

# KA7524B

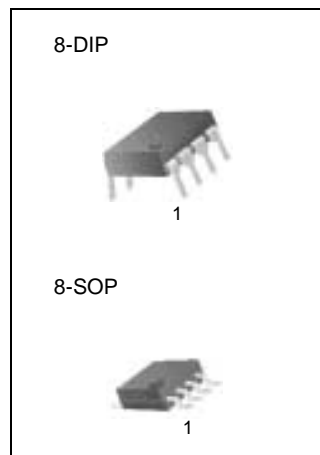
## Power Factor Correction Controller

### Features

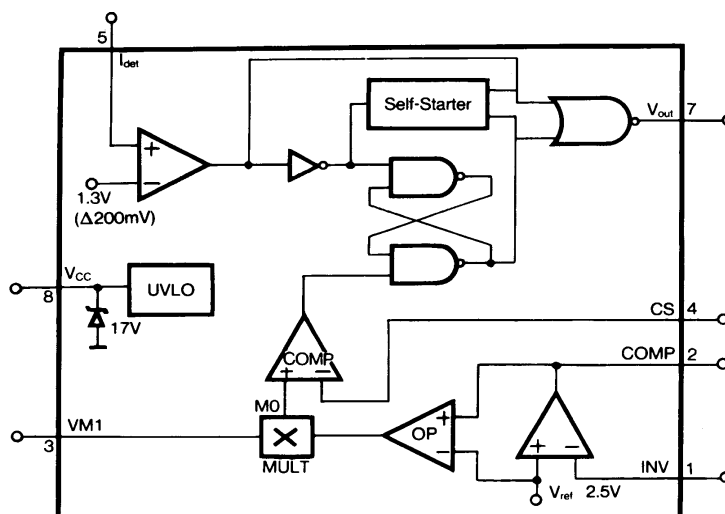
- Internal self-starting
- Micro power start up mode
- Included under voltage lockout circuit
- Internal 1% reference
- High output current : Peak 500mA

### Description

The KA7524B provides the necessary features to implement the Electronic BALLAST control and S.M.P.S application for designing on active power factor correction circuit.



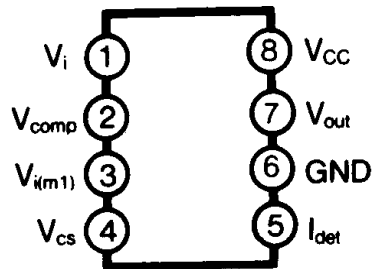
### Internal Block Diagram



Rev. 5.0

## Connection Diagram

KA7524/KA7524D (8 DIP, 8 SOP)



## Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	20	V
Peak Driver Output Current	$I_{O(P)}$	500	mA
Detect Clamping Diode Current	$I_{DET}$	10	mA
Output Clamping Diode Current	$I_{O(C.D)}$	10	mA
Operating Ambient Temperature	$T_{OPR}$	-25 ~ + 100	-
Storage Temperature	$T_{STG}$	-65 ~ + 150	-

## Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>UNDER VOLTAGE LOCKOUT SECTION</b>						
Start Threshold Voltage	V <sub>TH(ST)</sub>	-	9.2	10	10.8	V
UV Lockout Hysteresis	V <sub>THS</sub>	-	1.8	2.0	2.2	V
Supply Zener Voltage	V <sub>Z</sub>	-	-	17	-	V
<b>SUPPLY CURRENT SECTION</b>						
Start-Up Supply Current	I <sub>START</sub>	V <sub>CC</sub> V <sub>TH</sub>	-	0.25	0.5	mA
Operating Supply Current	I <sub>CC</sub>	V <sub>CC</sub> = 12V, No Load	-	6	12	mA
Dynamic Operating Current	I <sub>CC(D)</sub>	V <sub>CC</sub> = 12V, f = 50KHz, C <sub>GS</sub> = 1000PF	-	10	20	mA
<b>REFERENCE SECTION(NOTE1)</b>						
Reference Voltage	V <sub>REF</sub>	KA7524B/BD	2.475	2.5	2.525	V
Line regulation	V <sub>REF</sub>	12VV <sub>CC</sub> 16V	-	0.1	10	mV
Load Regulation	V <sub>REF</sub>	0I <sub>REF</sub> 2mA	-	0.1	10	mV
Temperature Stability	ST <sub>T</sub>	-	-	20	-	mV
<b>ERROR AMPLIFIER SECTION</b>						
Input Offset Voltage	V <sub>IO</sub>	-	-15	-	15	mV
Input Bias Current	I <sub>BIAS</sub>	-	-1	-0.1	1	uA
Large Signal Open Loop Gain	G <sub>V</sub>	-	60	100	-	dB
Power Supply Rejection Ratio	PSRR	-	60	86	-	dB
Output Current	I <sub>SOURCE</sub>	-	2	-	-	mA
	I <sub>SINK</sub>	-	-	-	-2	mA
Output Voltage Range	V <sub>O(P)</sub>	-	1.2	-	4	V
Unity Gain Bandwidth	UBW	-	-	1.0	-	MHz
Phase Margin	MPH	-	-	57	-	-

**Electrical Characteristics (Continued)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>MULTIPLIER SECTION</b>						
M1 Input Voltage Range	$V_{I(M1)}$	-	0	-	2	V
M2 Input Voltage Range	$V_{I(M2)}$	-	$V_{REF}$	-	$V_{REF+1}$	V
Input Bias Current	$I_{BIAS}$	-	-2	-0.5	2	$\mu A$
Multiplier Gain (Note2)	$G_V$	$V_{I(M1)} = 0.5V, V_{I(M2)} = 3V$	-	0.8	-	$\mu A$
Multiplier Gain Stability	$STT$	-	-	-0.2	-	/
<b>CURRENT SENSE SECTION</b>						
Input Offset Voltage	$V_{IO}$	-	-10	-	10	mV
Input Bias Current	$I_{BIAS}$	$0V_{CS}1.7V$	-5	-	5	$\mu A$
C. Sense Delay to Output	$t_{D(S)}$	Error Amp Output = 3.7V	-	200	500	nS
<b>CURRENT DETECT SECTION</b>						
Input Voltage Threshold	$V_{TH}$	-	1.0	1.3	1.6	V
Hysteresis	$V_{THS}$	-	-	200	-	mV
Input Low Clamp Voltage	$V_{IC(L)}$	$I_{DET} = 0mA$	-	-	0.95	V
Input High Clamp Voltage	$V_{IC(H)}$	$I_{DET} = 3mA$	6.1	7.1	-	V
Input Current	$I_J$	$0.9V_{DET}6V$	-	5	-	$\mu A$
Input Clam Diode Current	$I_{CD}$	$V_{DET}0.9V, V_{DET}6V$	-	-	3	mA
<b>CURRENT DETECT SECTION</b>						
Output Voltage(High)	$V_{O(H)}$	$I_O = -10mA, V_{CC} = 12V$	7	9	-	V
Output Voltage(Low)	$V_{O(L)}$	$I_O = 10mA, V_{CC} = 12V$	-	0.8	1.8	V
Rising Time	$t_R$	$C_L = 1000pF$	-	100	200	nS
Falling Time	$t_F$	$C_L = 1000pF$	-	90	200	nS
<b>SELF-STARTING SECTION</b>						
Self-Starting Time	$t_{SS}$	-	12	-	-	$\mu S$

**Notes :**

- Reference can not be tested on the PKG
- $G_V = V_{O(M)} / (V_{I(M1)}V_{I(M2)} - V_{REF})$

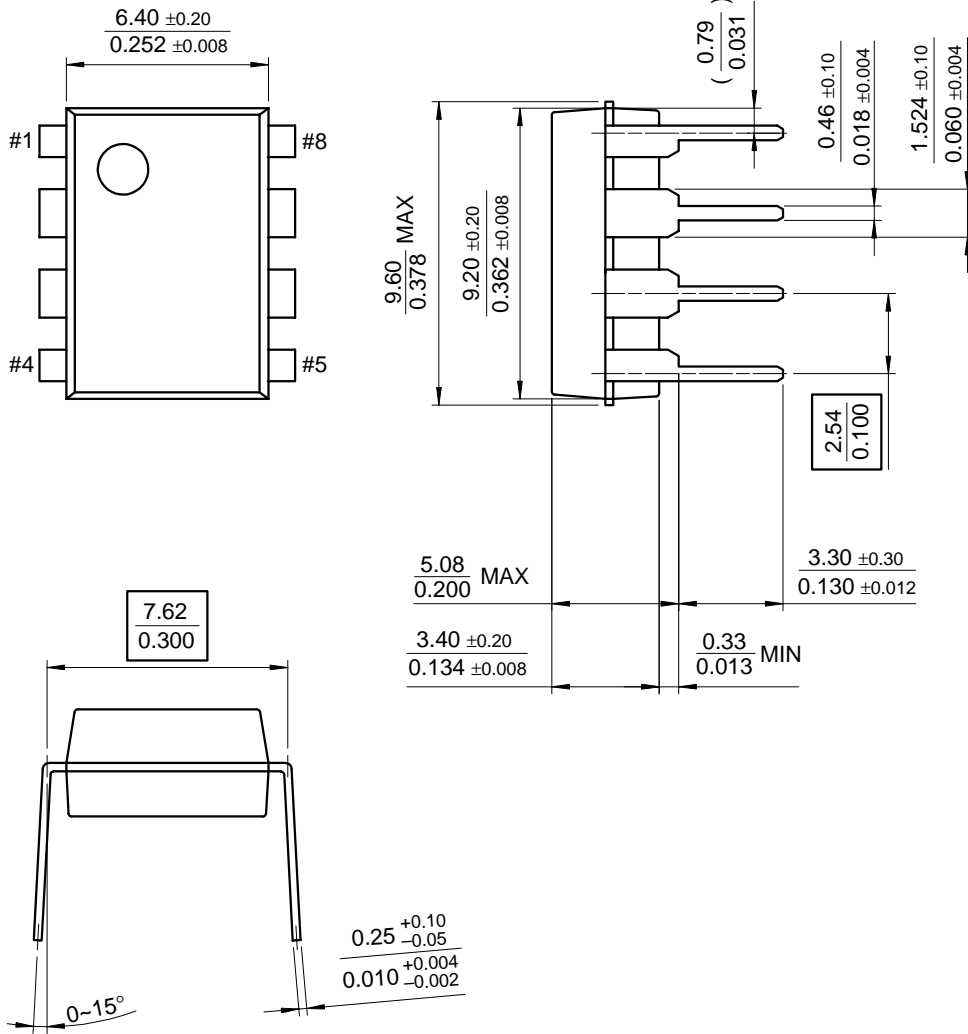


# Mechanical Dimensions

## Package

Dimensions in millimeters

### 8-DIP

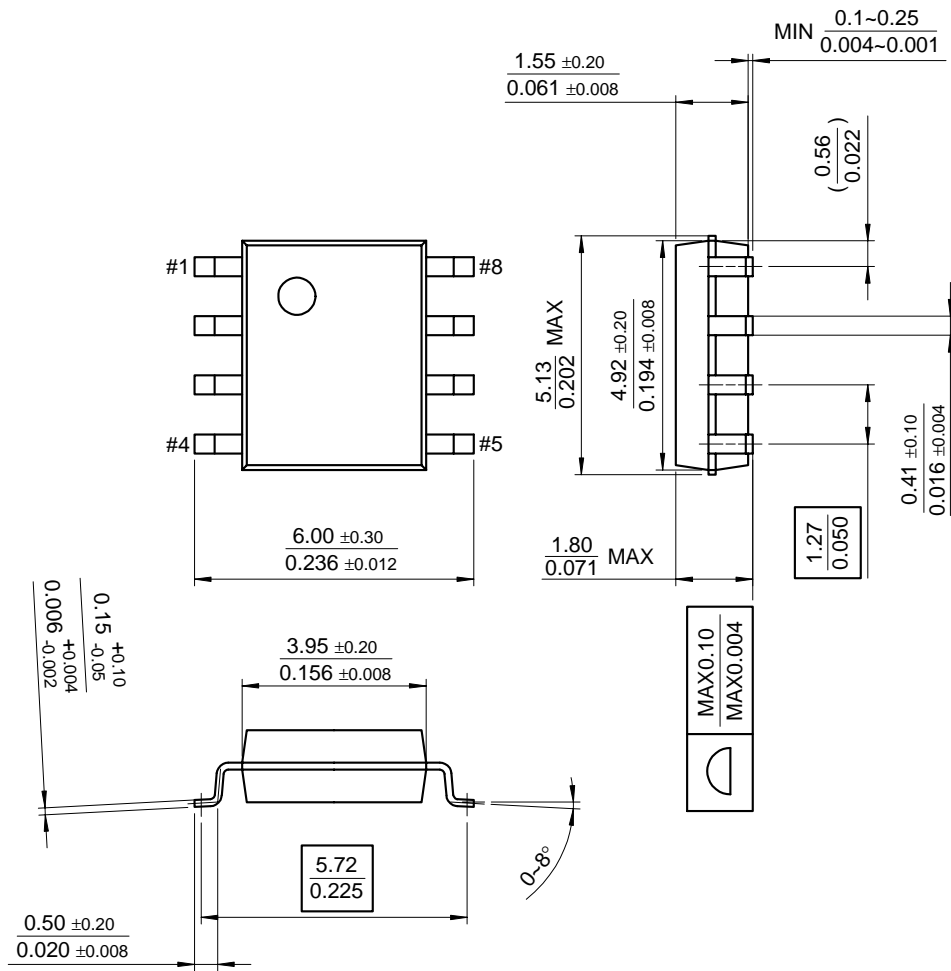


**Mechanical Dimensions** (Continued)

Package

Dimensions in millimeters

**8-SOP**



**Ordering Information**

Product Number	Package	Operating Temperature
KA7524B	8-DIP	-25°C ~ +100°C
KA7524BD	8-SOP	





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