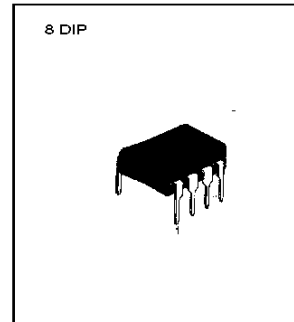


**PWM CONTROLLER**

The KA7552/3 are switching power control IC for wide operating frequency range. The internal circuits include pulse by pulse current limiting, protection, on/off control by external trigger, low standby current, soft start, and high current totempole output for driving a POWER MOS-FET. Maximum duty of the KA7552 is 70% and the KA7553 is 46%. When duty is maximum, the input threshold voltage of pin2 & pin8 are not same in KA7552 and KA7553.

**FEATURES**

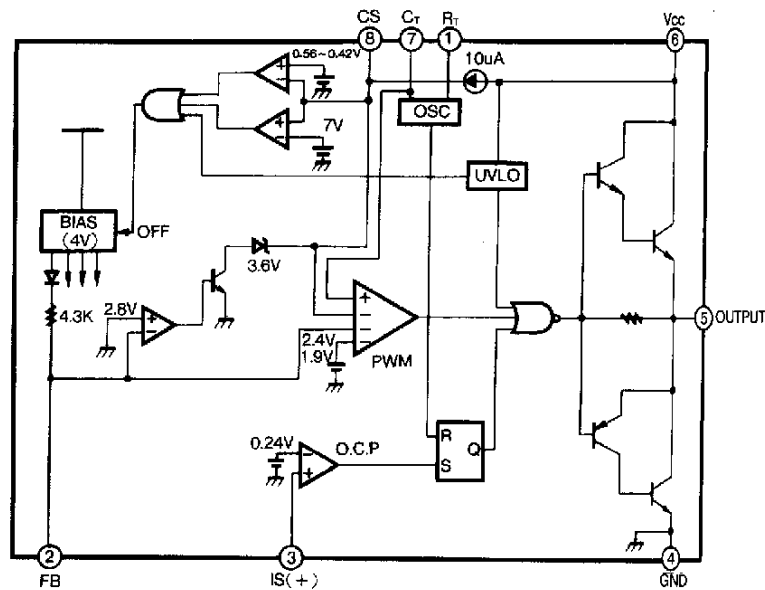
- Built-in Drive Circuits for Direct Connection POWER MOSFET ( $I_{O} = 1.5A$ )
- Wide Operating Frequency Range (5KHz ~ 600KHz)
- Pulse By Pulse Over Current Limiting
- Over Load Protection
- On/Off Control By External Trigger
- Internal UVLO
- Low Standby Current (Typ. 90uA)
- Soft Start Circuit



**ORDERING INFORMATION**

Device	Package	Operating Temperature
KA7552/3	8 DIP	-25 ~ +85°C

**BLOCK DIAGRAM**



#### ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	30	V
Output Current	$I_O$	- 1.5	A
Input Voltage at Overcurrent Detection Pin	$V_{IN(OS)}$	- 0.3 to 4	V
Input Voltage at FB Pin	$V_{IN(FB)}$	4	V
Input Current at CS Pin	$I_{IN(CS)}$	2	mA
Total Power Dissipation( $T_A = 25^\circ\text{C}$ )	$P_D$	800	mW
Operating Temperature	$T_{OPR}$	- 25 to 85	$^\circ\text{C}$

#### ELECTRICAL CHARACTERISTICS

( $V_{CC} = 18\text{V}$ ,  $F_{OSC} = 135\text{KHz}$ ,  $T_A = 25^\circ\text{C}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OSCILLATOR SECTION</b>						
Initial Accuracy	$F_{OSC}$	$C_T = 360\text{pF}$ , $T_J = 25^\circ\text{C}$	125	135	145	KHz
Frequency Variation 1	$\Delta F/\Delta V$	$V_{CC} = 10\text{V to }30\text{V}$	—	-1	$\pm 3$	%
Frequency Variation 2	$\Delta F/\Delta V$	$T_A = 25^\circ\text{C to }85^\circ\text{C}$		-1.5		%
Ramp High Voltage	$V_{RH}$	$C_T = 360\text{pF}$ , $T_J = 25^\circ\text{C}$	2.80	3.08	3.30	V
Ramp Low Voltage	$V_{RL}$	$C_T = 360\text{pF}$ , $T_J = 25^\circ\text{C}$	0.6	0.9	1.2	V
Amplitude	$V_{OSC}$	$V_{PIN7}$ , Peak to Peak	1.80	2.18	2.50	V
<b>PULSE WIDTH MODULATION SECTION</b>						
Input Threshold Voltage(Pin2)	$V_{TH(FBD)}$	Duty Cycle = 0%	0.6	0.75	0.95	V
Input Threshold Voltage(Pin2)	$V_{TH(FB1)}(\text{KA7552})$	Duty Cycle = Dmax 1	2.1	2.3	2.6	V
	$V_{TH(FB2)}(\text{KA7553})$	Duty Cycle = Dmax 2	1.6	1.8	2.1	V
Max. Duty Cycle	$D_{(\text{Max } 1)}(\text{KA7552})$	—	66	70	74	%
	$D_{(\text{Max } 2)}(\text{KA7553})$	—	43	46	49	%
Source Current(Pin2)	$I_{SOURCE(FB)}$	$V_{PIN2} = 0\text{V}$	- 660	- 800	- 960	$\mu\text{A}$

**ELECTRICAL CHARACTERISTICS(Continued)**

(V<sub>CC</sub> = 18V, F<sub>OSC</sub> = 135KHz, T<sub>A</sub> = 25°C, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OVERCURRENT LIMIT SECTION</b>						
Input Threshold Voltage	V <sub>TH(IS)</sub>	—	0.21	0.24	0.27	V
Source Current(Pin3)	I <sub>SOURCE(IS)</sub>	V <sub>PIN3</sub> = 0V	-300	-200	-100	μA
Deley Time	T <sub>D</sub>			150		ns
<b>SOFT START SECTION</b>						
Charging Current	I <sub>CHG</sub>	V <sub>PIN8</sub> = 0V	-15	-10	-5	μA
Input Threshold Voltage(Pin8)	V <sub>TH(CSO)</sub>	Duty Cycle = Dmax 1	0.7	0.9	1.1	V
Input Threshold Voltage(Pin8)'	V <sub>TH(CS1)</sub> (KA7552)	Duty Cycle = Dmax 2	2.2	2.4	2.6	V
	V <sub>TH(CS2)</sub> (KA7553)		1.7	1.9	2.1	V
<b>LATCH MODE SHUTDOWN CIRCUIT SECTION</b>						
Sink Current(Pin8)	I <sub>SINK(CS)</sub>	V <sub>PIN8</sub> = 6V, V <sub>PIN2</sub> = 1V	25	45	65	μA
Shutdown Threshold Voltage	V <sub>TH(SD,CS)</sub>	—	6.7	7.2	7.7	V
<b>OVERLOAD SHUTDOWN SECTION</b>						
Shutdown Threshold Voltage	V <sub>TH(SD,FB)</sub>	—	2.6	2.8	3.1	V
<b>UNDER VOLTAGE LOCKOUT SECTION</b>						
Start-Up Threshold Voltage	V <sub>TH(ST)</sub>	—	15.5	16.0	16.5	V
Minimum Operating Voltage	V <sub>OPR(MIN)</sub>	—	8.20	8.70	9.20	V
Hysteresis	V <sub>HYS</sub>		6.40	7.30	8.20	V
<b>ON/OFF CONTROL SECTION</b>						
Source Current(Pin8)	I <sub>SOURCE(CS)</sub>	V <sub>PIN8</sub> = 0V	-15	-10	-5	μA
On Threshold Voltage	V <sub>TH(ON)</sub>	V <sub>PIN8</sub> : OFF->ON	0.45	0.56	0.70	V
Off Threshold Voltage	V <sub>TH(OFF)</sub>	V <sub>PIN8</sub> : ON-> OFF	0.30	0.42	0.55	V

**ELECTRICAL CHARACTERISTICS(Continued)**

( $V_{CC} = 18V$ ,  $F_{OSC} = 135KHz$ ,  $T_A = 25^{\circ}C$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OUTPUT SECTION</b>						
Low Output Voltage	$V_{OL}$	$I_O = 100mA$ , $V_{CC} = 18V$	—	1.3	1.8	V
High Output Voltage	$V_{OH}$	$I_O = -100mA$ , $V_{CC} = 18V$	16.0	16.5	18.0	V
Rise Time *	$T_R$	NO LOAD		50		ns
Fall Time *	$T_F$	NO LOAD		50		ns
<b>OVERALL</b>						
Stand-by Current	$I_{SB}$	$V_{CC} = 14V$	—	90	150	$\mu A$
Operating Current	$I_{CC(OPR)}$	$V_{PIN2} = 0V$		9	15	mA
Power Supply Current off	$I_{CC(OFF)}$	$V_{PINB} = 0V$	—	1.1	1.8	mA
Power Supply Current Shutdown	$I_{CC(SD)}$	$V_{PINB} = 7.6V$	—	1.1	1.8	mA

\* These parameters, although guaranteed, are not 100% tested in production.

NOTE : Recommend Operating Condition

$R_T = 3.3K\Omega \sim 10K\Omega$ , Oscillation Frequency = 5KHz ~ 600KHz

Soft Start Condensor(CS) = 0.1 $\mu F$  ~ 1 $\mu F$

Dimensions in Millimeters

