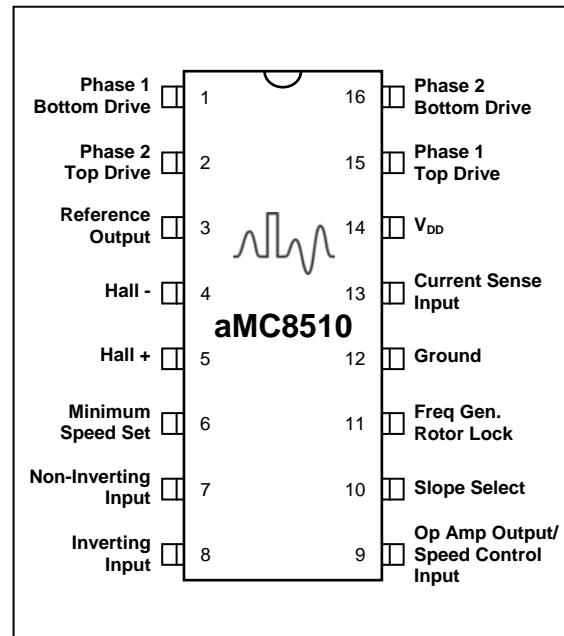


**Product Description**

The aMC8510 is a full featured monolithic brushless DC motor controller containing all the required driver functions to implement fan speed control. This device features a selectable slope pulse width modulator (PWM) for efficient speed control that is compatible with analog and digital control signals, programmable minimum speed setting, selectable automatic fan power down mode for power sensitive applications, latching PWM for enhanced noise immunity, integrated fault timer with auto start retry, adaptive motor kick start timer to insure start up, combined frequency generator / rotor lock output, Hall amplifier with propriety noise immunity circuitry for proper drive sequencing, compatibility with differential non-buffered and buffered sensors, op amp and pinned out reference for thermal sensor voltage scaling, fixed non-overlapping commutation delay for reduced power supply current spiking, two 40 V open drain top drive outputs, two 100 mA complementary bottom drive outputs that are ideally suited for driving power MOSFETs, programmable cycle-by-cycle current limiting, under voltage lockout and thermal shutdown protection, and an internal shunt regulator for use with higher voltage motors.



**Pin Configuration**



**Features**

- Analog and digital speed control signal compatibility
- Selectable PWM speed control slope
- Programmable minimum speed setting
- Selectable automatic fan power down mode
- Latching PWM for enhanced noise immunity
- Integrated fault timer with auto start retry
- Adaptive motor kick start timer
- Combined frequency generator / rotor lock output
- Hall amplifier with propriety noise immunity circuitry
- Differential unbuffered and digital Hall compatibility
- Op amp and pinned out reference
- Two 40 V open drain top drive outputs
- Two 100 mA complementary bottom drive outputs
- Programmable cycle-by-cycle current limit protection
- Under voltage lockout
- Thermal shutdown protection
- Internal shunt regulator for higher voltage motors
- MSL-1 per JEDEC J-STD-020C
- Pb-free Matte Sn lead finish & RoHS Compliant Packages

**Applications**

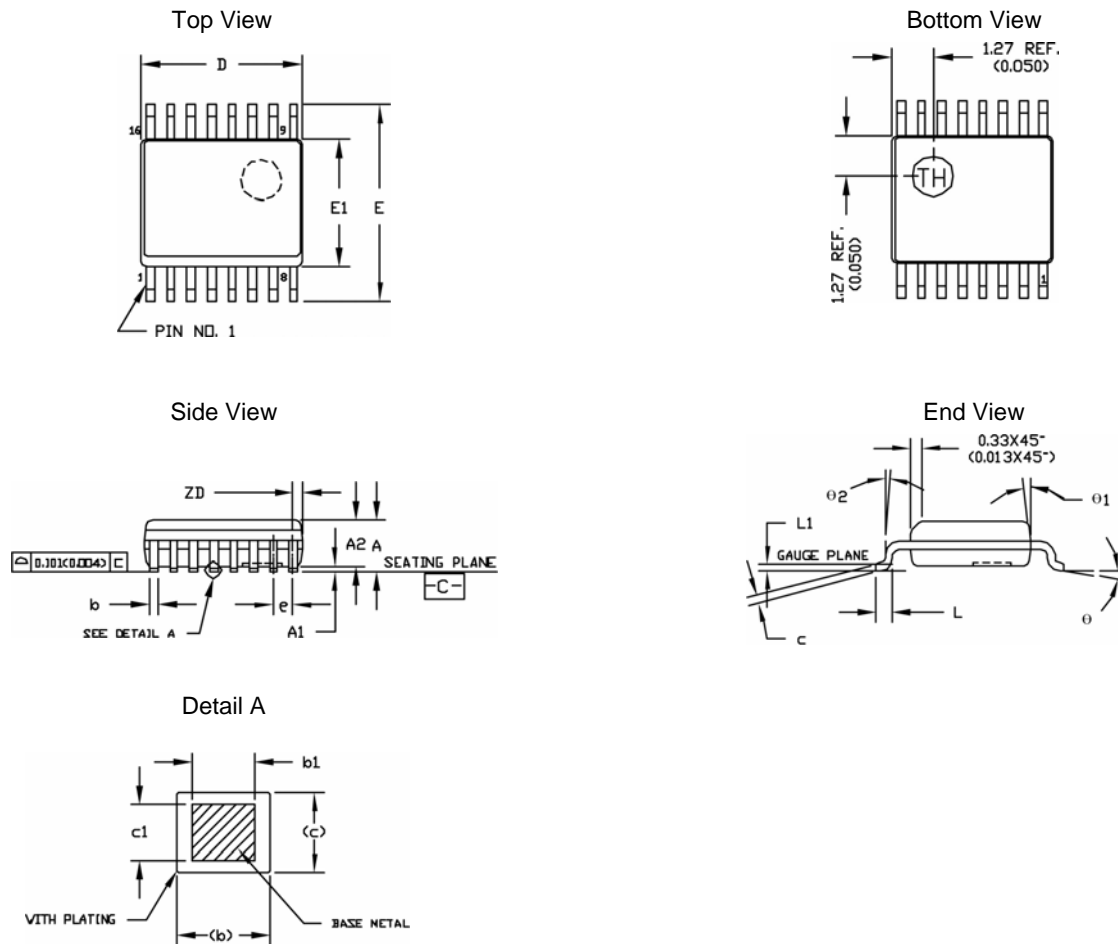
- PC, workstation and mainframe fans
- Telcom, LAN server fans and blowers
- Industrial control, card racks and instrumentation

**Ordering Information**

Part Number	Package	Junction Temperature Range	Marking
aMC8510D16	SOIC 16 Lead	-40°C to 150°C	aMC8510 Ayww
aMC8510QS16	QSOP 16 Lead		

Ayww – Assembly site, year, workweek

## QSOP16 Package Outline Drawing

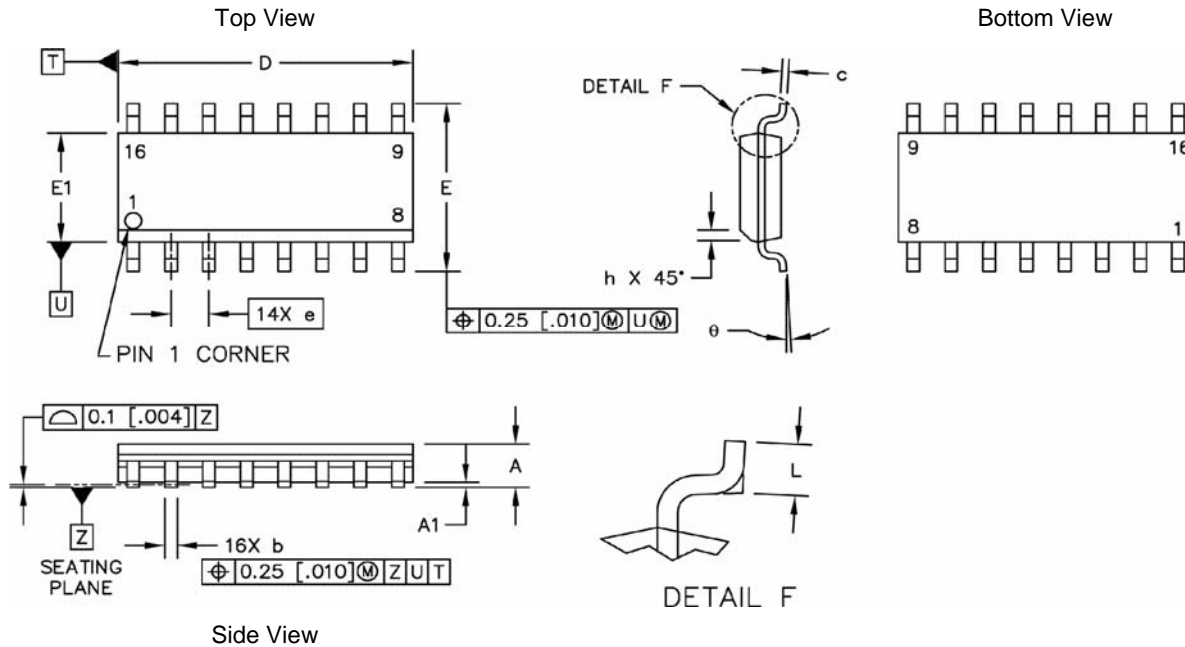


### NOTE :

- DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.
- DIMENSION 'D' DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURR. MOLD FLASH, PROTRUSION OR GATE BURRS SHALL NOT EXCEED 0.152mm(0.006") PER SIDE.
- DIMENSION 'E' DOES NOT INCLUDE INTER-LEAD FLASH OR PROTRUSIONS. INTER-LEAD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.254mm(0.010") PER SIDE.
- FORMED LEAD SHALL BE PLANNED WITH RESPECT TO ONE ANOTHER WITHIN 0.101mm(0.004") AT SEATING PLANE 'C'.
- CONTROLLING DIMENSION : MILLIMETER. CONVERTED INCH DIMENSION ARE NOT NECESSARILY EXACT.
- 'TH' IS STAND FOR THAILAND.
- DIMENSION 'b' DOES NOT INCLUDE DAMBAR PROTRUSION / INTRUSION ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.10mm(.004") TOTAL IN EXCESS OF 'b' DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR INTRUSION SHALL NOT REDUCE DIMENSION 'b' BY MORE THAN 0.05mm(.002") AT LEAST MATERIAL CONDITION.
- DIMENSION ZD IS FOR REFERENCE ONLY. MINIMUM ZD DIMENSION SUCH THAT NO EXPOSED LEAD FRAME MATERIAL IS ALLOWED FOR END LEADS.

SYMBOL	COMMON					
	DIMENSIONS MILLIMETER			DIMENSIONS INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.524	1.651	1.752	0.060	0.065	0.069
A1	0.101	0.177	0.228	0.004	0.007	0.010
A2	1.473 REF.			0.058 REF.		
b	0.203	-	0.304	0.008	-	0.012
b1	0.203	0.254	0.279	0.008	0.010	0.011
c	0.177	-	0.254	0.007	-	0.010
c1	0.177	0.203	0.228	0.007	0.008	0.009
D	4.80	4.902	5.003	0.189	0.193	0.197
ZD	0.228 REF.			0.009 REF.		
E	5.791	5.994	6.197	0.228	0.236	0.244
E1	3.810	3.911	3.987	0.150	0.154	0.157
L	0.406	0.635	1.270	0.016	0.025	0.050
L1	0.254 BSC			0.010 BSC		
e	0.635 BSC			0.025 BSC		
0	0°	-	8°	0°	-	8°
01	5°	-	15°	5°	-	15°
02	0°	-	-	0°	-	-

## SOIC16 Package Outline Drawing



DIM	MILLIMETERS			INCHES			NOTES
	MIN	TYP	MAX	MIN	TYP	MAX	
A	1.35		1.75	.053		.069	1. CONTROLLING DIMENSION: MILLIMETER.
A1	0.05		0.15	.002		.006	
b	0.35		0.49	.014		.019	2. DIMENSION D AND E1 DO NOT INCLUDE MOLD PROTRUSION.
c	0.19		0.25	.007		.010	
D	9.8		10	.386		.393	3. MAXIMUM MOLD PROTRUSION 0.15 (.006) PER SIDE.
E	5.8		6.2	.228		.244	
E1	3.8		4	.150		.157	4. DIMENSION b DOES NOT INCLUDE DAM BAR PROTRUSION. ALLOWABLE DAM BAR PROTRUSION SHALL BE 0.127 (.005) TOTAL IN EXCESS OF THE b DIMENSION AT MAXIMUM MATERIAL CONDITION.
e		1.27 BSC			.050 BSC		
h	0.25		0.5	.010		.020	
L	0.4		1.25	.016		.049	
theta	0°		7°	0°		7°	

Preliminary Specification – Subject to change without notice

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