MAX77686 Datasheet

for

Samsung LSI AP (Pegasus)

General Description

MAX77686 is complete power management IC for the latest 3G/4G smart phones. MAX77686 contains nine high efficient buck converters, 26 LDOs to power all RF and application processor and a RTC, 3-channel 32kHz sleep clock, a backup battery charger, a manual reset, power on/off control logic, and I^2C serial interface to program individual regulator output voltages as well as on/off control for complete flexibility.

The linear regulators provide greater than 60dB PSRR and less than 45μV of output noise.
The real-time clock/calendar provides 32.768kHz buffered output, seconds, minutes, hours, day, date, month, and year information as well as two time/date-programmable alarms.

The MAX77686 features a revision 3 I^2C-compatible, 2-wire serial interface consisting of a bidirectional serial data line (SDA) and a serial clock line (SCL).
The MAX77686 supports SCL clock rates from 0Hz to 3.4MHz.

Features

- **Nine High Efficiency Buck Converters**
  - **1.5A for BUCK1, 5, 6, 7, 8 & 9**
  - **5A for BUCK2 & 4**
  - **2.5A for BUCK3**

26 Linear Regulators with Green Mode
  - **One 450mA NMOS LDO**
  - **One 300mA NMOS LDO**
  - **Four 150mA NMOS LDOs**
  - **Six 300mA PMOS LDOs**
  - **Fourteen 150mA PMOS LDOs**

- **Programmable voltage options for all PMOS LDOs from 0.8V to 3.95V in 50mV step**
- **Programmable voltage options for all NMOS LDOs from 0.8V to 2.375V in 25mV step**
- **Green Mode with 1uA typ for all LDOs**
- **RTC with two alarms**
- **Buffered 3-ch 32.768kHz Outputs with Low Jitter**
- **Backup battery charger and RTC**
- **Dual / single Button Manual RESET**

Applications

- **GSM, GPRS, EDGE, CDMA WCDMA & LTE Smart Phones**

Ordering Information

Die Type	Part No	Package No	Temp Range	Pin-Package
PR87B	MAX77686	W1445A5+2	-40°C to 85°C	12x12 144 Pins, 0.4mm Pitch, 5.18mm x 5.18mm
MAX77686-6A[NOTE1]	MAX77686Q	W1445A5+2		

Note1. MAX77686-6A is for center trimmed samples.

Pin Configuration

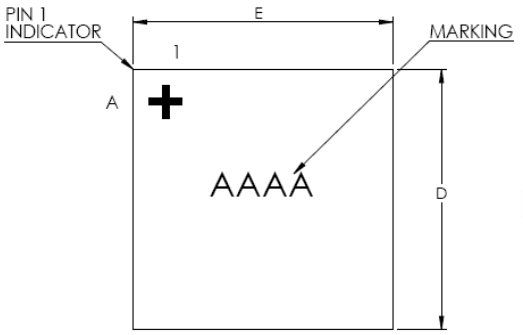
TO BE UPDATED (SUBJECT TO CHANGE WITH NO NOTICE)

TOP-VIEW

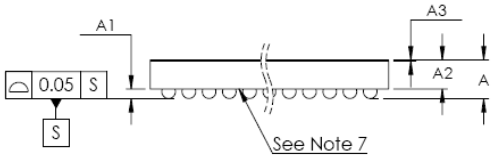
	1	2	3	4	5	6	7	8	9	10	11	12	
A	NC	LX6	PGND 6	INL7	INL1	INL2	INL6	INL4	INL5	INL3	PGND 7	NC	A
B	INB6	BUCK 6	ENB9	OUT2	OUT8	OUT 17	OUT 22	OUT 21	OUT 10	OUT3	INB7	LX7	B
C	PGND 1	BUCK 1	ENB8	OUT7	OUT1	OUT5	OUT 25	OUT4	OUT 13	OUT9	INB7	PGND 5	C
D	LX1	INB1	ENL20	OUT 15	OUT6	OUT 18	OUT 23	OUT 12	OUT 14	OUT 11	BUCK 7	LX5	D
E	PGND 4A	PGND 4A	ENL21	ENL22	OUT 26	OUT 19	ONOB	OUT 24	OUT 16	OUT 20	BUCK 5	INB5	E
F	LX4A	LX4A	BUCK 4	AC OKB	RE SETB	IRQB	MR STB1	DVS1	DGND	AGND 2	AGND 1	AGND 1	F
G	INB4A	INB4A	SNS 4P	JIG ONB	PWR ON	PWR HOLD	MR STB2	DVS2	VIO	BUCK 3	PGND 3	PGND 3	G
H	INB4B	INB4B	SNS 4N	VSET B51	VSET B52	SELB2	SELB3	DVS3	PWR REQ	SNS 3P	LX3	LX3	H
J	LX4B	LX4B	BUCK 9	VCC 32KCP	P32 KH	32KH AP	SELB4	SCL	SDA	SNS 3N	INB3	INB3	J
K	PGND 4B	PGND 4B	NC	32KH CP	VCCP 32KH	V COIN	NC	SNS 2N	SNS 2P	BUCK 2	NC	PGND 8	K
L	PGND 9	INB9	BATT	XOUT	PGND 2B	LX2B	INB2B	INB2A	LX2A	PGND 2A	BUCK 8	LX8	L
M	NC	LX9	BATT	XIN	PGND 2B	LX2B	INB2B	INB2A	LX2A	PGND 2A	INB8	NC	M
	1	2	3	4	5	6	7	8	9	10	11	12	

12x12, 144 Bumps, 0.4mm Pitch

Package Outline.

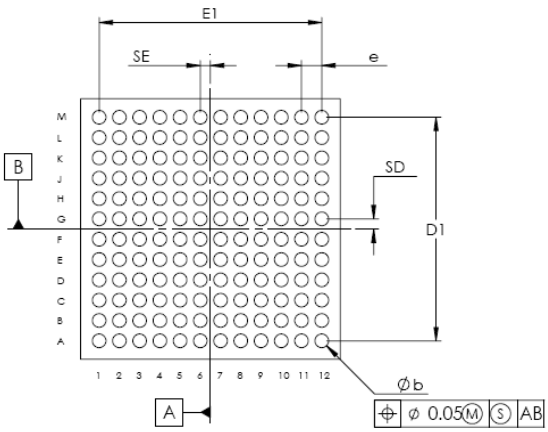


TOP VIEW



SIDE VIEW

COMMON DIMENSIONS		
A	0.76	±0.05
A1	0.19	±0.03
A2	0.57	REF
A3	0.025	BASIC
b	Ø0.27	±0.03
D1	4.40	
E1	4.40	
e	0.40	BASIC
SD	0.20	BASIC
SE	0.20	BASIC



BOTTOM VIEW

PKG. CODE	E		D		DEPOPULATED BUMPS
	MIN	MAX	MIN	MAX	
W1445A5+2	5.13	5.16	5.13	5.16	NONE

NOTES:
1. Terminal pitch is defined by terminal center to center value.
2. Outer dimension is defined by center lines between scribe lines.
3. All dimensions in millimeter.
4. Marking shown is for package orientation reference only.
5. Tolerance is ± 0.02 unless specified otherwise.
6. All dimensions apply to PbFree (+) package codes only.
7. Front - side finish can be either Black or Clear.

MAXIM

TITLE: PACKAGE OUTLINE
144 BUMPS WLP PKG. 0.4mm PITCH

APPROVAL | DOCUMENT CONTROL NO. 21-0584 | REV. A | 1/1

- DRAWING NOT TO SCALE -