

Motor Driver Monolithic IC MM1036

Outline

This is a motor driver IC developed for video movie use. It has four modes : open, forward, reverse and brake. It can be used with power supply voltages of 4~16V.

Features

1. Operating voltage range 4~16V
2. Current consumption during standby 2 μ A max
3. Built-in 2.2V stable power supply
4. Can operate on single power supply
5. Control pins D0 and D1 have TTL interface
6. Built-in thermal shutdown
7. Built-in counter-electromotive clamp diode

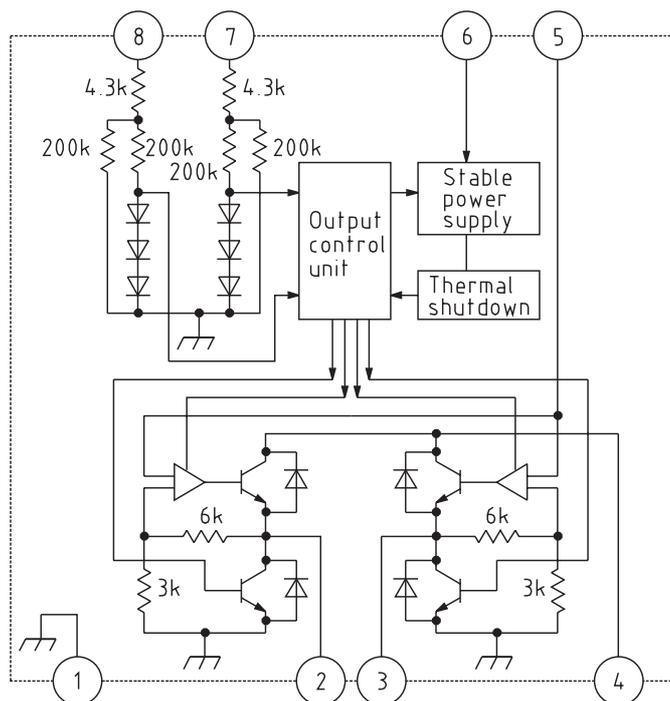
Package

SOP-8B (MM1036XF)

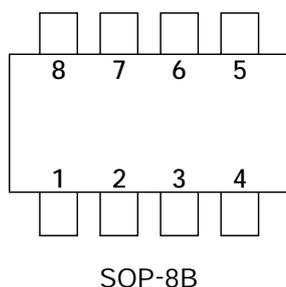
Applications

Video movies (auto-focus, zoom)

Equivalent Circuit Diagram



Pin Description



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°C)

Item	Symbol	Ratings	Units	Conditions
Storage temperature	T _{STG}	-40~+125	°C	
Operating temperature	T _{OPR}	-15~+75	°C	
Power supply voltage	V _{CC}	20	V	
Stable power supply	Pd	350 *1	mW	
		470 *2		
Output current	I _O	100 *3	mA	
D0, D1 applied voltages	V _{DIN}	-0.3~+7.0	V	V _{DIN} ≤ V _{CC} +0.7
Voltage applied to VC	V _{CIN}	-0.3~+7.0	V	

Notes :

*1 Loss tolerance for unit of C

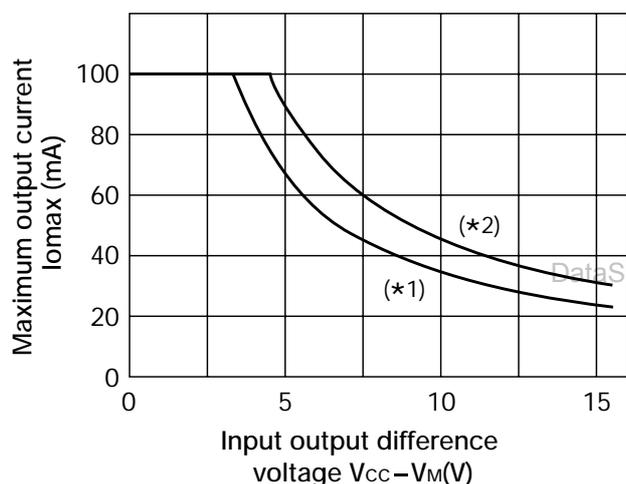
*2 Loss tolerance when mounted on 20×38×1 [mm] glass epoxy board

*3 Within 100ms [Refer to materials]

Electrical Characteristics (Except where noted otherwise, $T_a=25^\circ\text{C}$, $V_{CC}=6.0\text{V}$, $V_M=4.5\text{V}$)

Item	Symbol	Measurement conditions	Min.	Typ.	Max.	Units
Operating voltage	V_{CC}		4.0		16	V
Consumption current 1	I_{CC1}	$VD0, VD1=0\text{V}$, $V_{CC}=16\text{V}$			2.0	μA
Consumption current 2	I_{CC2}	$VD0, VD1=2.4\text{V}$, $V_{CC}=16\text{V}$		9.5	15	mA
Output saturation voltage (L)	V_{sat}	$I_M=60\text{mA}$			250	mV
Output voltage (L) Load fluctuation 1	L_{reg1} (L)	$I_M=10\sim 60\text{mA}$			200	mV
Output voltage (L) Load fluctuation 2	L_{reg2} (L)	$I_M=10\sim 100\text{mA}$			350	mV
M0, M1 I/O ratio	K	$K=V_M/V_C$, $I_M=0\text{mA}$	2.85	3.00	3.15	
Output voltage range	V_M	$I_M=-60\text{mA}$	2.0		$V_{CC}-1.1$	V
Output voltage (H) Load fluctuation 1	L_{reg1} (H)	$I_M=0\sim 65\text{mA}$			100	mV
Output voltage (H) Load fluctuation 2	L_{reg2} (H)	$I_M=-10\sim 100\text{mA}$			200	mV
Reference voltage	V_{ref}	$I_{ref}=1\text{mA}$	2.10	2.20	2.30	V
D0, D1 threshold voltages	V_{TH}		0.6		2.4	V
D0, D1 input currents	I_D	$VD0, VD1=5\text{V}$		40	100	μA
Thermal shutdown operating temperature				150		$^\circ\text{C}$
Thermal shutdown hysteresis temperature				50		$^\circ\text{C}$

Maximum output current-Input/output difference voltage characteristics (25°C)

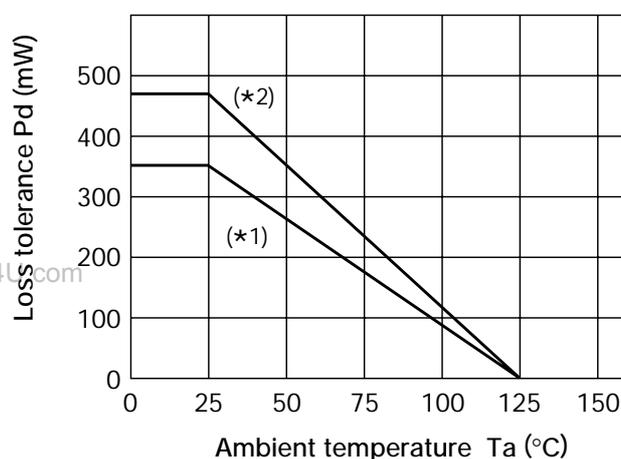


Note : Calculate from $I_{o\ max.} = P_d / (V_{CC} - V_M + 0.3)$

*1 Unit : IC

*2 When mounted on glass epoxy board
20X38X1 [mm]

Loss tolerance-Temperature characteristics



*1 Unit : IC

*2 When mounted on glass epoxy board
20X38X1 [mm]

Measuring Circuit

