

FEATURES

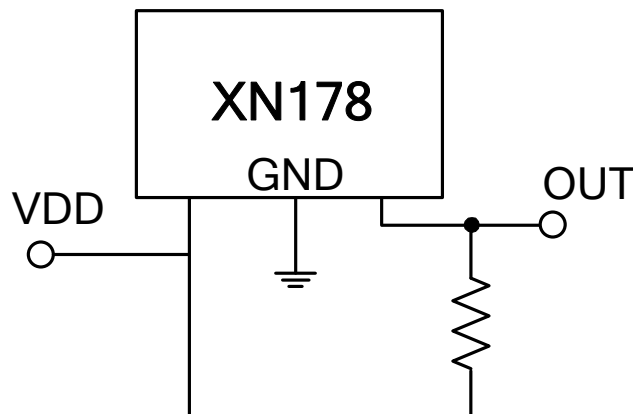
- 3.3V to 26V DC operation voltage
- Temperature compensation
- Wide operating voltage range
- Open-Drain pre-driver
- 25mA maximum sinking output current.
- -40°C to 125°C operating temperature
- Low Profile SOT-23 Package(Green and PB Free)

GENERAL DESCRIPTION

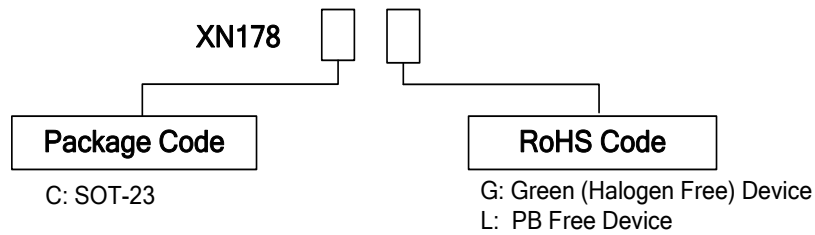
XN178 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device using HV BCD process includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and open-collector output. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

If a magnetic flux density larger than threshold B_{op} , OUT is turned on(low). The output state is held until a magnetic flux density reversal falls below B_{rp} causing OUT to be turned off (high).

TYPICAL APPLICATION



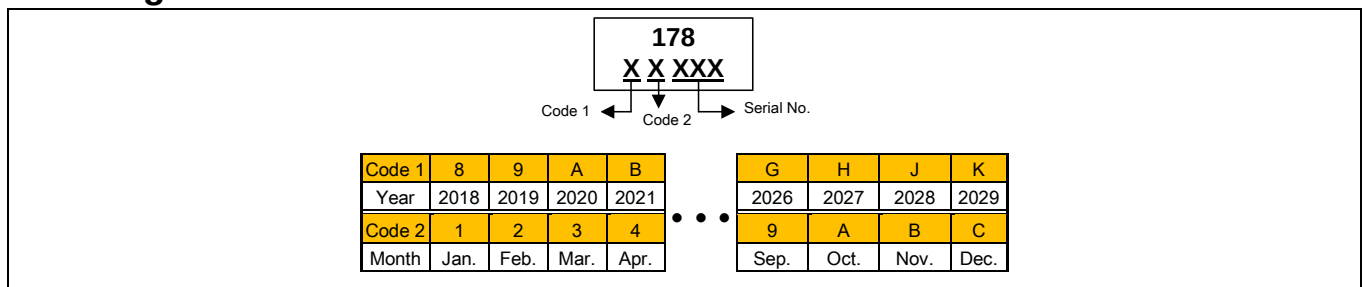
Ordering Information



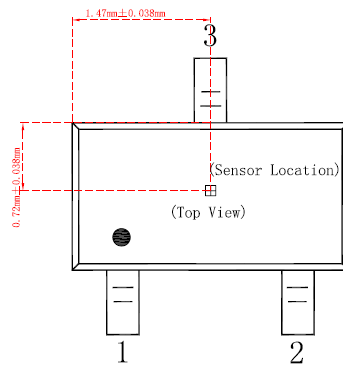
Package Dissipation Rating

Package	$R_{\theta JA} (^{\circ}C/W)$
SOT23	227

Marking Information



Pin Configuration



Terminal Assignments

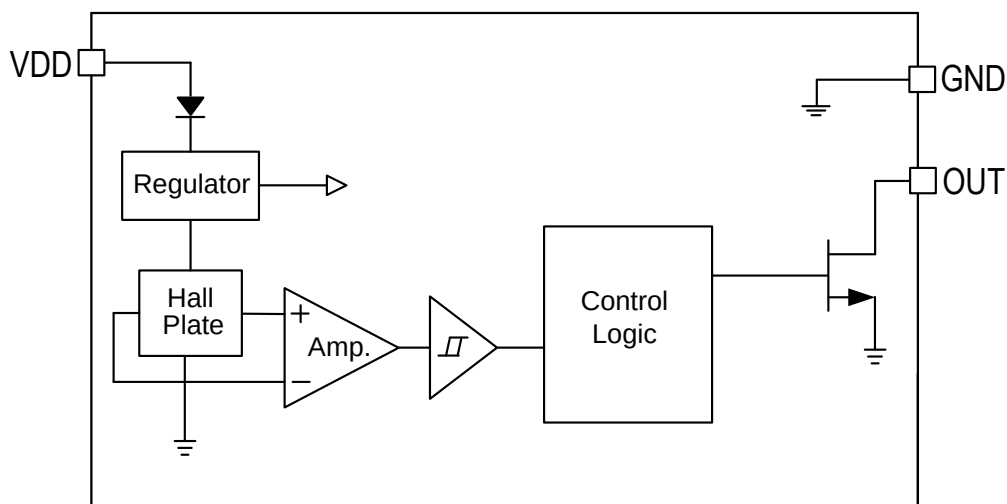
Pin No.	Pin Name	Description
1	OUT	Output
2	VDD	Power Supply Pin
3	GND	Ground Pin

Absolute Maximum Ratings

Parameter	Value
Supply Voltage V_{CC} , V_{CC}	28V
Reverse V_{CC} Polarity Voltage, V_{RCC}	-28V
Magnetic Flux Density, B	Unlimited Gauss
Output Current(Continuous), I_O	25mA
Power Dissipation, P_D	550mW
Storage Temperature Range, T_{STG}	-65°C~150 °C
Thermal Resistance from Junction to case, θ_{JC}	49°C/W
Ambient Temperature, T_A	-40°C~125°C

Note: Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, functional operation of the device at these or any other conditions is not implied. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

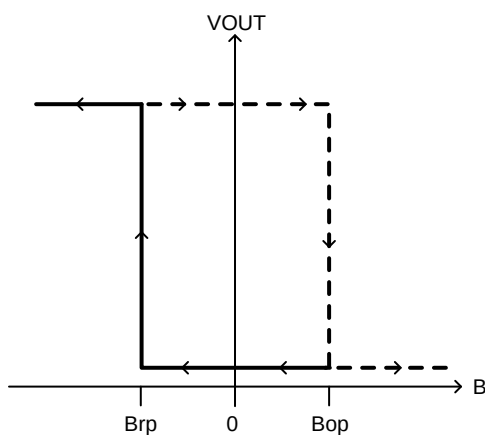
Functional Block Diagram



Electrical Characteristics ($T_A = +25^{\circ}\text{C}$, $V_{CC} = 12.0\text{V}$, unless otherwise noted)

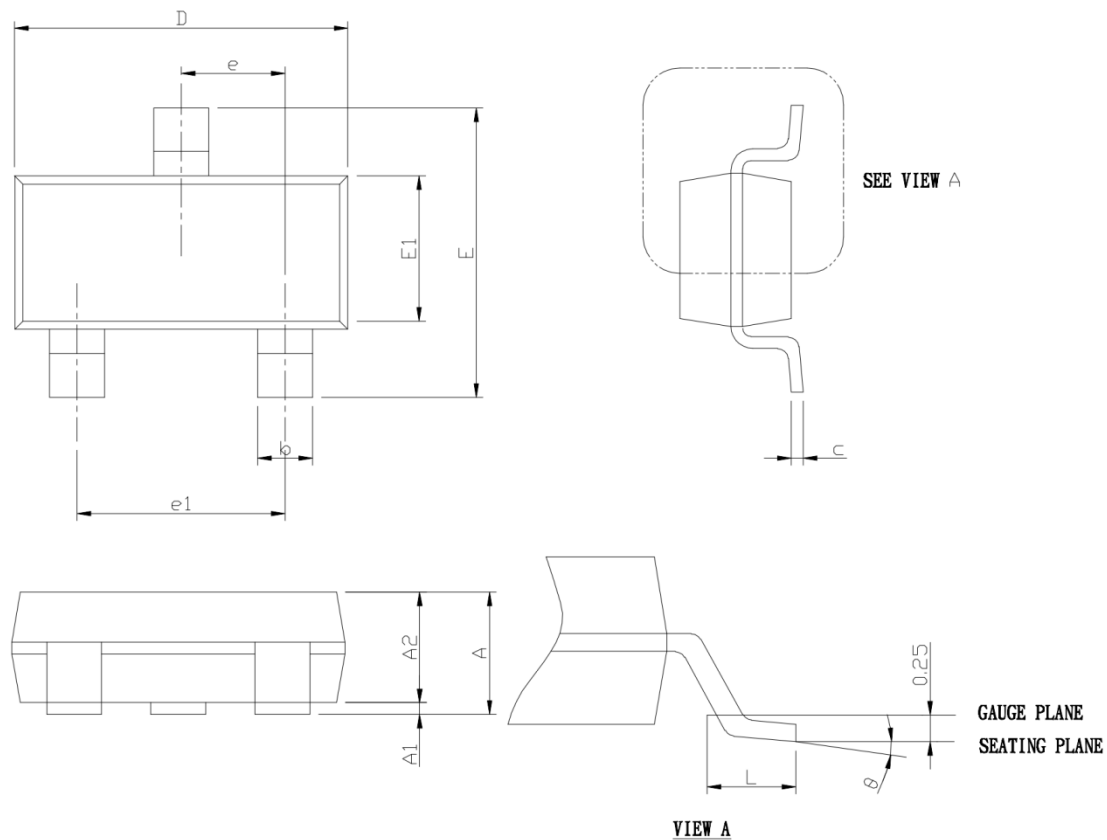
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
SUPPLY VOLTAGE						
V_{DD}	Supply Voltage	(Operating)	3.3	-	26	V
I_{DD}	Supply Current	(Operating)	-	3.0	4.5	μA
I_{OFF}	Output Leakage Current	($V_{OUT} = 12\text{V}$)	-	<0.1	10	μA
$V_{ds(sat)}$	Output Saturation Voltage	($I_{OUT} = 20\text{mA}$)	-	0.3	-	V
Magnetic			(1mT=10 Gauss)			
BOP	Operate Point		5	35	60	Gauss
BRP	Release Point,		-60	-35	-5	Gauss
BHYS	Hysteresis,		-	70	-	Gauss
Driver output vs. magnetic pole						
Characteristics		Test Conditions	DO			
North pole		$B < Brp$	High			
South pole		$B > Bop$	Low			

Note: The magnetic pole is applied facing the branded side of the package



Package Information

SOT-23



SYMBOL	SOT-23			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.45		0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

Note: 1. Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusions or gate burrs shall not exceed 10 mil per side

TAPE AND SPECIFICATION REEL
SOT-23

