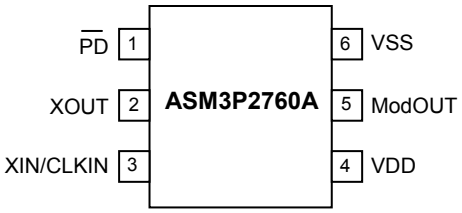
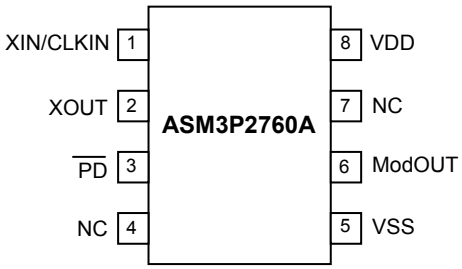
Pin Configuration (6-pin TSOT-23 Package)



Pin Description

Pin#	Pin Name	Type	Description
1	$\overline{PD}$	I	Power-down control pin. Pull low to enable power-down mode. Connect to VDD if not used.
2	XOUT	O	Crystal connection. If using an external reference, this pin must be left unconnected.
3	XIN/CLKIN	I	Crystal connection or external reference frequency input. This pin has dual functions. It can be connected either to an external crystal or an external reference clock.
4	VDD	P	Power supply for the entire chip
5	ModOUT	O	Spread spectrum clock output.
6	VSS	P	Ground connection.

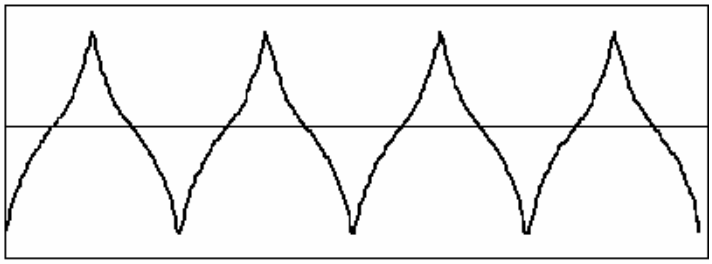
Pin Configuration (8-pin SOIC and TSSOP Packages)



Pin Description

Pin#	Pin Name	Type	Description
1	XIN/CLKIN	I	Crystal connection or external reference frequency input. This pin has dual functions. It can be connected either to an external crystal or an external reference clock.
2	XOUT	O	Crystal connection. If using an external reference, this pin must be left unconnected.
3	$\overline{PD}$	I	Power-down control pin. Pull low to enable power-down mode. Connect to VDD if not used.
4	NC	-	No connect.
5	VSS	P	Ground connection.
6	ModOUT	O	Spread spectrum clock output.
7	NC	-	No connect.
8	VDD	P	Power supply for the entire chip

Modulation Profile



Specification

Description		Specification
Frequency Range	For 2.5V Supply	6MHz < CLKIN < 12MHz
	For 3.3V Supply	6MHz < CLKIN < 13MHz
Modulation Equation		$F_{IN}/256$
Frequency Deviation		±0.65% @ 8MHz

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
VDD, V_{IN}	Voltage on any pin with respect to Ground	-0.5 to +7.0	V
T_{STG}	Storage temperature	-65 to +125	°C
T_A	Operating temperature	0 to 70	°C
T_s	Max. Soldering Temperature (10 sec)	260	°C
T_J	Junction Temperature	150	°C
T_{DV}	Static Discharge Voltage (As per JEDEC STD22- A114-B)	2	KV

Note: These are stress ratings only and are not implied for functional use. Exposure to absolute maximum ratings for prolonged periods of time may affect device reliability.

DC Electrical Characteristics for 2.5V Supply

(Test condition: All parameters are measured at room temperature (+25°C) unless otherwise stated)

Symbol	Parameter	Min	Typ	Max	Unit
V_{IL}	Input low voltage	VSS-0.3	-	0.8	V
V_{IH}	Input high voltage	2.0	-	VDD+0.3	V
I_{IL}	Input low current	-	-	-35	µA
I_{IH}	Input high current	-	-	35	µA
I_{XOL}	XOUT output low current (@0.5V, VDD=2.5V)	-	3	-	mA
I_{XOH}	XOUT output high current (@1.8V, VDD=2.5V)	-	3	-	mA
V_{OL}	Output low voltage (VDD = 2.5V, I_{OL} = 8mA)	-	-	0.6	V
V_{OH}	Output high voltage (VDD = 2.5V, I_{OH} = 8mA)	1.8	-	-	V
I_{DD}	Static supply current*	-	-	10	µA
I_{CC}	Dynamic supply current (2.5V, 8MHz and no load)	-	2.5	-	mA
VDD	Operating Voltage	2.375	2.5	2.625	V
t_{ON}	Power-up time (first locked cycle after power-up)**	-	-	5	mS
Z_{OUT}	Output impedance	-	50	-	Ω

* XIN/CLKIN pin and $\overline{PD}$ pin are pulled low
** V_{DD} and XIN/CLKIN input are stable, $\overline{PD}$ pin is made high from low.

AC Electrical Characteristics for 2.5V Supply

Symbol	Parameter		Min	Typ	Max	Unit
CLKIN	Input frequency		6	-	12	MHz
ModOUT	Output frequency		6	-	12	MHz
f_d	Frequency Deviation	Input Frequency = 6MHz	-	-	±0.96	%
		Input Frequency = 12MHz	-	-	±0.45	
t_{LH}*	Output rise time (measured from 0.7V to 1.7V)		0.4	1.2	1.4	nS
t_{HL}*	Output fall time (measured from 1.7V to 0.7V)		0.4	0.9	1.1	nS
t_{JC}	Jitter (cycle to cycle)		-	-	200	pS
t_D	Output duty cycle		45	50	55	%

* t_{LH} and t_{HL} are measured into a capacitive load of 15pF

DC Electrical Characteristics for 3.3V Supply

(Test condition: All parameters are measured at room temperature (+25°C) unless otherwise stated.)

Symbol	Parameter	Min	Typ	Max	Unit
V_{IL}	Input low voltage	VSS - 0.3	-	0.8	V
V_{IH}	Input high voltage	2.0	-	VDD + 0.3	V
I_{IL}	Input low current	-	-	-35	µA
I_{IH}	Input high current	-	-	35	µA
I_{XOL}	XOUT output low current (@0.4V, VDD=3.3V)	-	3	-	mA
I_{XOH}	XOUT output high current (@2.5V, VDD=3.3V)	-	3	-	mA
V_{OL}	Output low voltage (VDD = 3.3 V, I_{OL} = 8mA)	-	-	0.4	V
V_{OH}	Output high voltage (VDD = 3.3 V, I_{OH} = 8mA)	2.5	-	-	V
I_{DD}	Static supply current*	-	-	10	µA
I_{CC}	Dynamic supply current (3.3V, 8MHz and no load)	-	3.0	-	mA
VDD	Operating Voltage	2.7	3.3	3.6	V
t_{ON}	Power-up time(first locked cycle after power up)**	-	-	5	mS
Z_{OUT}	Output impedance	-	45	-	Ω

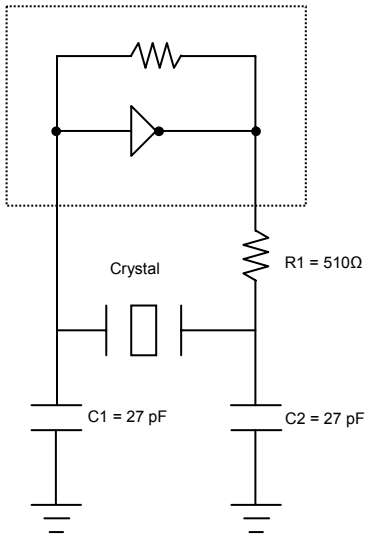
* XIN/CLKIN pin and $\overline{PD}$ pin are pulled low
**V_{DD} and XIN/CLKIN input are stable; PD pin is made high from low.

AC Electrical Characteristics for 3.3V Supply

Symbol	Parameter		Min	Typ	Max	Unit
CLKIN	Input frequency		6	-	13	MHz
ModOUT	Output frequency		6	-	13	MHz
f_d	Frequency Deviation	Input Frequency = 6MHz	-	-	±0.96	%
		Input Frequency = 13MHz	-	-	±0.43	
t_{LH}*	Output rise time (measured at 0.8V to 2.0V)		0.5	1.3	1.5	nS
t_{HL}*	Output fall time (measured at 2.0V to 0.8V)		0.4	1.0	1.2	nS
t_{JC}	Jitter (cycle to cycle)		-	-	200	pS
t_D	Output duty cycle		45	50	55	%

*t_{LH} and t_{HL} are measured into a capacitive load of 15pF

Typical Crystal Oscillator Circuit

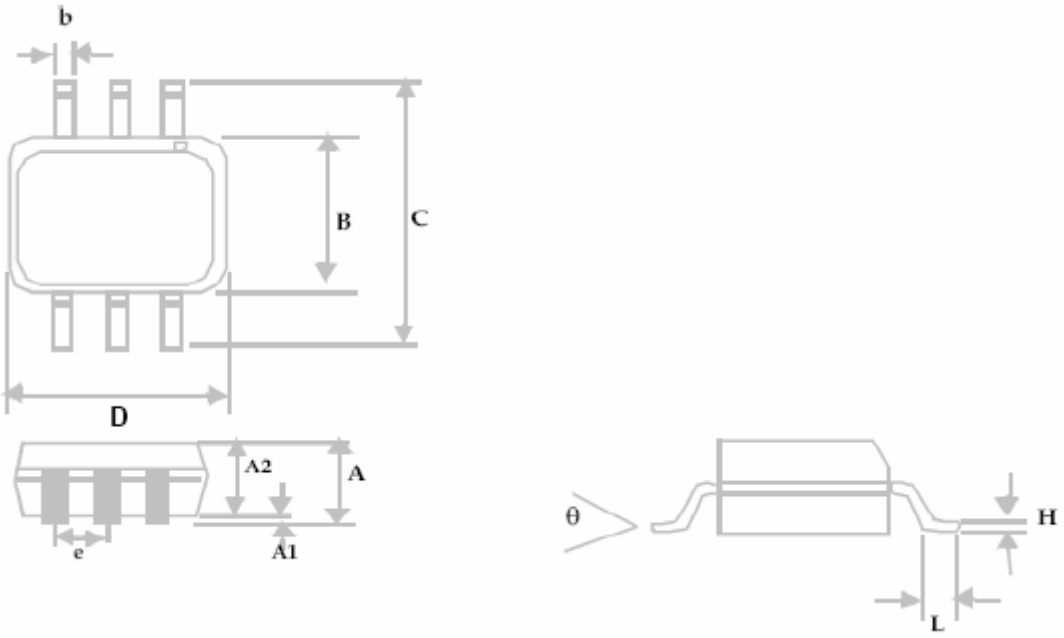


Typical Crystal Specifications

Fundamental AT cut parallel resonant crystal	
Nominal frequency	8.000MHz
Frequency tolerance	± 50ppm or better at 25°C
Operating temperature range	-25°C to +85°C
Storage temperature	-40°C to +85°C
Load capacitance	18pF
Shunt capacitance	7pF maximum
ESR	25Ω

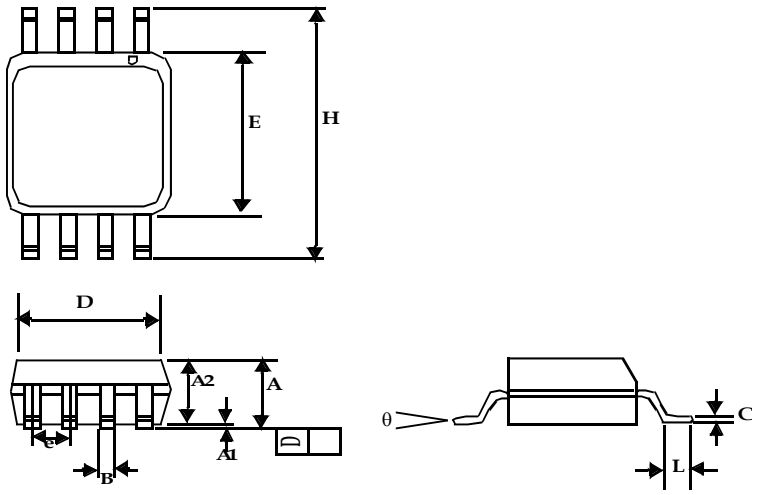
Package Information

6-pin TSOT-23 Package



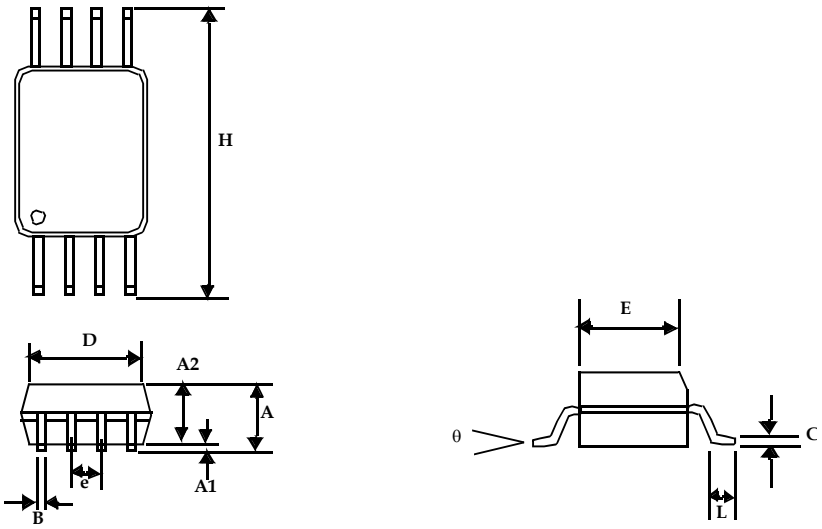
Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A		0.04		1.00
A1	0.00	0.004	0.00	0.10
A2	0.033	0.036	0.84	0.90
b	0.012	0.02	0.30	0.50
H	0.005 BSC		0.127 BSC	
D	0.114 BSC		2.90 BSC	
B	0.06 BSC		1.60 BSC	
e	0.0374 BSC		0.950 BSC	
C	0.11 BSC		2.80 BSC	
L	0.0118	0.02	0.30	0.50
θ	0°	4°	0°	4°

8-Pin SOIC Package



Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A1	0.004	0.010	0.10	0.25
A	0.053	0.069	1.35	1.75
A2	0.049	0.059	1.25	1.50
B	0.012	0.020	0.31	0.51
C	0.007	0.010	0.18	0.25
D	0.193 BSC		4.90 BSC	
E	0.154 BSC		3.91 BSC	
e	0.050 BSC		1.27 BSC	
H	0.236 BSC		6.00 BSC	
L	0.016	0.050	0.41	1.27
θ	0°	8°	0°	8°

8-Pin TSSOP Package

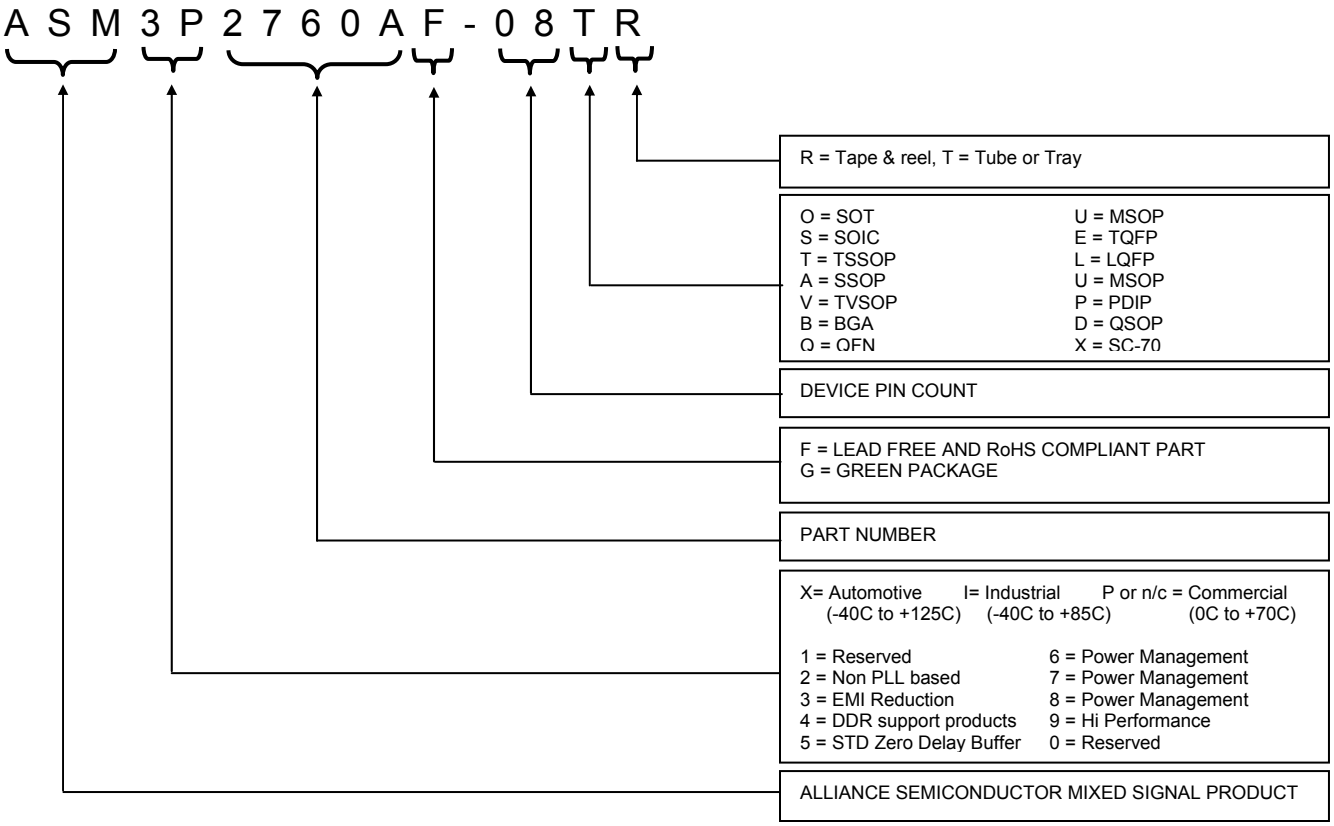


Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A		0.043		1.10
A1	0.002	0.006	0.05	0.15
A2	0.033	0.037	0.85	0.95
B	0.008	0.012	0.19	0.30
c	0.004	0.008	0.09	0.20
D	0.114	0.122	2.90	3.10
E	0.169	0.177	4.30	4.50
e	0.026 BSC		0.65 BSC	
H	0.252 BSC		6.40 BSC	
L	0.020	0.028	0.50	0.70
θ	0°	8°	0°	8°

Ordering Information

Part Number	Marking	Package Type	Temperature
ASM3P2760AF-06OR	E4LL	6-Pin TSOT-23, TAPE & REEL, Pb Free	Commercial
ASM3P2760AF-08TT	3P2760AF	8-Pin TSSOP, TUBE, Pb Free	Commercial
ASM3P2760AF-08TR	3P2760AF	8-Pin TSSOP, TAPE & REEL, Pb Free	Commercial
ASM3P2760AF-08ST	3P2760AF	8-Pin SOIC, TUBE, Pb Free	Commercial
ASM3P2760AF-08SR	3P2760AF	8-Pin SOIC, TAPE & REEL, Pb Free	Commercial
ASM3P2760AG-06OR	E3LL	6-Pin TSOT-23, TAPE & REEL, Green	Commercial
ASM3P2760AG-08TT	3P2760AG	8-Pin TSSOP, TUBE, Green	Commercial
ASM3P2760AG-08TR	3P2760AG	8-Pin TSSOP, TAPE & REEL, Green	Commercial
ASM3P2760AG-08ST	3P2760AG	8-Pin SOIC, TUBE, Green	Commercial
ASM3P2760AG-08SR	3P2760AG	8-Pin SOIC, TAPE & REEL, Green	Commercial
ASM3P2760A-06OR	E1LL	6-Pin TSOT-23, TAPE & REEL	Commercial
ASM3P2760A-08TT	3P2760A	8-Pin TSSOP, TUBE	Commercial
ASM3P2760A-08TR	3P2760A	8-Pin TSSOP, TAPE & REEL	Commercial
ASM3P2760A-08ST	3P2760A	8-Pin SOIC, TUBE	Commercial
ASM3P2760A-08SR	3P2760A	8-Pin SOIC, TAPE & REEL	Commercial
ASM3I2760AF-06OR	E5LL	6-Pin TSOT-23, TAPE & REEL, Pb Free	Industrial
ASM3I2760AF-08TT	3I2760AF	8-Pin TSSOP, TUBE, Pb Free	Industrial
ASM3I2760AF-08TR	3I2760AF	8-Pin TSSOP, TAPE & REEL, Pb Free	Industrial
ASM3I2760AF-08ST	3I2760AF	8-Pin SOIC, TUBE, Pb Free	Industrial
ASM3I2760AF-08SR	3I2760AF	8-Pin SOIC, TAPE & REEL, Pb Free	Industrial
ASM3I2760AG-06OR	E6LL	6-Pin TSOT-23, TAPE & REEL, Green	Industrial
ASM3I2760AG-08TT	3I2760AG	8-Pin TSSOP, TUBE, Green	Industrial
ASM3I2760AG-08TR	3I2760AG	8-Pin TSSOP, TAPE & REEL, Green	Industrial
ASM3I2760AG-08ST	3I2760AG	8-Pin SOIC, TUBE, Green	Industrial
ASM3I2760AG-08SR	3I2760AG	8-Pin SOIC, TAPE & REEL, Green	Industrial
ASM3I2760A-06OR	E2LL	6-Pin TSOT-23, TAPE & REEL	Industrial
ASM3I2760A-08TT	3I2760A	8-Pin TSSOP, TUBE	Industrial
ASM3I2760A-08TR	3I2760A	8-Pin TSSOP, TAPE & REEL	Industrial
ASM3I2760A-08ST	3I2760A	8-Pin SOIC, TUBE	Industrial
ASM3I2760A-08SR	3I2760A	8-Pin SOIC, TAPE & REEL	Industrial

Device Ordering Information



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Preliminary Information
Part Number: ASM3P2760A
Document Version: v1.8

Note: This product utilizes US Patent # 6,646,463 Impedance Emulator Patent issued to Alliance Semiconductor, dated 11-11-2003