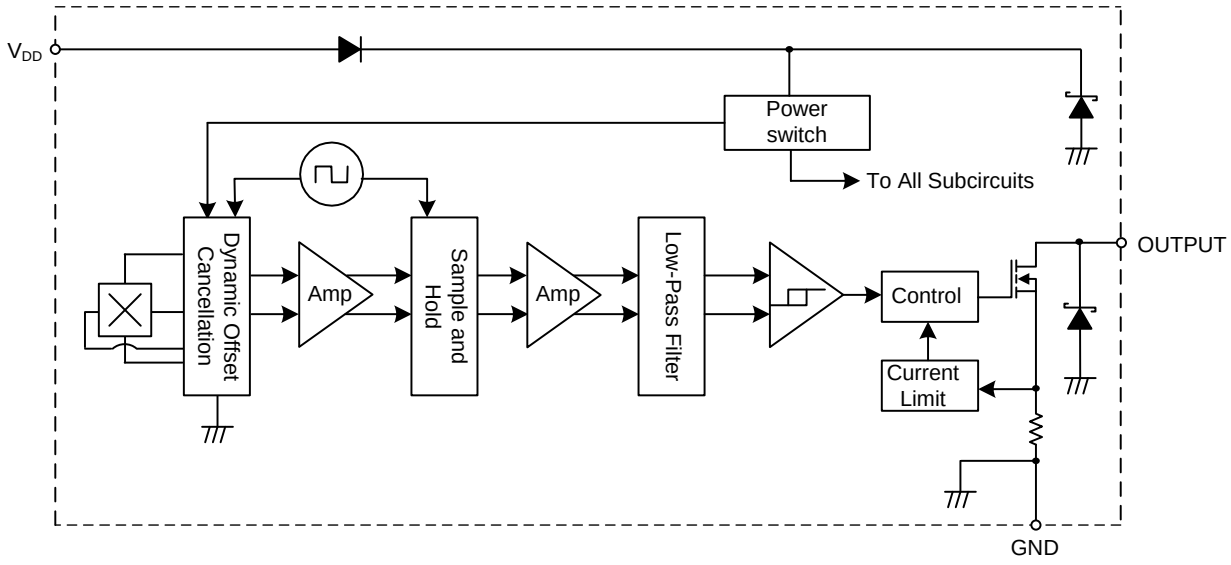
Note: 4. C_{IN} is for power stabilization and to strengthen the noise immunity. The recommended capacitance is 10nF to 100nF. R_L is the pullup resistor.

Pin Descriptions

Packages: SC59, SOT23 (Type S), SIP-3 (Ammo Pack) and SIP-3 (Bulk Pack)

Pin Number	Pin Name	Function
1	V_{DD}	Power Supply Input
2	GND	Ground
3	OUTPUT	Output Pin

Functional Block Diagram



Absolute Maximum Ratings (Notes 5 & 6) (@T_A = +25°C, unless otherwise specified.)

Symbol	Characteristic		Value	Unit
V_{DD}	Supply Voltage (Note 6)		32	V
V_{DDR}	Reverse Supply Voltage		-18	V
V_{OUT_MAX}	Output Pin Off Voltage (Note 6)		32	V
I_{OUT}	Continuous Output Current		60	mA
I_{OUT_R}	Reverse Output Current		-50	mA
B	Magnetic Flux Density		Unlimited	
P_D	Package Power Dissipation	SIP-3 (Ammo Pack) SIP-3 (Bulk Pack)	550	mW
		SC59 and SOT23 (Type S)	230	
T_S	Storage Temperature Range		-65 to +165	°C
T_J	Maximum Junction Temperature		+170	°C
ESD HBM	Electrostatic Discharge Withstand Capability—Human Body Model		8	kV
ESD CDM	Electrostatic Discharge Withstand Capability—Charged Device Model		1	kV

Notes:
5. Stresses greater than those listed under *Absolute Maximum Ratings* can 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 can affect device reliability.
6. The absolute maximum V_{DD} of 32V is a transient stress rating and is not meant as a functional operating condition. It is not recommended operate the device at the absolute maximum-rated conditions for any period of time.

Recommended Operating Conditions (@T_A = -40°C to +150°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Rating	Unit
V_{DD}	Supply Voltage	Supply voltage, between V_{DD} and GND pins	3.0 to 28	V
T_A	Operating Temperature Range	Operating ambient temperature range	-40 to +150	°C

Electrical Characteristics (Notes 7 & 8) (@T_A = -40°C to +150°C, V_{DD} = 3V to 28V, C_{IN} = 0.1µF, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OUT_ON}	Output On Voltage	I_{OUT} = 20mA, B > B_{OP}	—	0.2	0.4	V
I_{OUT_OFF}	Output Leakage Current	V_{OUT} = 28V, B < B_{RP}, output off	—	< 0.1	10	µA
I_{DD}	Supply Current	Output open, T_A = +25°C	—	3	4	mA
		Output open, T_A = -40°C to +150°C	—	—	5	mA
I_{DD_R}	Reverse Supply Current	V_{DD} = -18V, T_A = +25°C	—	0.001	—	mA
		V_{DD} = -18V, T_A = -40°C to +150°C	—	0.001	2.3	mA
t_{ST}	Device Startup Time	V_{DD} ≥ 3V, B > B_{OP} or B < B_{RP} (Note 7)	—	10	—	µs
f_C	Chopping Frequency	V_{DD} ≥ 3V	—	500	—	kHz
t_D	The Time Delay from Magnetic Threshold Reached to the Start of the Output Rise or Fall	(Note 9)	—	4	—	µs
t_R	Output Rising Time (External Pullup Resistor R_L and Load Capacitance Dependent)	R_L = 1kΩ, C_L = 20pF (Note 9)	—	0.2	1	µs
t_F	Output Falling Time (Internal Switch Resistance and Load Capacitance Dependent)	R_L = 1kΩ, C_L = 20pF (Note 9)	—	0.1	1	µs
I_{OCL}	Output Current Limit	B > B_{OP} (Note 10)	30	—	55	mA
V_Z	Zener Clamp Voltage	I_{DD} = 5mA, T_A = +25°C	28	—	—	V

Notes:
7. When power is initially turned on, V_{DD} must be within its correct operating range (3.0V to 28V) to guarantee the output sampling. The output state is valid after the startup time of 10µs typical from the operating voltage reaching 3V.
8. Typical values are defined at T_A = +25°C, V_{DD} = 12V. Maximum and minimum values over the operating temperature range is not tested in production but guaranteed by design, process control and characterization.
9. Guaranteed by design, process control, and characterization. Not tested in production.
10. The device limits the output current I_{OUT} to current limit of I_{OCL}.

Magnetic Characteristics (Notes 11 & 12) (T_A = -40°C to +150°C, V_{DD} = 3.0V to 28V, unless otherwise specified)

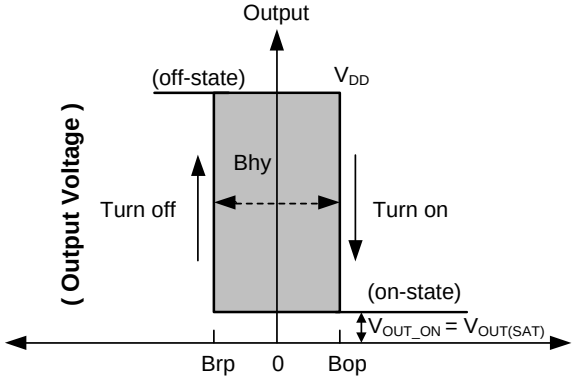
Part Number	Symbol	Parameter	Min	Typ	Max	Unit	Output Type
AH3722Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	10	25	40	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-40	-25	-10		
	B_{HY} ($\lvert B_{OPX}\rvert$ - $\lvert B_{RPX}\rvert$)	Hysteresis (Note 13)	20	50	80		
AH3723Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	15	30	45	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-45	-30	-15		
	B_{HY} ($\lvert B_{OPX}\rvert$ - $\lvert B_{RPX}\rvert$)	Hysteresis (Note 13)	30	60	90		
AH3724Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	20	40	60	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-60	-40	-20		
	B_{HY} ($\lvert B_{OPX}\rvert$ - $\lvert B_{RPX}\rvert$)	Hysteresis (Note 13)	40	80	120		
AH3725Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	50	70	90	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-90	-70	-50		
	B_{HY} ($\lvert B_{OPX}\rvert$ - $\lvert B_{RPX}\rvert$)	Hysteresis (Note 13)	100	140	180		

Notes:
11. When power is initially turned on, V_{DD} must be within its correct operating range (3.0V to 28V) to guarantee the output sampling. The output state is valid after the startup time of 10µs typical from the operating voltage reaching 3V.
12. Typical values are defined at T_A = +25°C, V_{DD} = 12V. Maximum and minimum values over the operating temperature range is not tested in production but guaranteed by design, process control, and characterization.
13. Maximum and minimum hysteresis is guaranteed by design, process control, and characterization.

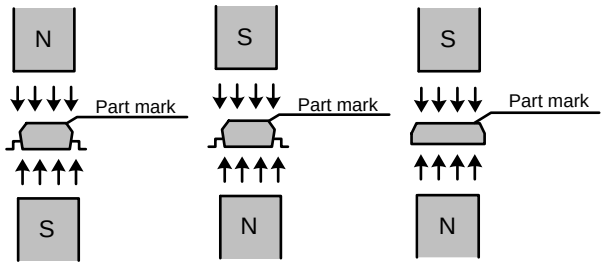
Magnetic Characteristics (Notes 11 & 12) (T_A = -40°C to +150°C, V_{DD} = 3.0V to 28V, unless otherwise specified) (continued)

Part Number	Symbol	Parameter	Min	Typ	Max	Unit	Output Type
AH3726Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	80	110	140	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-140	-110	-80		
	B_{HY} ($\|B_{OPX}\|$ - $\|B_{RPX}\|$)	Hysteresis (Note 13)	160	220	280		
AH3727Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	110	140	170	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-170	-140	-110		
	B_{HY} ($\|B_{OPX}\|$ - $\|B_{RPX}\|$)	Hysteresis (Note 13)	220	280	340		
AH3729Q	B_{OP} (South pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; South pole to the non-part marking side for SC59 package. See diagram below)	Operation Point	170	220	250	Gauss	Open-Drain
	B_{RP} (North pole to part marking side for SOT23 (Type S) and SIP-3 (Ammo Pack), SIP-3 (Bulk Pack) packages; North pole to the non-part marking side for SC59 package. See diagram below)	Release Point	-250	-220	-170		
	B_{HY} ($\|B_{OPX}\|$ - $\|B_{RPX}\|$)	Hysteresis (Note 13)	340	440	500		

Notes:
11. When power is initially turned on, V_{DD} must be within its correct operating range (3.0V to 28V) to guarantee the output sampling. The output state is valid after the startup time of 10µs typical from the operating voltage reaching 3V.
12. Typical values are defined at T_A = +25°C, V_{DD} = 12V. Maximum and minimum values over the operating temperature range is not tested in production but guaranteed by design, process control, and characterization.
13. Maximum and minimum hysteresis is guaranteed by design, process control, and characterization.



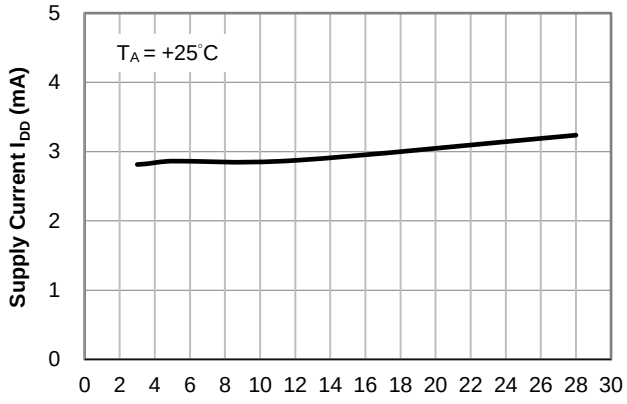
(Magnetic Flux Density B)



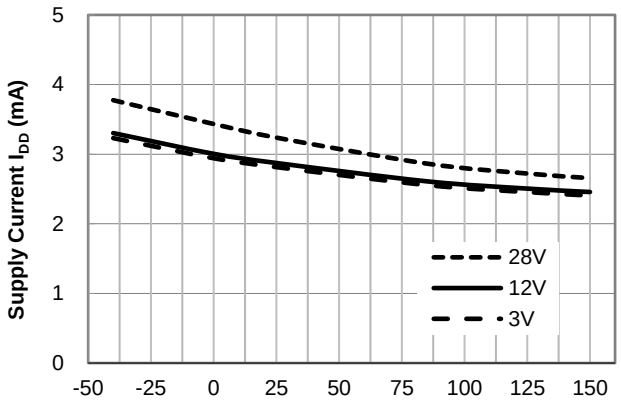
SC59 **SOT23 (Type S)** **SIP-3 (Ammo Pack) SIP-3 (Bulk Pack)**

Typical Operating Characteristics

Supply Current

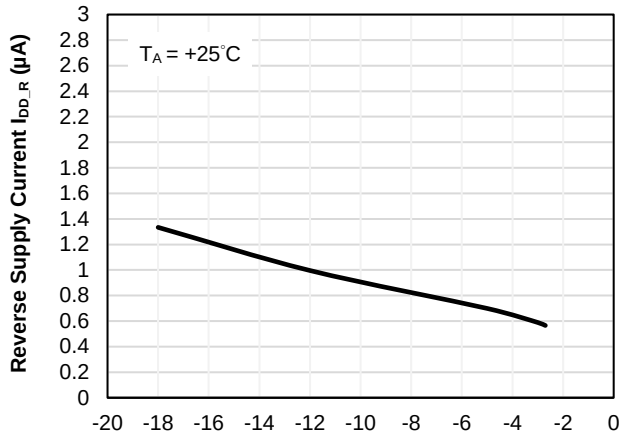


Operation current vs. Supply Voltage

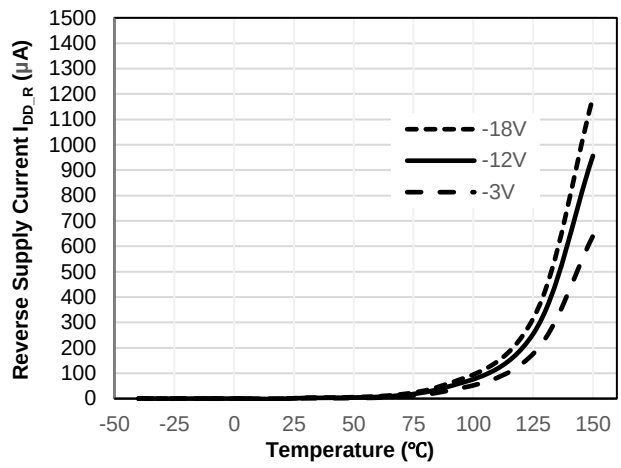


Operation Current vs. Temperature

Reverse Supply Current

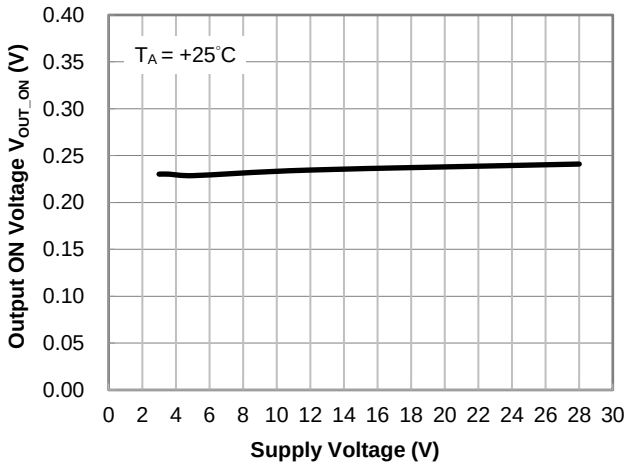


Reverse Supply Current vs. Supply Voltage

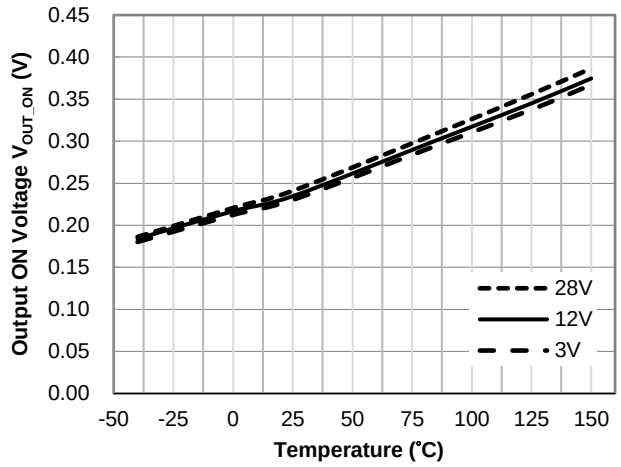


Reverse Supply Current vs. Temperature

Output Switch On Voltage, I_{OUT} = 20mA



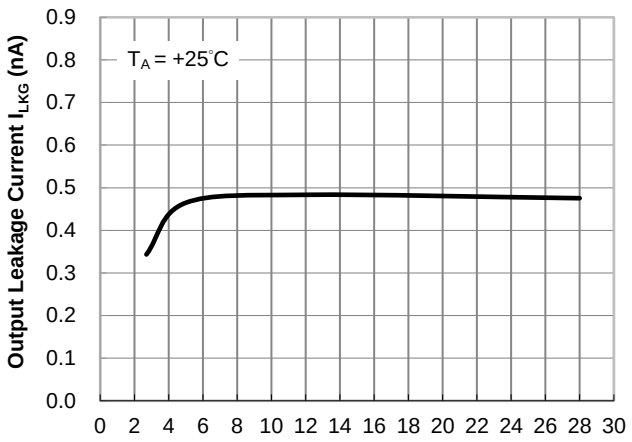
Output ON Voltage vs. Supply Voltage



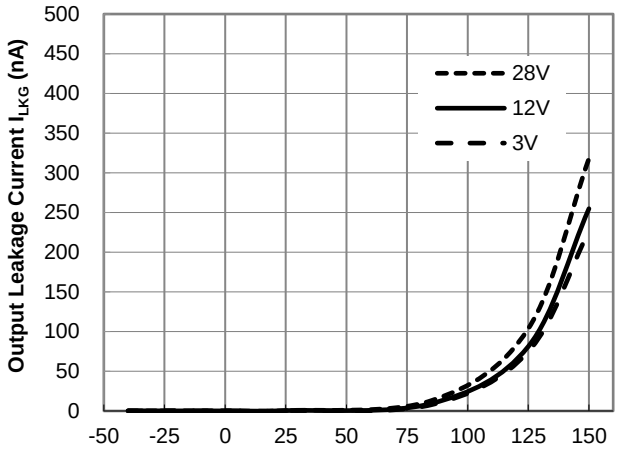
Output ON Voltage vs. Temperature

Typical Operating Characteristics (continued)

Output Leakage Current

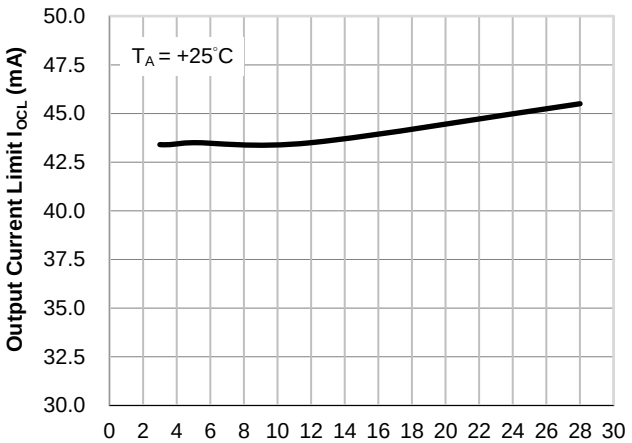


Output Leakage Current vs. V_{OUT} Voltage

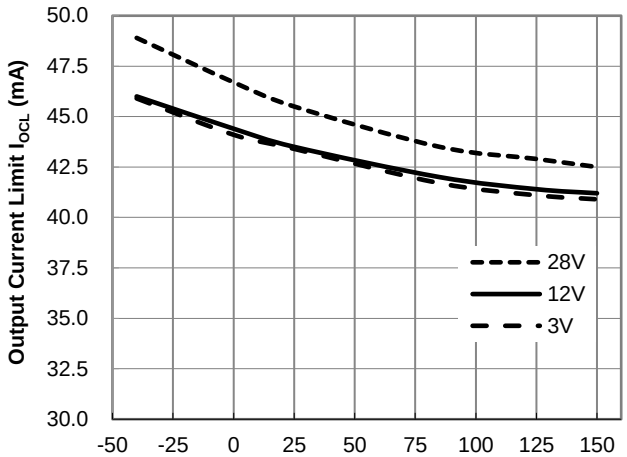


Output Leakage Current vs. Temperature

Output Current Limit



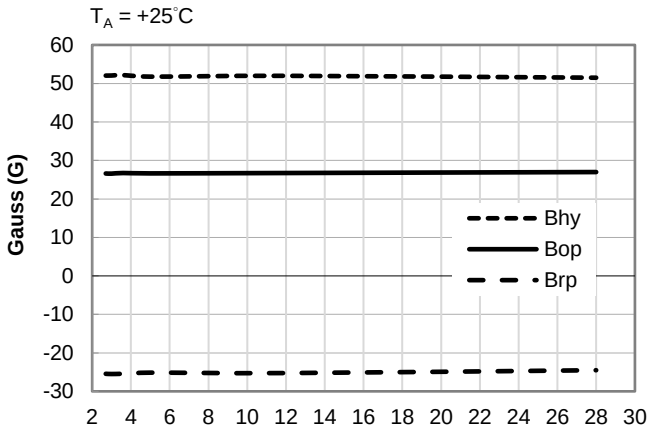
Output Current Limit vs. Supply Voltage



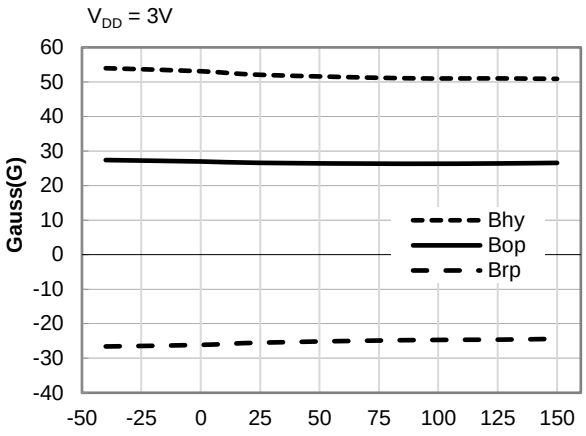
Output Current Limit vs. Temperature

Typical Operating Characteristics (continued)

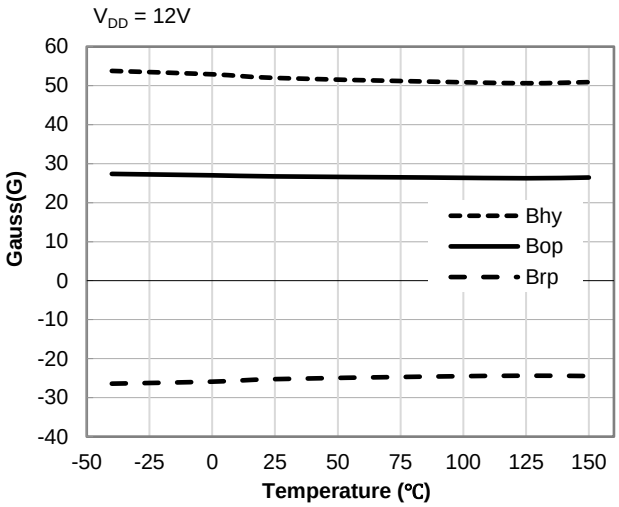
AH3722Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



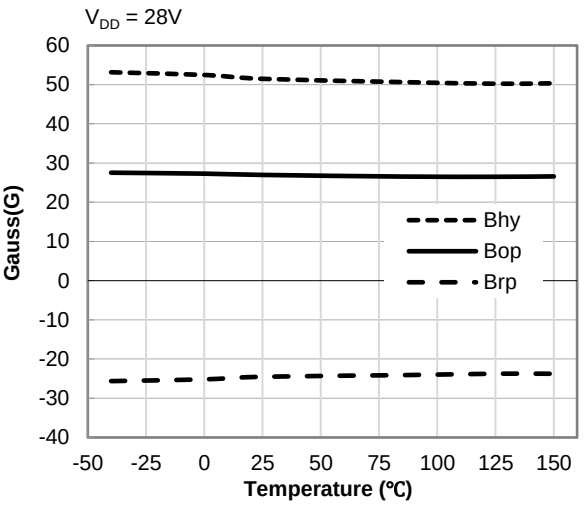
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



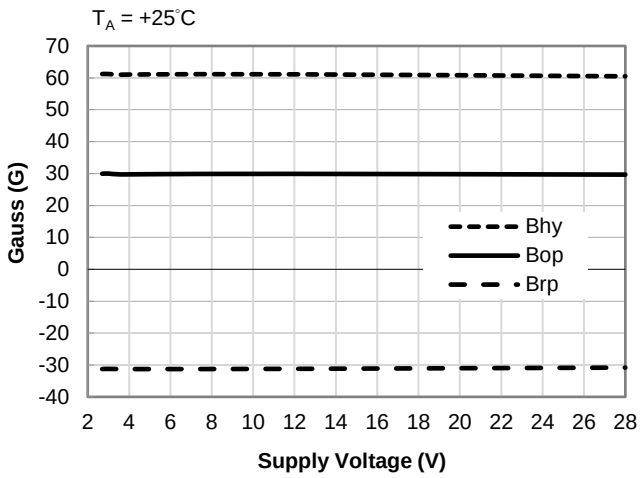
Switch Points B_{OP} and B_{RP} vs. Temperature



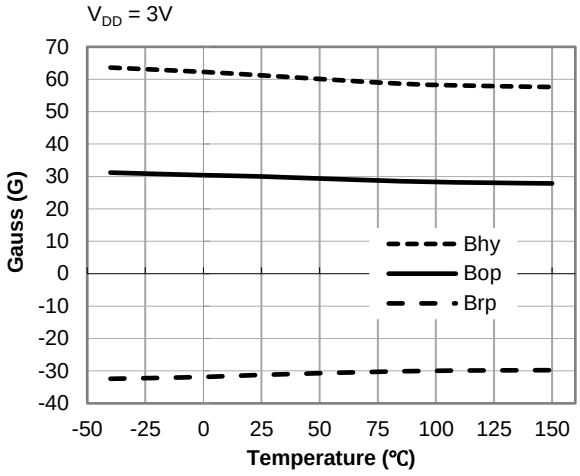
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

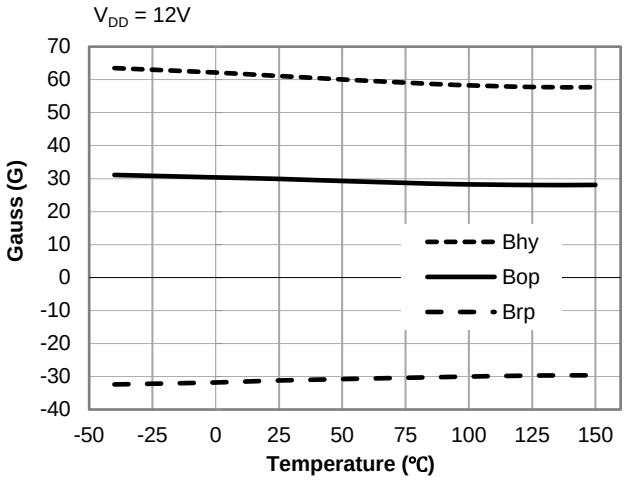
AH3723Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



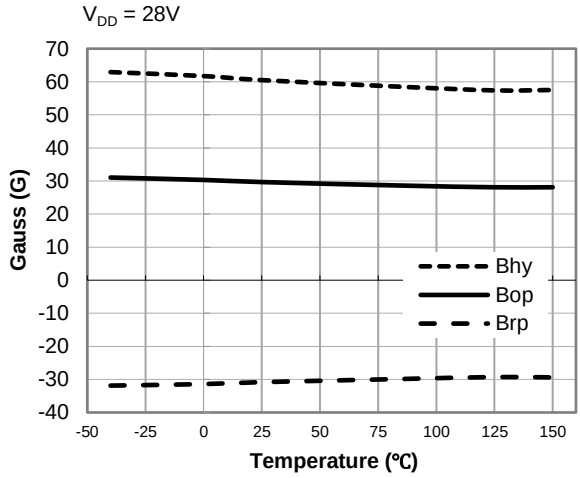
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



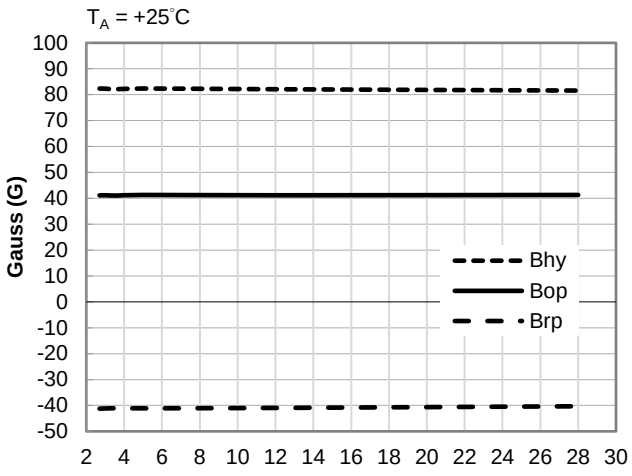
Switch Points B_{OP} and B_{RP} vs. Temperature



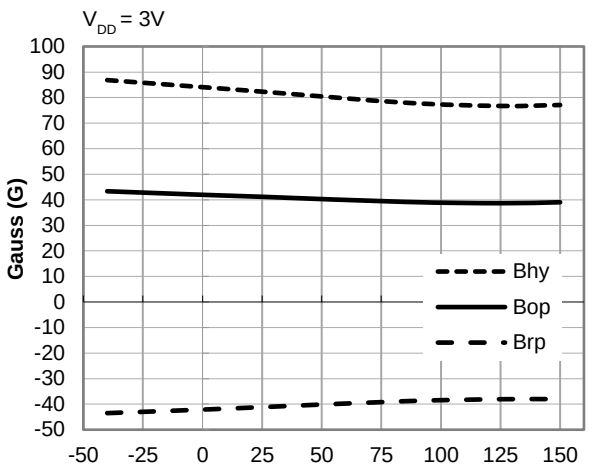
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

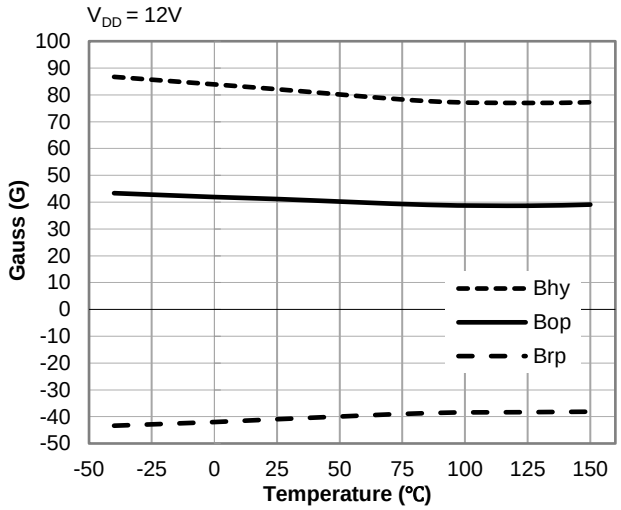
AH3724Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



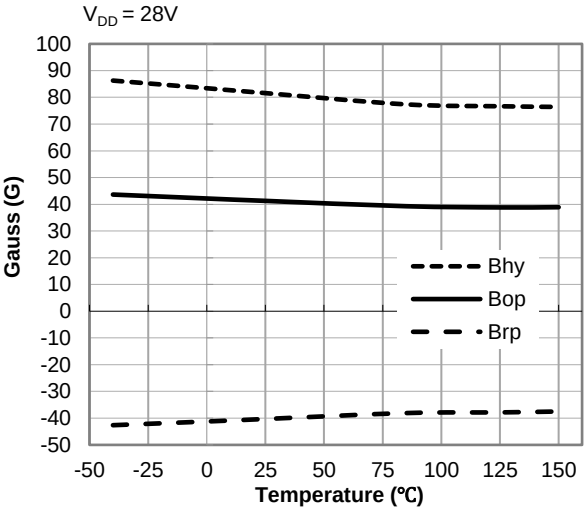
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



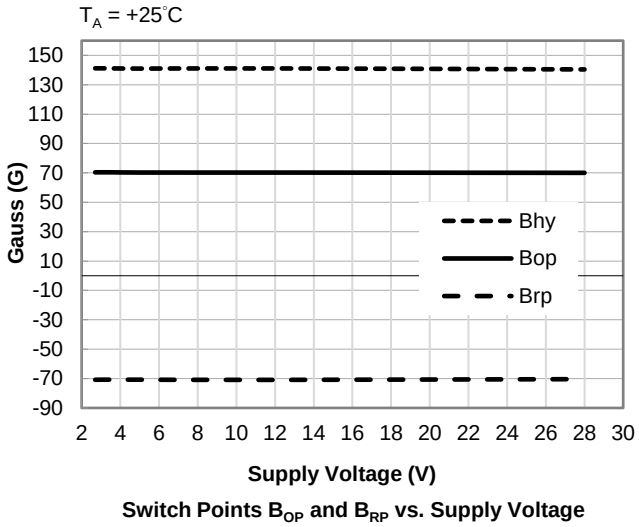
Switch Points B_{OP} and B_{RP} vs. Temperature



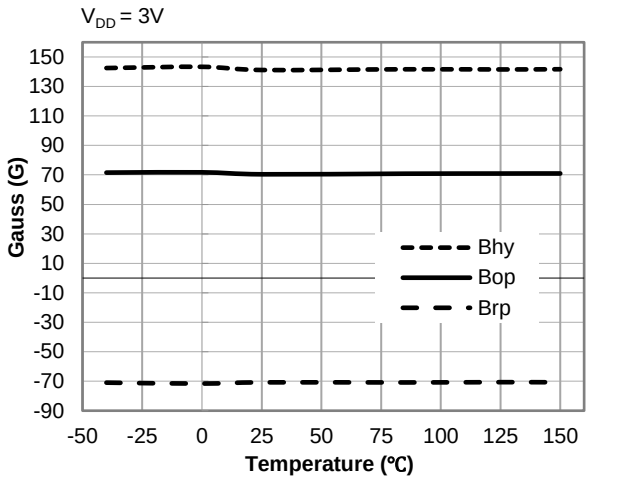
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

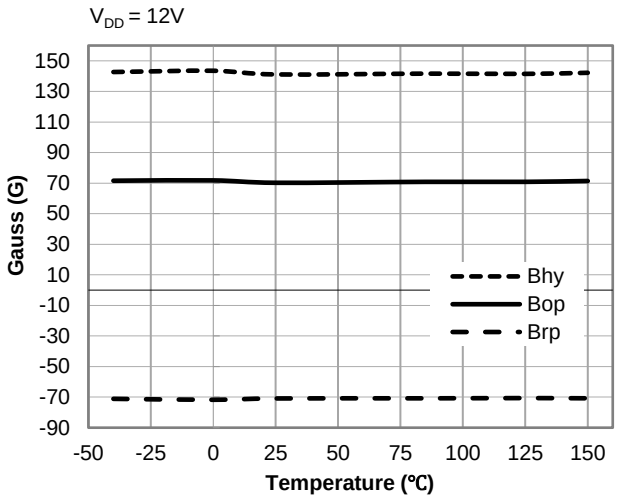
AH3725Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



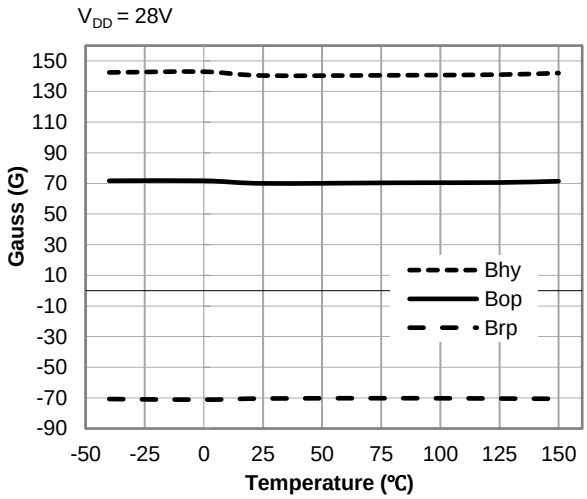
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



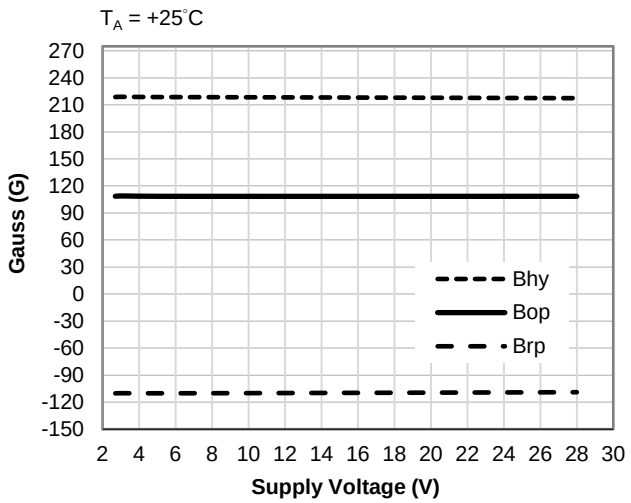
Switch Points B_{OP} and B_{RP} vs. Temperature



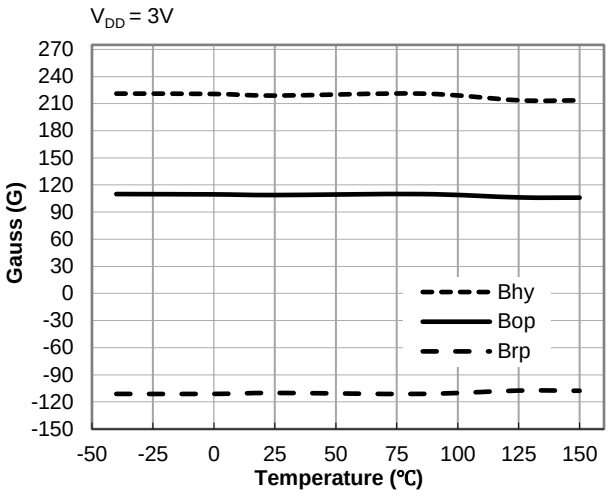
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

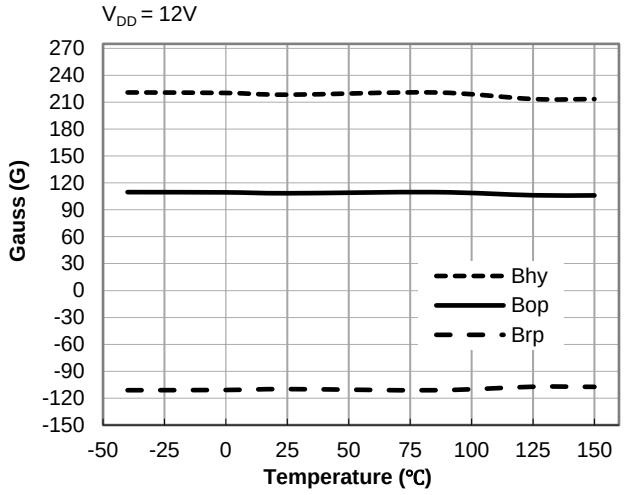
AH3726Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



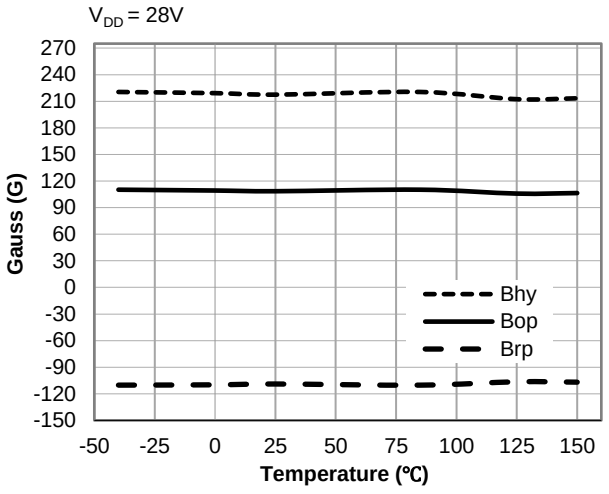
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



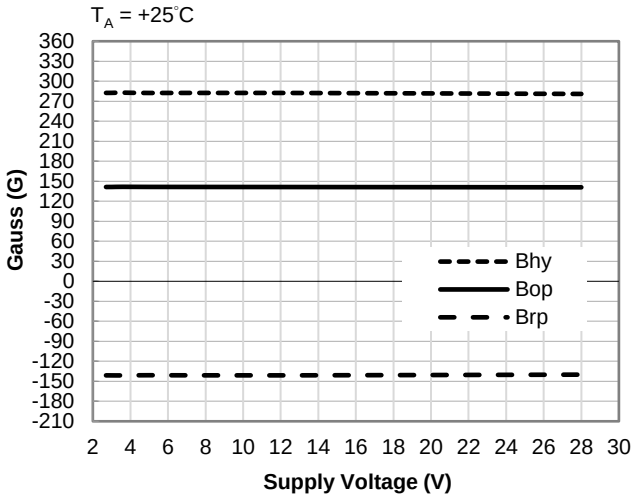
Switch Points B_{OP} and B_{RP} vs. Temperature



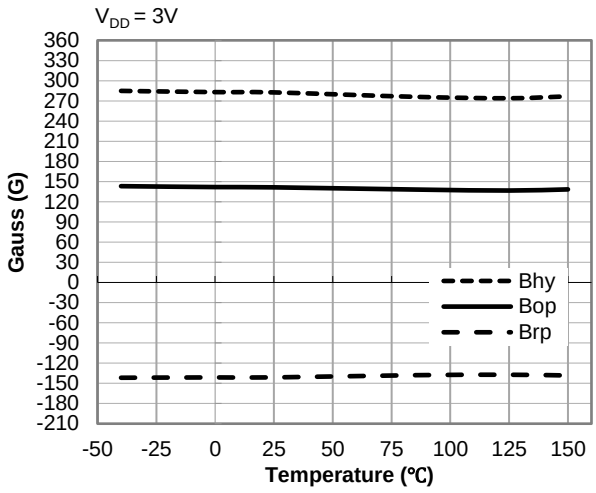
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

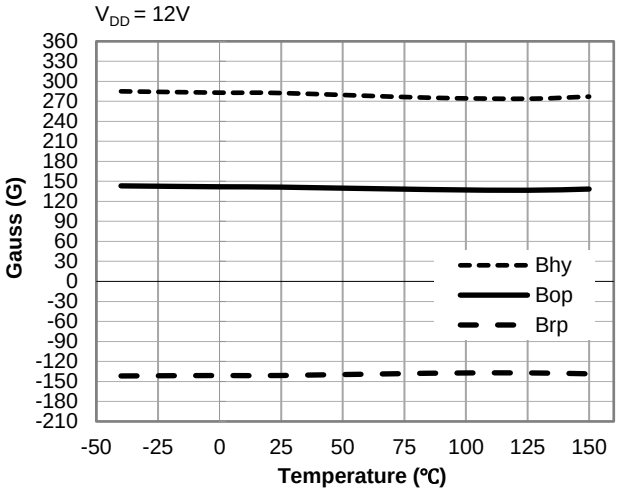
AH3727Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



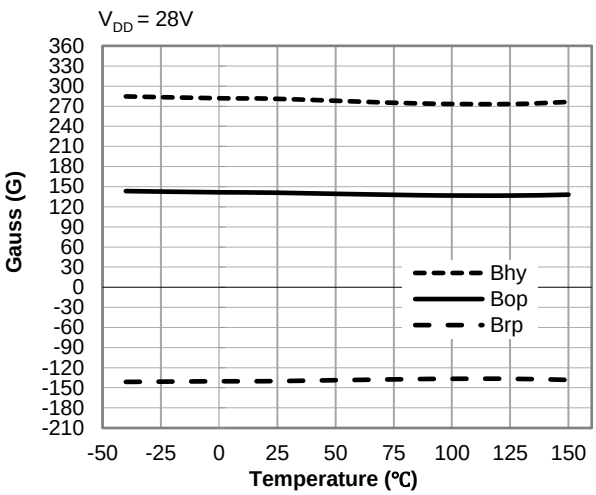
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



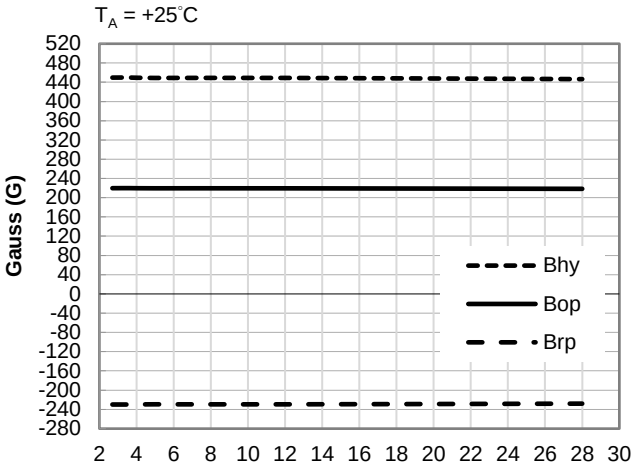
Switch Points B_{OP} and B_{RP} vs. Temperature



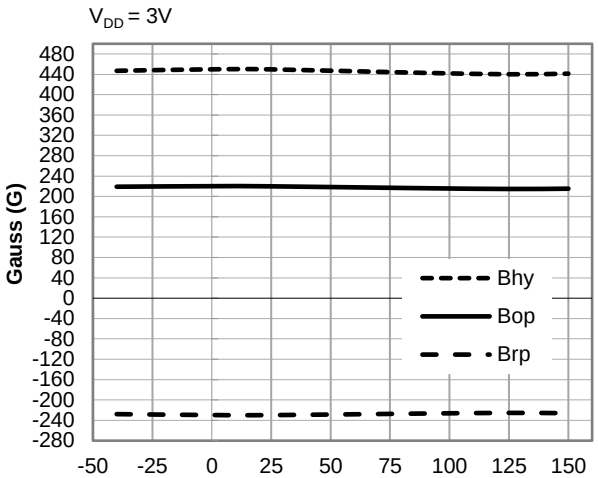
Switch Points B_{OP} and B_{RP} vs. Temperature

Typical Operating Characteristics (continued)

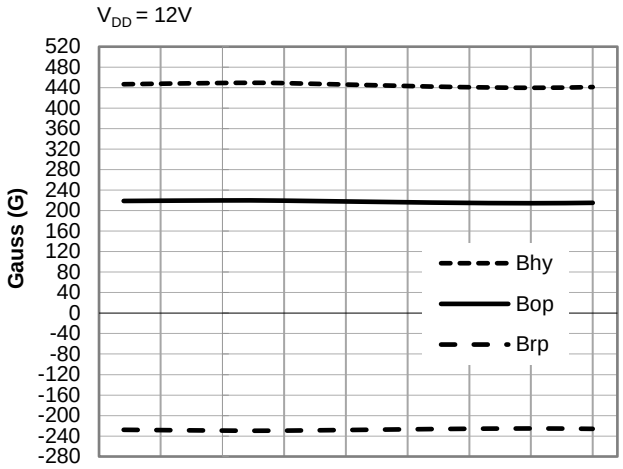
AH3729Q Output Points (Magnetic Thresholds) – B_{OP} and B_{RP}



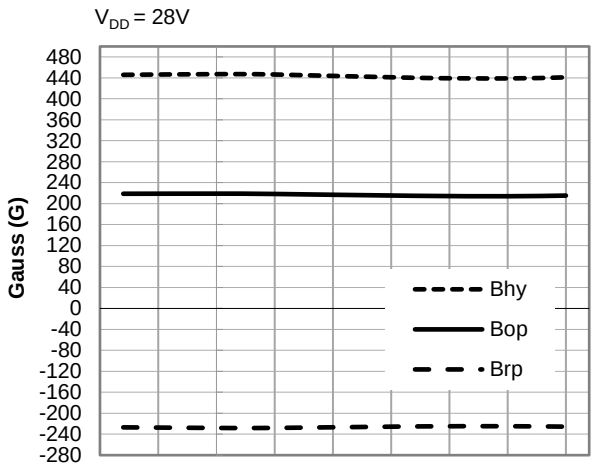
Switch Points B_{OP} and B_{RP} vs. Supply Voltage



Switch Points B_{OP} and B_{RP} vs. Temperature



Switch Points B_{OP} and B_{RP} vs. Temperature

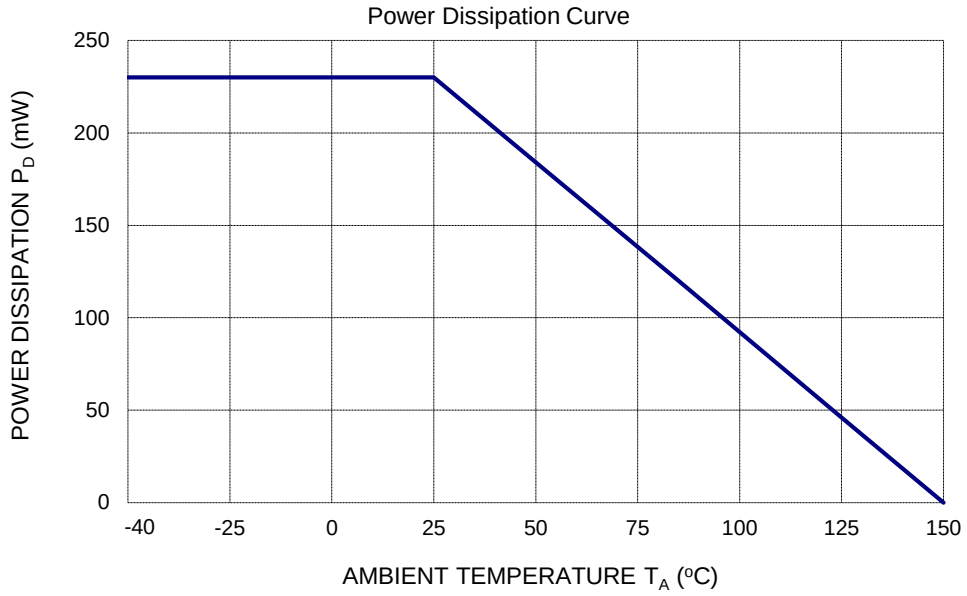


Switch Points B_{OP} and B_{RP} vs. Temperature

Thermal Performance Characteristics

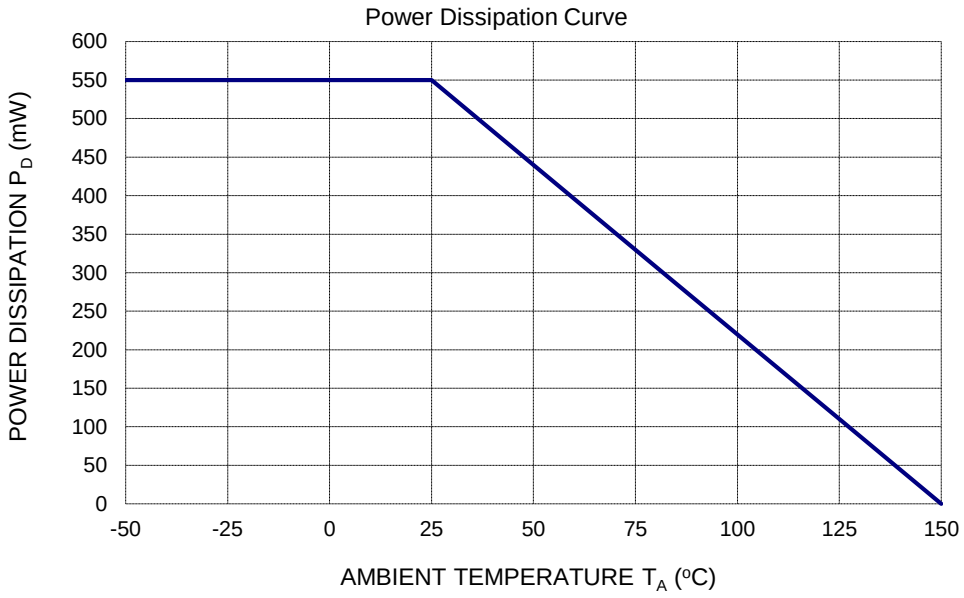
(1) Packages: SC59 and SOT23 (Type S)

T_A (°C)	25	50	60	70	80	85	90	100	105	110	120	125	130	140	150
P_D (mW)	230	184	166	147	129	120	110	92	83	74	55	46	37	18	0

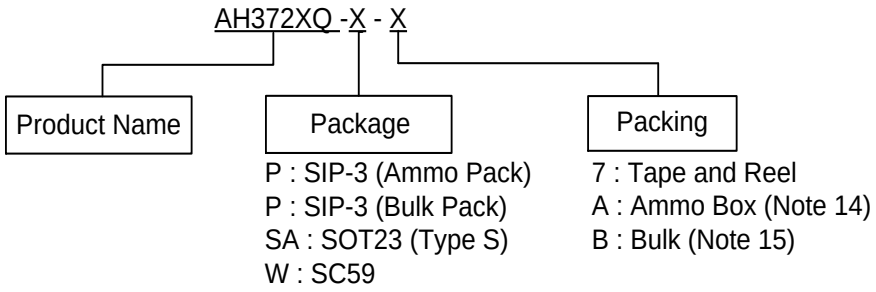


(2) Packages: SIP-3 (Ammo Pack) and SIP-3 (Bulk Pack)

T_A (°C)	25	50	60	70	80	85	90	100	105	110	120	125	130	140	150
P_D (mW)	550	440	396	362	308	286	264	220	198	176	132	110	88	44	0



Ordering Information



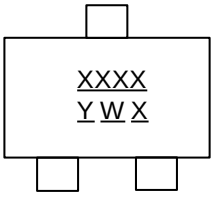
Part Number	Package Code	Package	Part Number Suffix	Pack	
				Qty.	Carrier
AH3722Q-P-A	P	SIP-3 (Ammo Pack)	-A	4,000	Ammo Box
AH3722Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3723Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3723Q-SA-7	SA	SOT23 (Type S)	-7	3,000	7” Tape & Reel
AH3723Q-W-7	W	SC59	-7	3,000	7” Tape & Reel
AH3724Q-P-A	P	SIP-3 (Ammo Pack)	-A	4,000	Ammo Box
AH3724Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3724Q-SA-7	SA	SOT23 (Type S)	-7	3,000	7” Tape & Reel
AH3724Q-W-7	W	SC59	-7	3,000	7” Tape & Reel
AH3725Q-P-A	P	SIP-3 (Ammo Pack)	-A	4,000	Ammo Box
AH3725Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3725Q-SA-7	SA	SOT23 (Type S)	-7	3,000	7” Tape & Reel
AH3726Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3726Q-SA-7	SA	SOT23 (Type S)	-7	3,000	7” Tape & Reel
AH3727Q-P-B	P	SIP-3 (Bulk Pack)	-B	1,000	Bulk
AH3729Q-SA-7 (Future Product)	SA	SOT23 (Type S)	-7	3,000	7” Tape & Reel

Notes: 14. Ammo Box is for SIP-3 Spread Lead.
15. Bulk is for SIP-3 Straight Lead.

Marking Information

(1) Package Type: SOT23 (Type S)

(Top View)

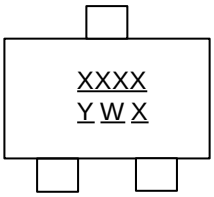


XXXX : Identification Code
Y : Year 0 to 9 (ex: 4 = 2024)
W : Week : A to Z : week 1 to 26;
a to z : week 27 to 52; z represents
week 52 and 53
X : Internal Code

Part Number	Package	Identification Code
AH3723Q-SA-7	SOT23 (Type S)	S4BQ
AH3724Q-SA-7	SOT23 (Type S)	S4CQ
AH3725Q-SA-7	SOT23 (Type S)	S4DQ
AH3726Q-SA-7	SOT23 (Type S)	S4EQ
AH3729Q-SA-7	SOT23 (Type S)	S4HQ

(2) Package Type: SC59

(Top View)

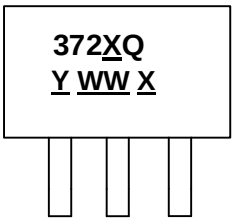


XXXX : Identification Code
Y : Year 0 to 9 (ex: 4 = 2024)
W : Week : A to Z : week 1 to 26;
a to z : week 27 to 52; z represents
week 52 and 53
X : Internal Code

Part Number	Package	Identification Code
AH3723Q-W-7	SC59	S5BQ
AH3724Q-W-7	SC59	S5CQ

(3) Package Types: SIP-3 (Ammo Pack)/SIP-3 (Bulk Pack)

(Top View)



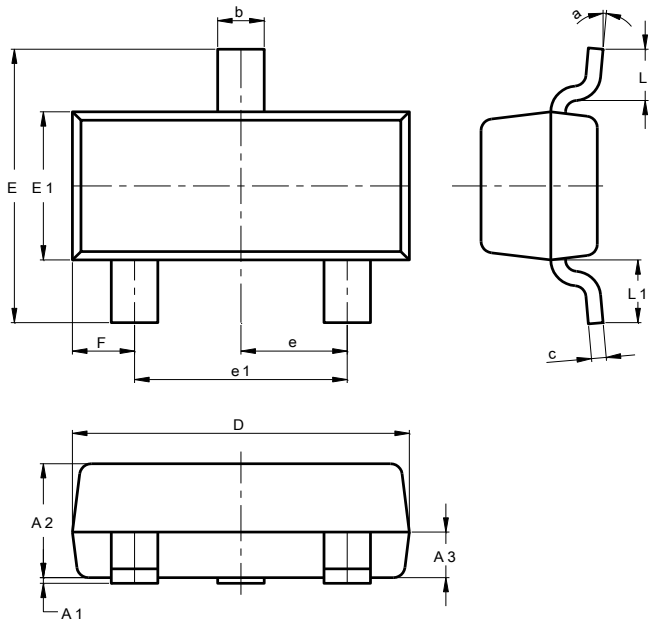
372XQ : Identification Code
Y : Year : 0 to 9 (ex: 4 = 2024)
WW : Week : 01 to 52, "52" represents
week 52 and 53
X : Internal Code

Part Number	Package	Identification Code
AH3722Q-P-A	SIP-3 (Ammo Pack)	3722Q
AH3722Q-P-B	SIP-3 (Bulk Pack)	3722Q
AH3723Q-P-B	SIP-3 (Bulk Pack)	3723Q
AH3724Q-P-A	SIP-3 (Ammo Pack)	3724Q
AH3724Q-P-B	SIP-3 (Bulk Pack)	3724Q
AH3725Q-P-A	SIP-3 (Ammo Pack)	3725Q
AH3725Q-P-B	SIP-3 (Bulk Pack)	3725Q
AH3726Q-P-B	SIP-3 (Bulk Pack)	3726Q
AH3727Q-P-B	SIP-3 (Bulk Pack)	3727Q

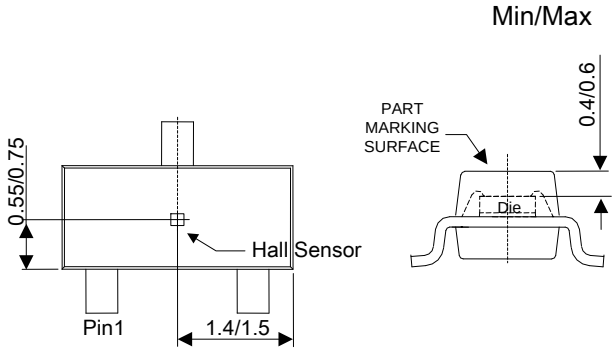
Package Outline Dimensions (All dimensions in mm.)

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

(1) Package Type: SOT23 (Type S)



SOT23 (Type S)			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	0.90	1.025	1.00
A3	0.375	0.425	0.40
b	0.37	0.51	0.40
c	0.10	0.18	0.125
D	2.80	3.00	2.90
E	2.30	2.50	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.45	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

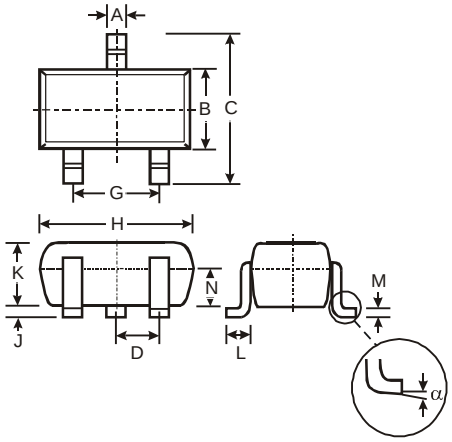


Sensor Location

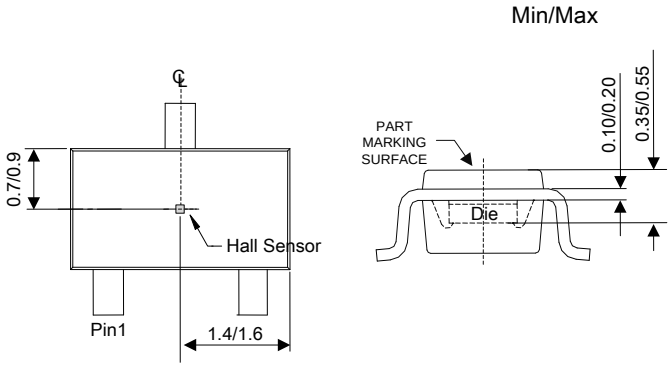
Package Outline Dimensions (All dimensions in mm.) (continued)

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

(2) Package Type: SC59



SC59			
Dim	**Min**	**Max**	**Typ**
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

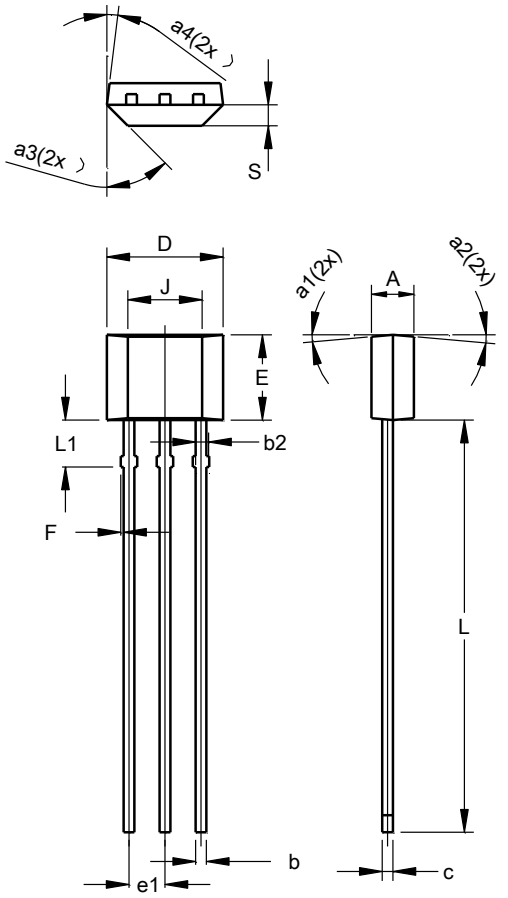


Sensor Location

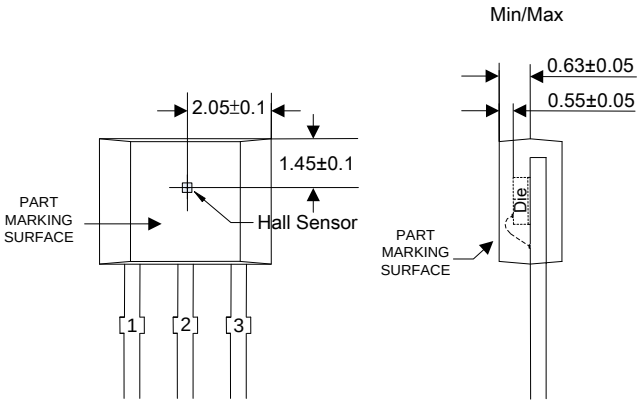
Package Outline Dimensions (All dimensions in mm.) (continued)

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

(3) Package Type: SIP-3 (Bulk Pack)



SIP-3 (Bulk Pack)			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.60	1.50
b	0.33	0.43	0.38
b2	0.40	0.508	0.46
c	0.35	0.41	0.38
D	3.90	4.30	4.10
E	2.80	3.20	3.00
e1	1.24	1.30	1.27
F	0.00	0.20	--
J	2.62 REF		
L	14.00	15.00	14.50
L1	1.55	1.75	1.65
S	0.63	0.84	0.74
a1	--	--	5°
a2	--	--	5°
a3	--	--	45°
a4	--	--	3°
All Dimensions in mm			

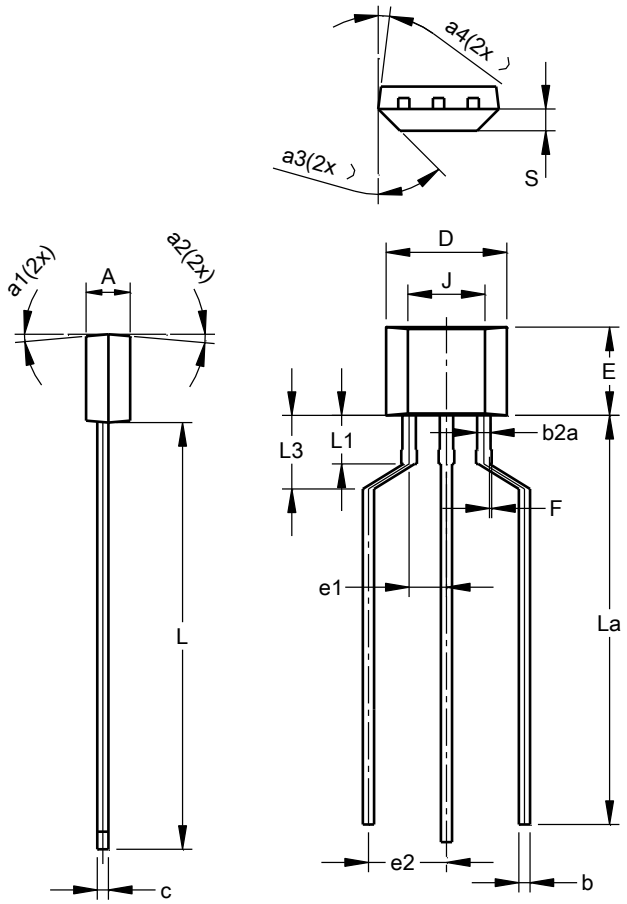


Sensor Location

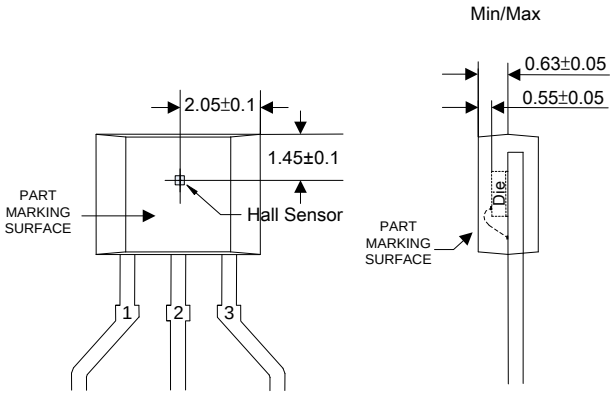
Package Outline Dimensions (All dimensions in mm.) (continued)

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

(4) Package Type: SIP-3 (Ammo Pack)



SIP-3 (Ammo Pack)			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.60	1.50
b	0.33	0.43	0.38
b2a	0.40	0.52	0.46
c	0.35	0.41	0.38
D	3.90	4.30	4.10
E	2.80	3.20	3.00
e1	1.24	1.30	1.27
e2	2.40	2.90	2.65
F	0.00	0.20	--
J	2.62 REF		
L	14.00	15.00	14.50
La	12.90	14.90	13.90
L1	1.55	1.75	1.65
L3	2.00	3.00	2.50
S	0.63	0.84	0.74
a1	--	--	5°
a2	--	--	5°
a3	--	--	45°
a4	--	--	3°
All Dimensions in mm			

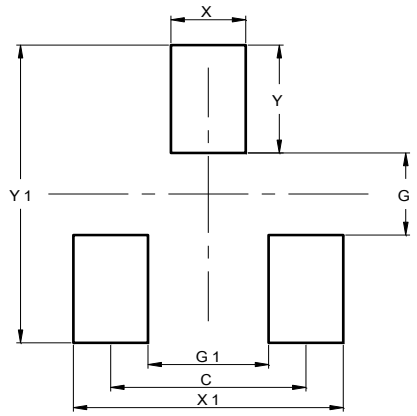


Sensor Location

Suggested Pad Layout

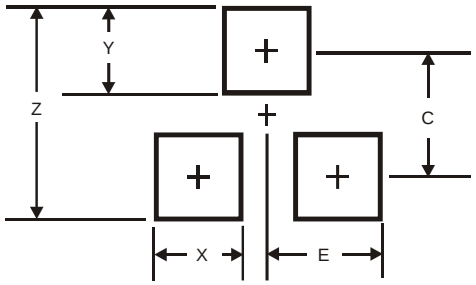
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: SOT23 (Type S)



Dimensions	Value (in mm)
C	1.830
G	0.800
G1	1.130
X	0.700
X1	2.530
Y	1.050
Y1	2.900

(2) Package Type: SC59



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

Mechanical Data

- Moisture Sensitivity: SOT23 (Type S)/SC59 – Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight:
  - SIP-3 (Ammo Pack)/SIP-3 (Bulk Pack): 0.077 grams (Approximate)
  - SOT23 (Type S): 0.009 grams (Approximate)
  - SC59: 0.015 grams (Approximate)

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