

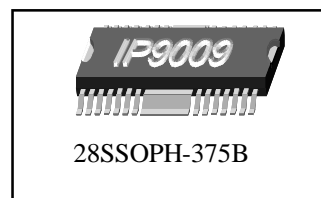


IP9009

5-CH Motor Drive IC with Regulator and Reset controllers

DESCRIPTIONS

IP9009 is a 5-CH motor driver with LDO regulator and reset controller. It is suitable for CD-P/VCD-P/DVD-P systems. The motor driver part is composed of four BTL drivers and one forward/reverse controlled DC motor driver.



FEATURES

- 4-CH BTL driver.
- 1-CH forward/reverse controlled DC motor driver.
- Built-in adjustable LDO regulator controller.
- Built-in reset controller.
- Built-in TSD (thermal shut down) circuit.
- Built-in mute circuit.
- Built-in power save circuit.

* L : Lead Free

* TF : Tape & Reel packing

* L-TF : Lead Free and Tape & Reel packing

ORDER INFORMATION

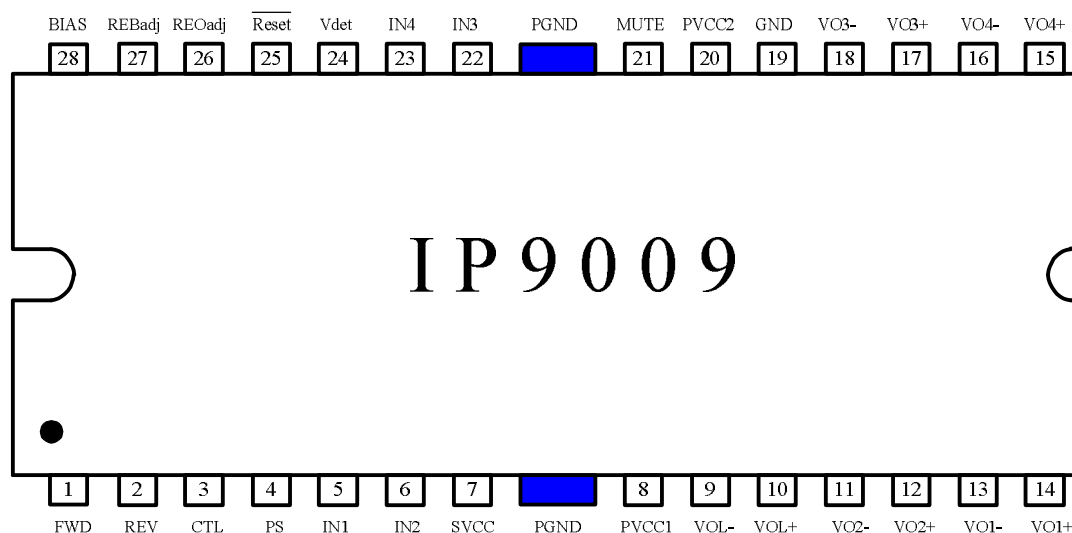
Device	Package	Operating Temp
IP9009	28SSOPH-375A	-35°C ~ +85°C
IP9009-TF	28SSOPH-375A	-35°C ~ +85°C
IP9009L	28SSOPH-375A	-35°C ~ +85°C
IP9009L-TF	28SSOPH-375A	-35°C ~ +85°C
IP9009	28SSOPH-375B	-35°C ~ +85°C
IP9009-TF	28SSOPH-375B	-35°C ~ +85°C
IP9009L	28SSOPH-375B	-35°C ~ +85°C
IP9009L-TF	28SSOPH-375B	-35°C ~ +85°C



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PIN CONNECTIONS



PIN DESCRIPTIONS

NO	SYMBOL	I/O	DESCRIPTION	NO	SYMBOL	I/O	DESCRIPTION
1	FWD	I	Loading motor forward input	15	VO4+	O	CH4 driver output(+)
2	REV	I	Loading motor reverse input	16	VO4-	O	CH4 driver output(-)
3	CTL	I	Loading motor speed control	17	VO3+	O	CH3 driver output(+)
4	PS	I	Power save	18	VO3-	O	CH3 driver output(-)
5	IN1	I	CH1 input	19	GND	-	Ground
6	IN2	I	CH2 input	20	PVCC2	-	Power supply 2
7	SVCC	-	Signal power supply	21	MUTE	I	Mute
8	PVCC1	-	Power supply 1	22	IN3	I	CH3 input
9	VOL-	O	Loading driver output(-)	23	IN4	I	CH4 input
10	VOL+	O	Loading driver output(+)	24	Vdet	I	Reset controller input
11	VO2-	O	CH2 driver output(-)	25	$\overline{\text{Reset}}$	O	Reset controller output
12	VO2+	O	CH2 driver output(+)	26	REOadj	O	Adjustable regulator feedback
13	VO1-	O	CH1 driver output(-)	27	REBadj	O	Adjustable regulator control
14	VO1+	O	CH1 driver output(+)	28	BIAS	I	Bias



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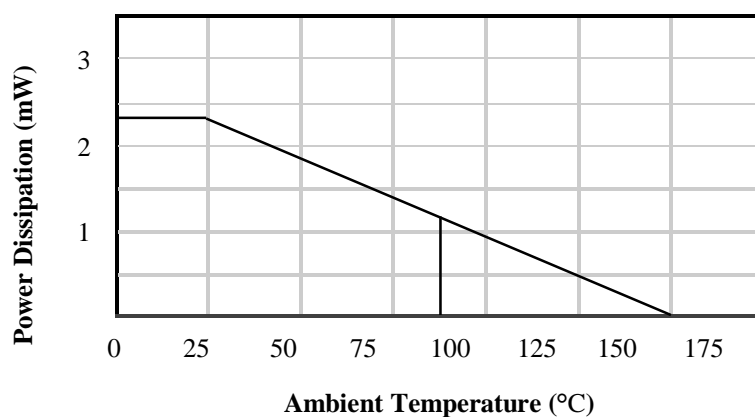
ABSOLUTE MAXIMUM RATINGS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Maximum supply voltage	VCCmax	15	V
Power dissipation	Pd	2.3 *	W
Operating temperature	Topr	-35 ~ +85	°C
Storage temperature	Tstg	-55 ~ 150	°C

Note>

1. When mounted on 50mm X 50mm X 1mm PCB (Phenolic resin material).
2. Power dissipation reduces 18.4 mW/°C for using above Ta=25°C
3. Do not exceed Pd and SOA.

POWER DISSIPATION CURVE



RECOMMENDED OPERATING CONDITIONS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Signal supply Voltage	SVCC	4.3 ~ 13.2	V
Power supply Voltage 1	PVCC1	4.3 ~ SVCC	V
Power supply Voltage 2	PVCC2	4.3 ~ SVCC	V



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ELECTRICAL CHARACTERISTICS

(SVCC=12.0V,PVCC1=PVCC2=5V, RL=12ohm, Bias=1.65V, Ta = 25°C unless otherwise specified.)

CHARACTERISTICS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent circuit current	Icc	No Load	-	20	30	mA
Power save on current	Ips	Pin5=GND	-	0.5	2.0	mA
Power save on voltage	Vpson	Pin5=sweep	-	-	0.5	V
Power save off voltage	Vpsoff	Pin5=sweep	2.0	-	-	V
[ADJUSTABLE REGULATOR PART]						
Output voltage	VREG	IL=100mA	Vout* 0.95	Vout	Vout* 1.05	V
Load Regulation	ΔV_{om}	IL=0->200mA	-50	0	50	mV
Line Regulation	ΔV_{cc}	Vcc=6->10V,IL=100mA	-50	0	50	mV
[RESET CONTROLLER PART]						
Detecting voltage	Vdet	Pin24=sweep (low->high)	2.6	2.9	3.2	V
Hysteresis voltage	ΔV_{det}		-	50	-	mV
Maximum output sink current	Isink		3	6	-	mA
Output saturation voltage	Vsat	RL=1k ohm	-	-	0.4	V
[BTL DRIVE PART]						
Output offset voltage	Voos	Vin=Vref	-100	-	+100	mV
Maximum output voltage	Voms		3.6	4.0	-	V
Closed-loop voltage gain	Avfs	Vin=0.1Vrms, f=1kHz	17	19	21	dB
Mute on voltage	Vmon	Pin21=sweep	-	-	0.5	V
Mute off voltage	Vmoff	Pin21=sweep	1.5	-	-	V
Mute pin current	Imp	Pin21=5.0V		200	300	uA
Bias pin current	Ibias	Pin28=2.5V		80	120	uA



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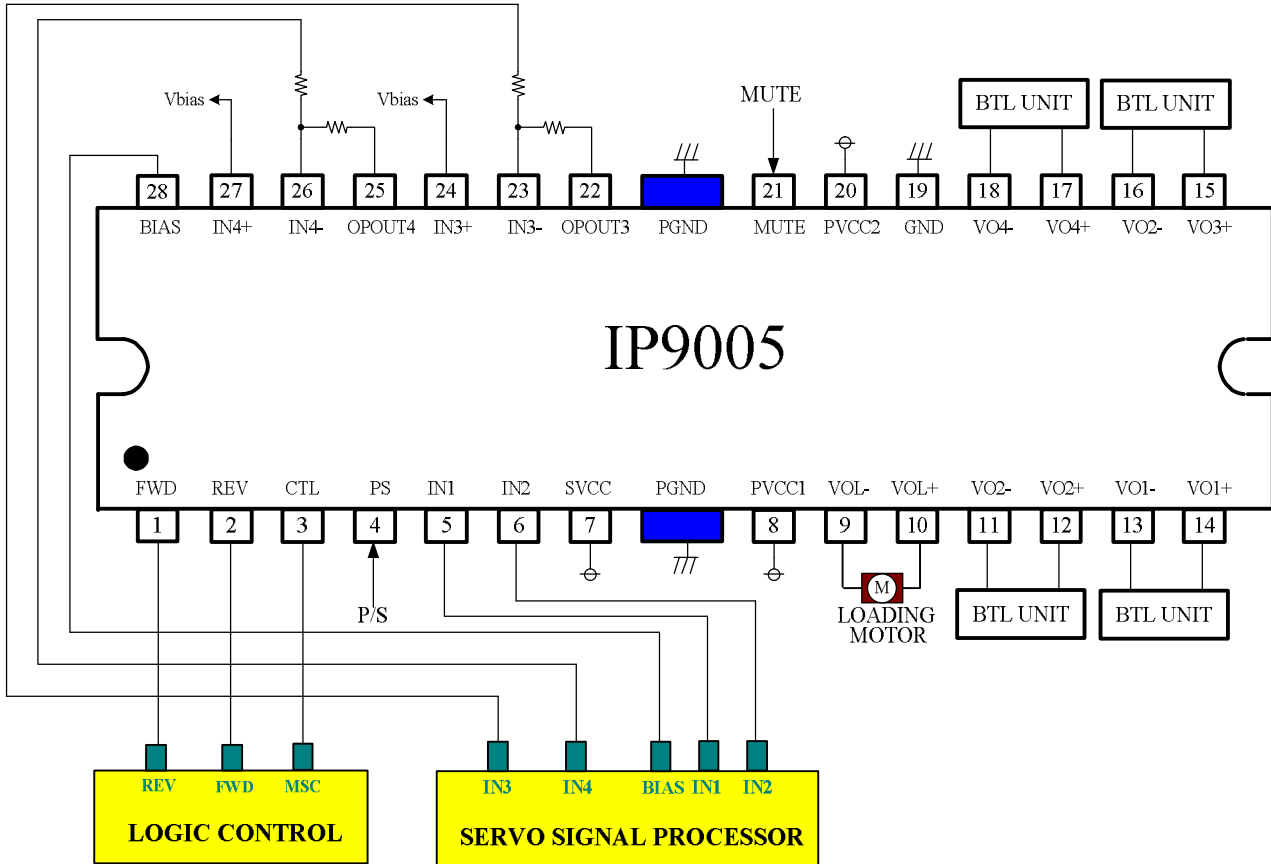
CHARACTERISTICS	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
[LOADING DRIVER PART]						
Input high level voltage	Vih		1.5	-	-	V
Input low level voltage	Vil		-	-	0.5	V
FWD/REV pin current	In	Pin1=Pin2=5.0V	-	200	300	uA
Maximum output voltage	Vo	RL=25 ohm	9.0	10	-	V
Voltage gain	Gvf	Pin3=sweep	7	9	11	dB



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TYPICAL APPLICATION CIRCUIT

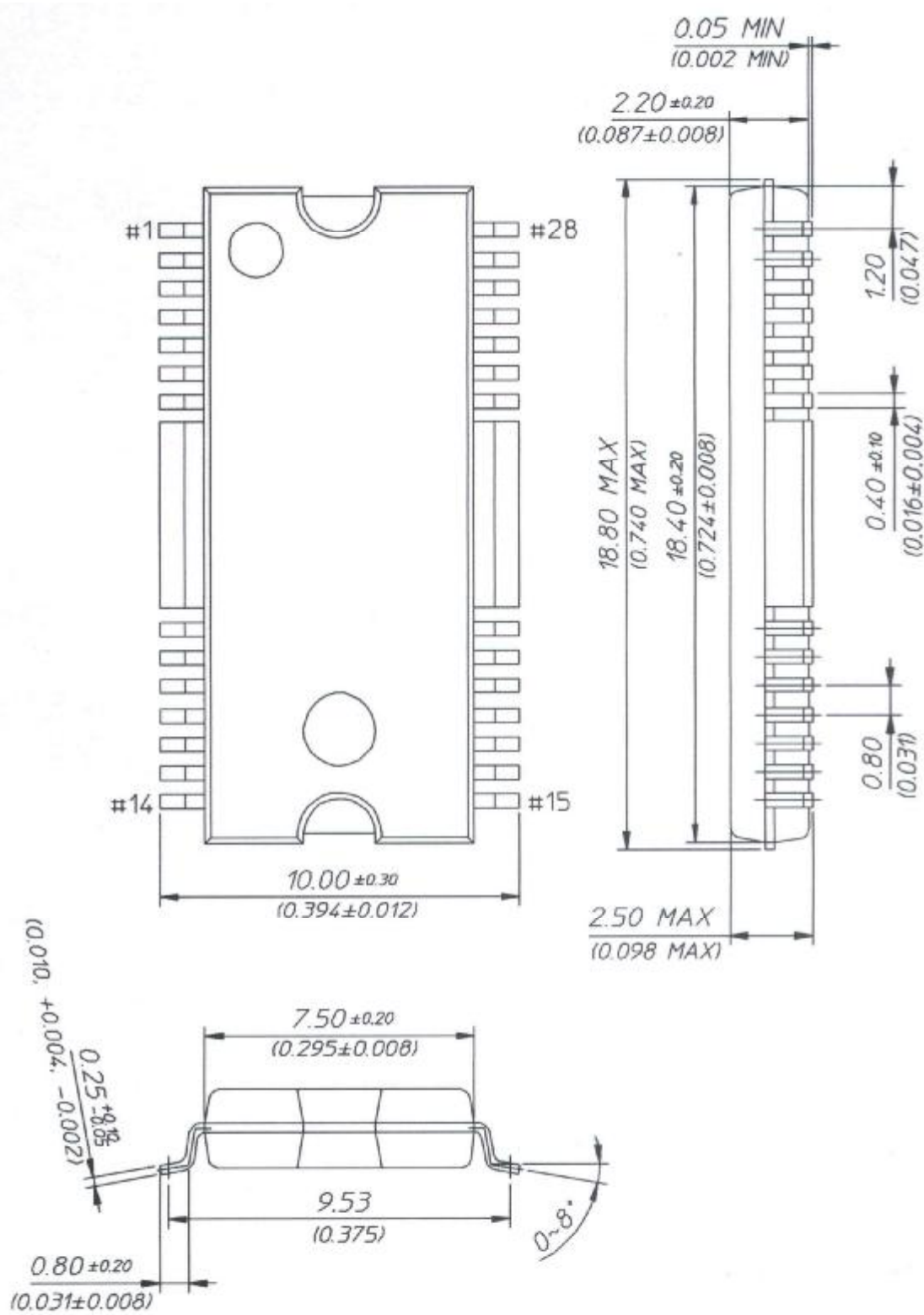




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PACKAGE DIMENSION(28SSOPH-375A)





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5-CH Motor Drive IC with Regulator and Reset controllers

PACKAGE DIMENSION(28SSOPH-375B)

