DESCRIPTION

The AMD8837 of devices provides an integrated motor driver solution for cameras, consumer products, toys, and other low-voltage or battery-powered motion control applications. The device can drive one dc motor or other devices like solenoids. The output driver block consists of Nchannel power MOSFETs, Stop, Forward, Reverse and Brake Functions.

The AMD8837 of devices can supply 1.5 A of output current, 2.5A of peak current. It operates on a motor power supply voltage from 2.7 to 12 V, and a device power supply voltage of 0 to 7 V.

The AMD8837 device has a PWM (IN1-IN2) input interface.

Internal shutdown functions are provided for overcurrent protection, short-circuit protection, undervoltage lockout, and overtemperature.

The AMD8837 is available SOP8 and DFN8 (2x2) packages.

FEATURES

- H-Bridge Motor Driver
  – Drives a DC Motor or Other Loads
  – Low MOSFET On-Resistance: HS + LS 280 mΩ
- 1.5A Drive Current, 2.5A Peak Current
- Separate Motor and Logic Supply Pins:
  – Motor VM: 2.7 to 12 V
  – Logic V_{CC}: 0 to 7 V
- PWM or PH-EN Interface
  –AMD8837: PWM, IN1 and IN2
- Low Iq: typ. 0.1uA
- Protection Features
  – V_{CC} Undervoltage Lockout (UVLO)
  – Overcurrent Protection (OCP)
  – Thermal Shutdown (TSD)
- Available in SOP8 and DFN8 (2x2) packages

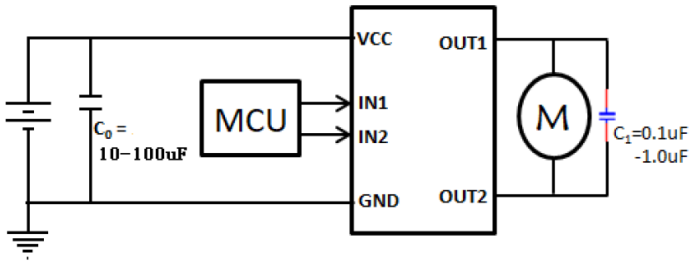
APPLICATION

- Cameras
- DSLR Lenses
- Consumer Products
- Toys
- Robotics
- Medical Devices

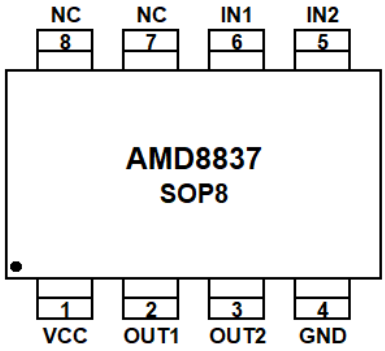
ORDERING INFORMATION

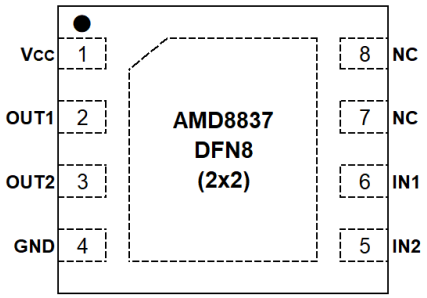
Package Type	Part Number	
SOP8 SPQ: 4,000pcs/Reel	M5	AMD883M8R
		AMD883M8VR
DFN8 SPQ: 3,000pcs/Reel	J8	AMD8837J8R
		AMD8837J8VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

TYPICAL APPLICATION



PIN DESCRIPTION





Top View

Pin #		Symbol	Type	Function
SOP8	DFN8(2x2)			
1	1	V_{CC}	V_{CC}	Logic power supply Bypass this pin to the GND pin with a 0.1μF ceramic capacitor rated for V_{CC}.
2	2	OUT1	O	Motor Output 1 Connect OUT1 and OUT2 with 0.1uF or greater one.
3	3	OUT2	O	Motor Output 2 Connect OUT1 and OUT2 with 0.1uF or greater one.
4	4	GND	P	Ground.
5	5	IN2	I	Input logic 2
6	6	IN1	I	Input logic 1
7	7	NC	NC	No Connection
8	8	NC	NC	No Connection

ABSOLUTE MAXIMUM RATINGS

V_{CC}, Power-Supply Voltage		-0.3V ~ 14V
IN1, IN2, Input Pin Voltage		-0.3V ~ 7V
VCC,IN1,IN2,OUT1,OUT2, ESD		2KV
T_J, Junction Temperature		-40°C ~ 150°C
T_{STG}, Storage Temperature		-60°C ~ 150°C
θ_{JA}, Junction-to-Ambient Thermal Resistance	SOP8	61°C/W
	DFN8	130°C/W

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING RANGE

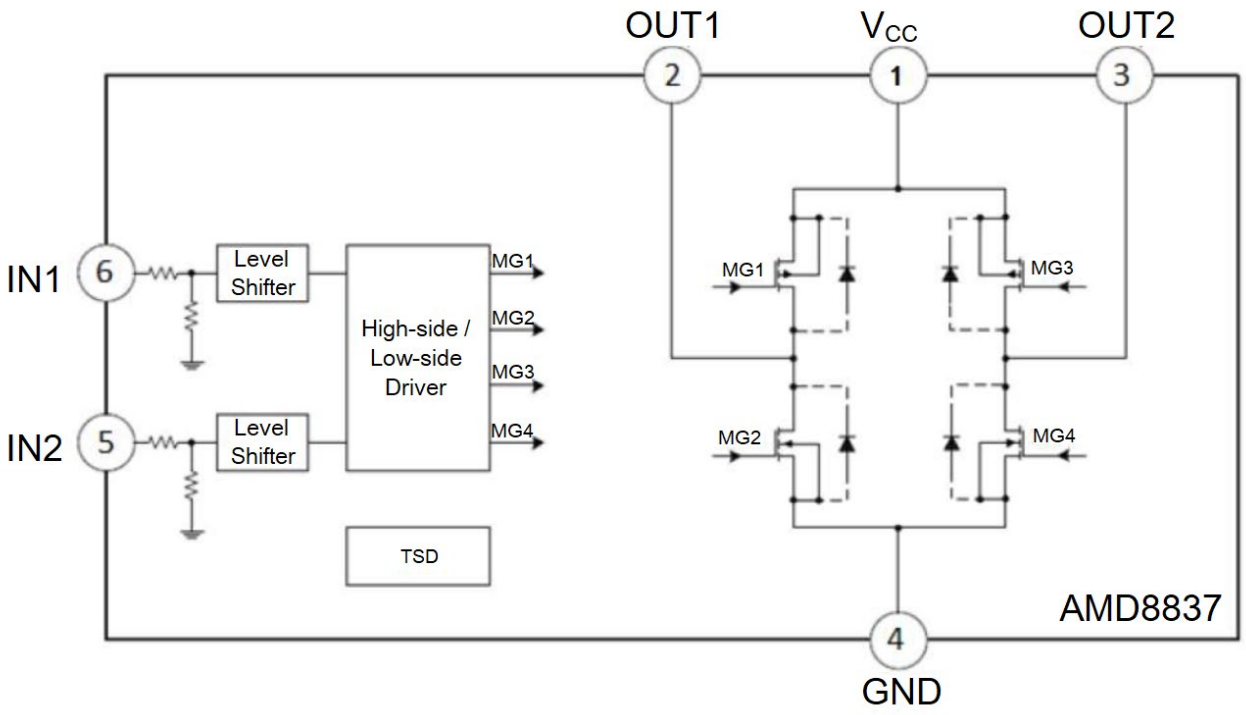
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Logic Power Supply Voltage	V_{CC}		2.7	-	12	V
Input Voltage Range	IN1,IN2		0	-	6.8	V
Output Current	IOUT1,IOUT2		0	-	1.5	A

ELECTRICAL CHARACTERISTICS

V_{IN}=5V, T_A=25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
MOTOR DRIVER OUTPUT						
HS + LS FET On-Resistance	R_{DSON}	I_{OUT}=400mA	-	0.28	0.45	Ω
		I_{OUT}=1000mA	-	0.32	0.45	
CONTROL INPUTS (IN1/IN2)						
High Level Input Voltage	V_{INH}		1.2	-	V_{CC}	V
Low Level Input Voltage	V_{INL}		0	-	0.7	
High Level Input Current	I_{INH}		-	25	50	uA
Low Level Input Current	I_{INL}		-	0	1	
Pulldown Resistance	R_{PD}		-	200	400	KΩ
OPERATING CURRENT						
Off-State Leakage Current	I_{CC_OFF}	IN1=IN2=0	-	0	5	uA
Operating Supply Current	I_{CC_ON}	IN1=IN2=3.6V; IN1=3.6V, IN2=0; IN1=0,IN2=3.6V;	-	200	400	
THERMAL PROTECTION						
Thermal Shutdown Protection	T_{OTSD}		-	160		°C
Thermal Shutdown hysteresis	T_{HYS}		-	25	-	°C

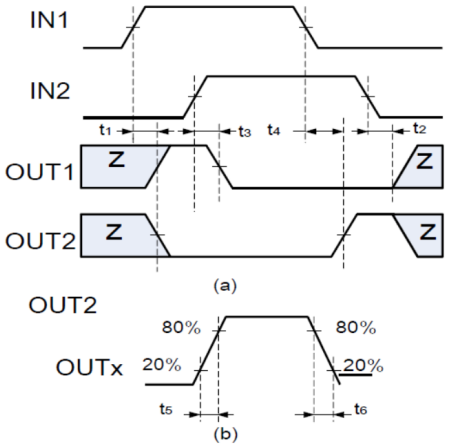
BLOCK DIAGRAM



TIMING REQUIREMENTS

V_{CC}=5V, T_A=25°C, R_{LOAD}=20, Unit: us

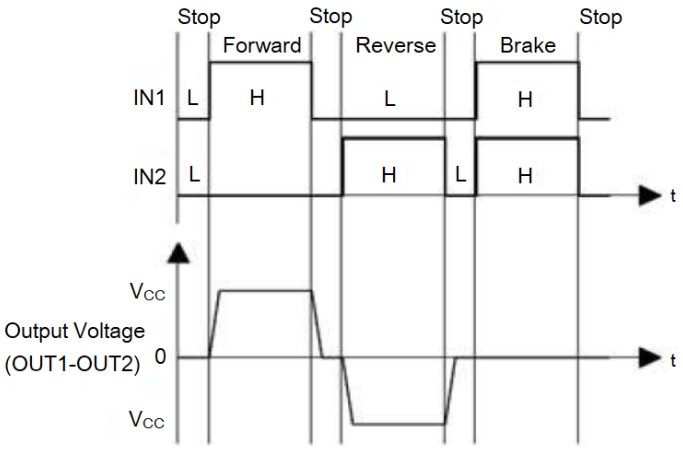
Time	Parameter	Max
t_1	Output enable time	5
t_2	Output disable time	1
t_3	Delay time, INx high to OUTx high	0.5
t_4	Delay time, INx low to OUTx low	0.5
t_5	Output rise time	1
t_6	Output fall time	1



INPUT-OUTPUT LOGIC TABLE

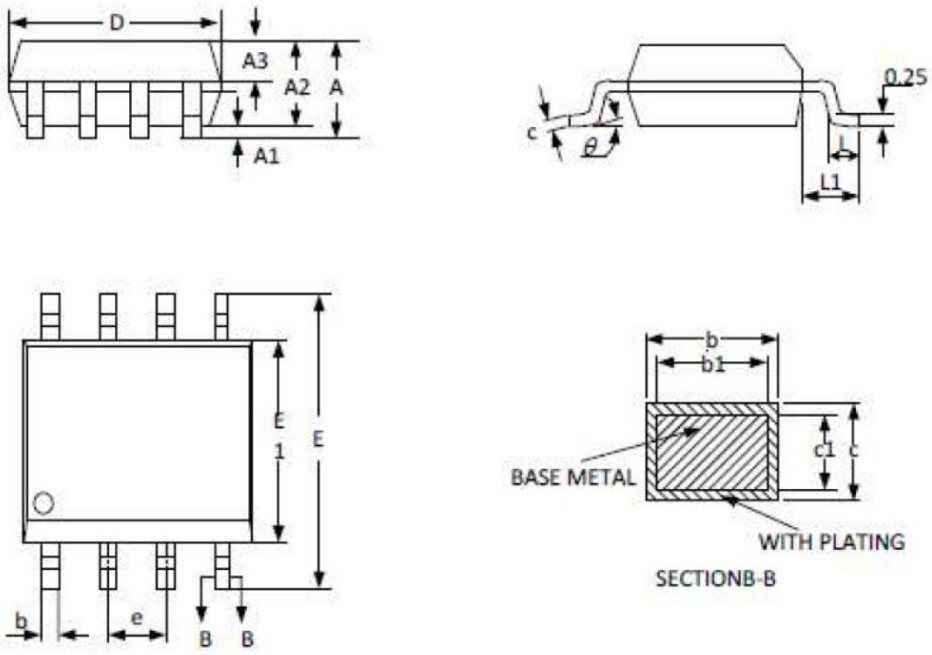
IN1	IN2	OUT1	OUT2	Function	Operating Current
L	L	Hi-Z	Hi-Z	Stop	I_{CC_OFF}
H	L	H	L	Forward	I_{CC_ON}
L	H	L	H	Reverse	I_{CC_ON}
H	H	L	L	Brake	I_{CC_ON}

INPUT-OUTPUT WAVEFORM



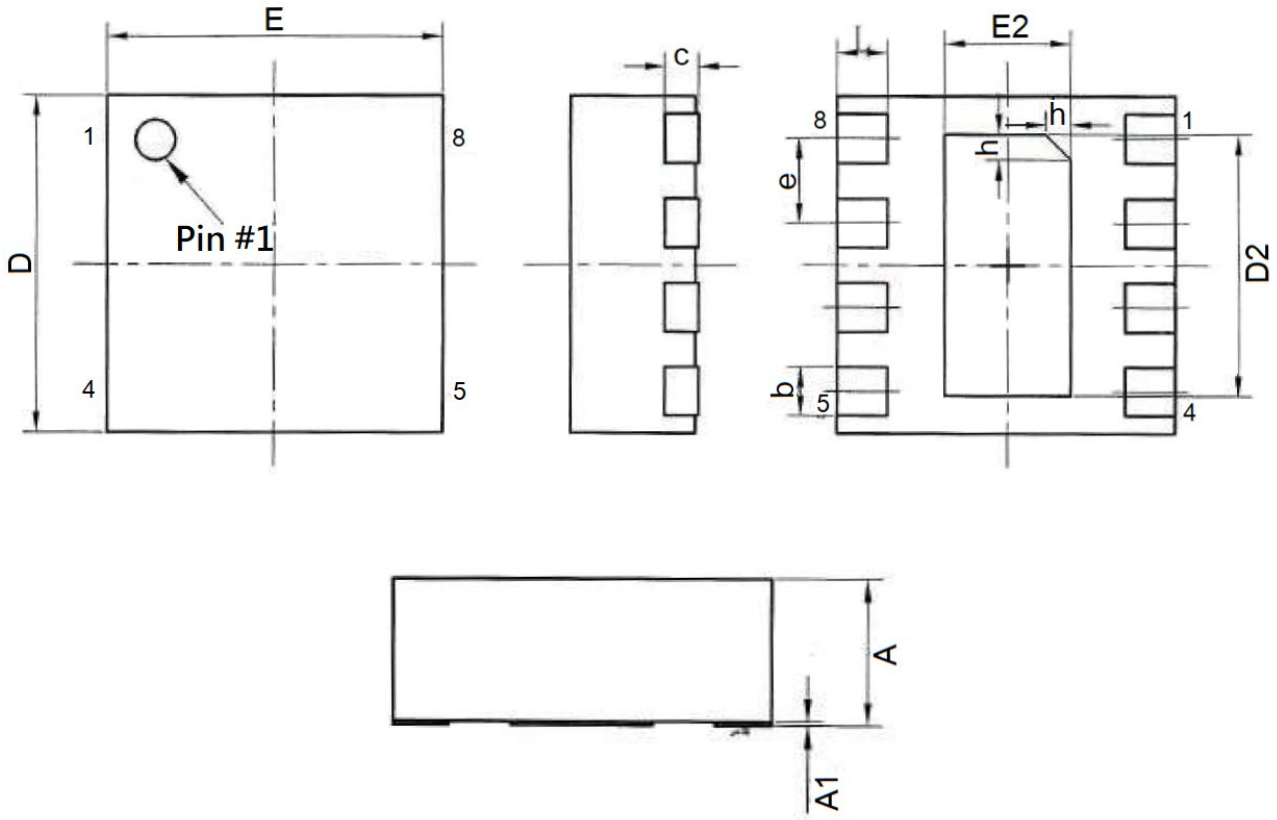
PACKAGE INFORMATION

Dimension in SOP8 (Unit: mm)



Symbol	Min	Max
A	-	1.77
A1	0.08	0.28
A2	1.20	1.60
A3	0.55	0.75
b	0.39	0.48
b1	0.38	0.43
c	0.21	0.26
c1	0.19	0.21
D	4.70	5.10
E	5.80	6.20
E1	3.70	4.10
e	1.27BSC	
L	0.50	0.80
L1	1.05BSC	
θ	0°	8°

Dimension in DFN8 (Unit: mm)



Symbol	Min	Max
A	0.70	0.80
A1	0.00	0.05
b	0.18	0.30
c	0.20REF	
D	1.95	2.05
D2	1.50	1.60
e	0.50BSC	
E	1.95	2.05
E2	0.70	0.80
L	0.25	0.35
h	0.10	0.20

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