Low Saturation Motor Driver
Monolithic IC MM1097

Outline

This is a motor driver IC for video movie use, developed as the low saturation type of MM1036. MM1036 maximum saturation voltage is 1.35V, while MM1097 is only 0.55V.

Features

1. Operating voltage range 4~9V
2. Saturation voltage 0.55V max.
3. Current consumption during standby 2µA max.
4. Built-in 2.2V stable power supply
5. Can operate on single power supply
6. Control pins D0 and D1 have TTL interface
7. Built-in thermal shutdown
8. Built-in counter-electromotive clamp diode

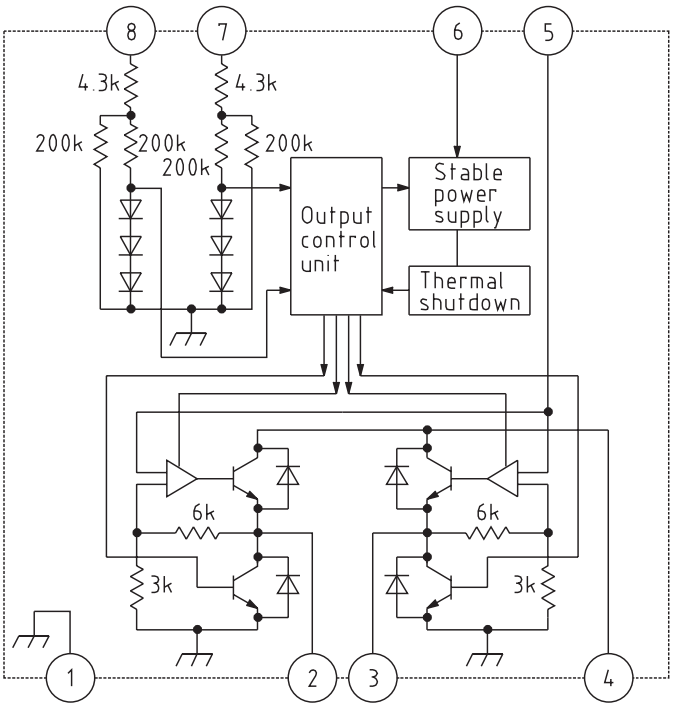
Package

SOP-8B (MM1097XF)

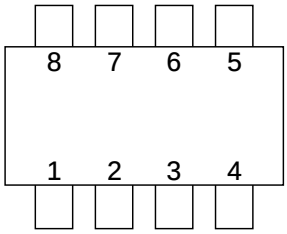
Applications

Video movies (auto-focus, zoom)

Block Diagram



Pin Description



SOP-8B

Pin no.	Pin name	Function
1	GND	GND
2	M0	M0 output pin
3	M1	M1 output pin
4	V_{CC}	V_{CC}
5	V_C	Output voltage control
6	V_{REF}	Stable power supply
7	D0	D0 control pin
8	D1	D1 control pin

Mode Settings

D0	D1	Mode	M0	M1
L	L	Open	L	L
H	L	Forward	H	L
L	H	Reverse	L	H
H	H	Brake	L	L

Absolute Maximum Ratings (Ta=25℃)

Item	Symbol	Ratings	Units
Storage temperature	T_{STG}	-40~+125	℃
Operating temperature	T_{OPR}	-15~+75	℃
Power supply voltage	V_{CC}	10	V
Allowable loss	Pd	350 ∗1	mW
		470 ∗2	
Output current	I_O	80 ∗3	mA

Notes :
∗1 Unit : IC
∗2 Loss tolerance when mounted on 20×38×1 [mm] glass epoxy board
∗3 Within 100ms

Electrical Characteristics (Except where noted otherwise, Ta=25°C, V_{CC}=6.0V, V_M=4.5V)

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Units
Operating voltage	V_{CC}		4.0		9	V
Consumption current 1	$I_{CC}1$	VDO, VD1=0V, V_{CC}=9V			2.0	µA
Consumption current 2	$I_{CC}2$	VDO, VD1=2.4V, V_{CC}=9V		9.5	15	mA
Output saturation voltage (L)	Vsat	IM=60mA			250	mV
Output voltage (L) Load fluctuation 1	Lreg1 (L)	IM=10~60mA			200	mV
Output voltage (L) Load fluctuation 2	Lreg2 (L)	IM=10~80mA			350	mV
M0, M1 I/O ratio	K	K=VM/VC, IM=0mA	2.85	3.00	3.15	
Output voltage range	V_M	IM=-60mA	2.0		V_{CC}-0.3	V
Output voltage (H) Load fluctuation 1	Lreg1 (H)	IM=0~-65mA			100	mV
Output voltage (H) Load fluctuation 2	Lreg2 (H)	IM=-10~-80mA			200	mV
Reference voltage	Vref	Iref=1mA	2.03	2.20	2.30	V
D0, D1 threshold voltages	V_{TH}		0.6		2.4	V
D0, D1 input currents	I_D	VDO, VD1=5V		40	100	µA
Thermal shutdown operating temperature				150		°C
Thermal shutdown hysteresis temperature				50		°C

Measuring Circuit