



KA7524B

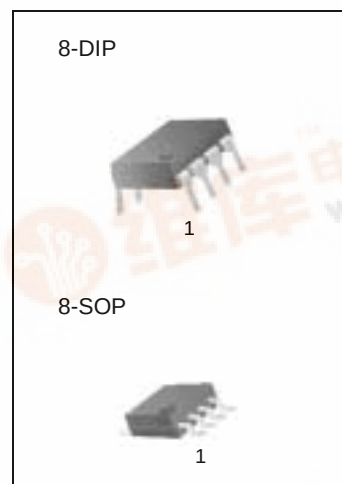
Power Factor Correction Controller

Features

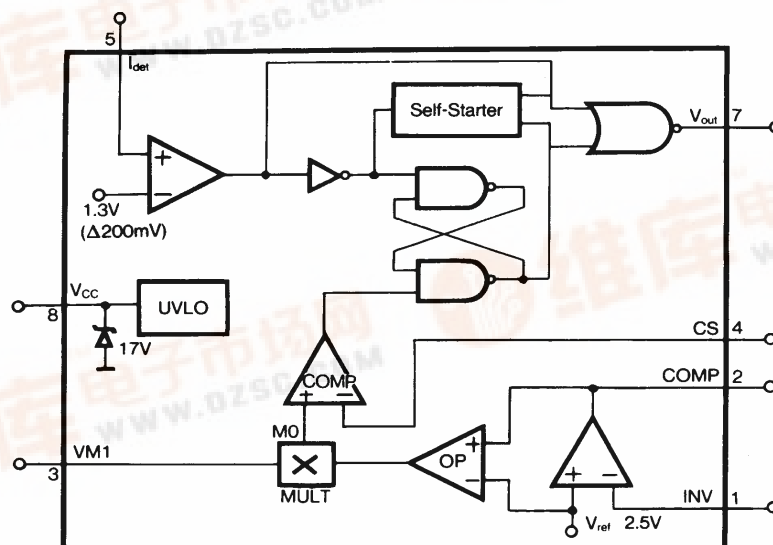
- Internal self-starting
- Micro power start up mode
- Included under voltage lockout circuit
- Internal 1% reference
- High output current : Peak 500mA

Descripton

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.

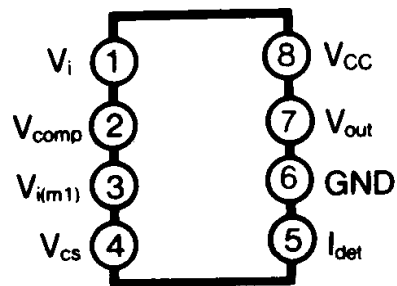


Internal Block Diagram



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
UNDER VOLTAGE LOCKOUT SECTION						
Start Threshold Voltage	V _{TH(ST)}	-	9.2	10	10.8	V
UV Lockout Hysteresis	V _{THS}	-	1.8	2.0	2.2	V
Supply Zener Voltage	V _Z	-	-	17	-	V
SUPPLY CURRENT SECTION						
Start-Up Supply Current	I _{START}	V _{CC} V _{TH}	-	0.25	0.5	mA
Operating Supply Current	I _{CC}	V _{CC} = 12V, No Load	-	6	12	mA
Dynamic Operating Current	I _{CC(D)}	V _{CC} = 12V, f = 50KHz, C _{GS} = 1000PF	-	10	20	mA
REFERENCE SECTION(NOTE1)						
Reference Voltage	V _{REF}	KA7524B/BD	2.475	2.5	2.525	V
Line regulation	V _{REF}	12VV _{CC} 16V	-	0.1	10	mV
Load Regulation	V _{REF}	0I _{REF} 2mA	-	0.1	10	mV
Temperature Stability	ST _T	-	-	20	-	mV
ERROR AMPLIFIER SECTION						
Input Offset Voltage	V _{IO}	-	-15	-	15	mV
Input Bias Current	I _{BIAS}	-	-1	-0.1	1	uA
Large Signal Open Loop Gain	G _V	-	60	100	-	dB
Power Supply Rejection Ratio	PSRR	-	60	86	-	dB
Output Current	I _{SOURCE}	-	2	-	-	mA
	I _{SINK}	-	-	-	-2	mA
Output Voltage Range	V _{O(P)}	-	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
MULTIPLIER SECTION						
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	μA
Multiplier Gain (Note2)	G_V	$V_{I(M1)} = 0.5V, V_{I(M2)} = 3V$	-	0.8	-	μA
Multiplier Gain Stability	ST_T	-	-	-0.2	-	/
CURRENT SDNSE SECTION						
Input Offset Voltage	V_{IO}	-	-10	-	10	mV
Input Bias Current	I_{BIAS}	$0V_{CS}1.7V$	-5	-	5	μA
C. Sense Delay to Output	$t_{D(S)}$	Error Amp Output = 3.7V	-	200	500	nS
CURRENT DETECT SECTION						
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	-	μA
Input Clam Diode Current	I_{CD}	$V_{DET}0.9V, V_{DET}6V$	-	-	3	mA
CURRENT DETECT SECTION						
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	$CL = 1000pF$	-	100	200	nS
Falling Time	t_F	$CL = 1000pF$	-	90	200	nS
SELF-STARTING SECTION						
Self-Starting Time	t_{SS}	-	12	-	-	μS

Notes :

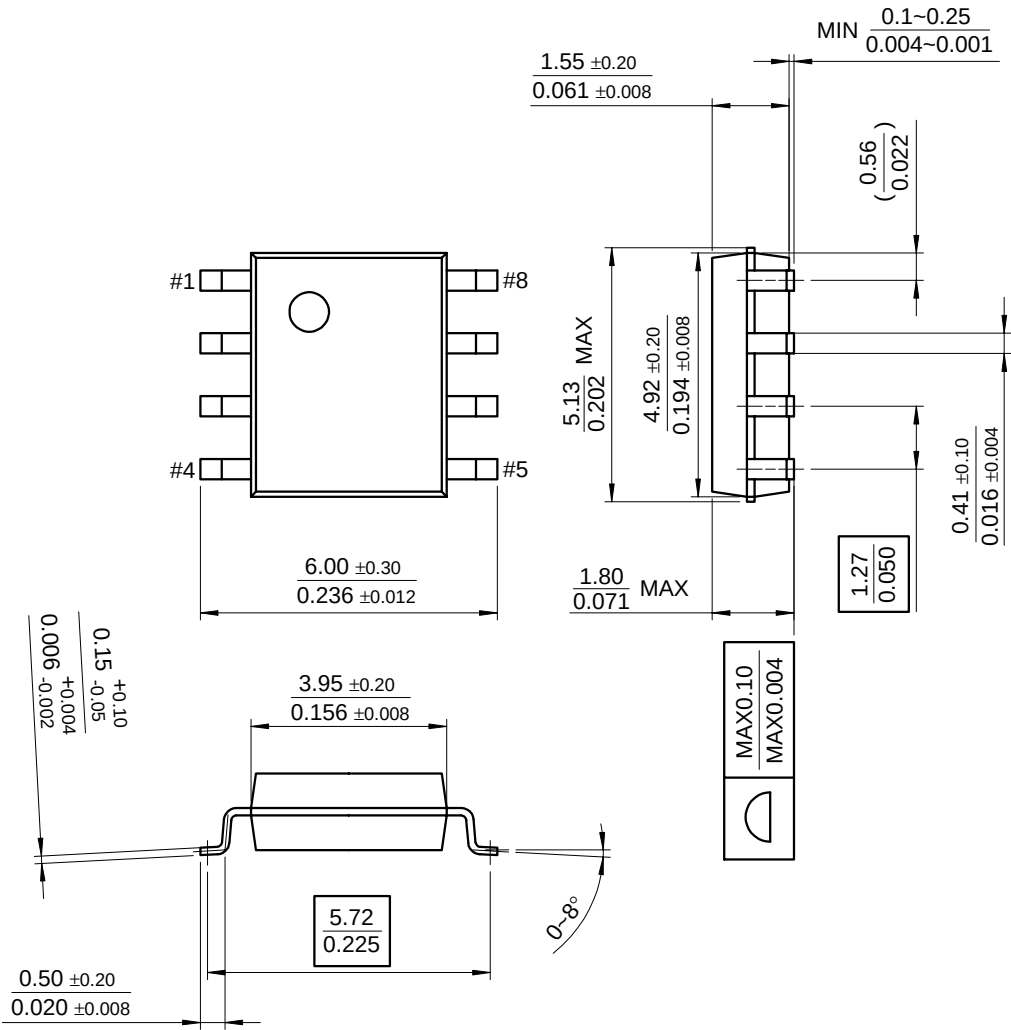
- Reference can not be tested on the PKG
- $G_V = V_{O(M)} / (V_{I(M1)}V_{I(M2)} - V_{REF})$

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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