

**TOSHIBA**

**TA8192F**

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

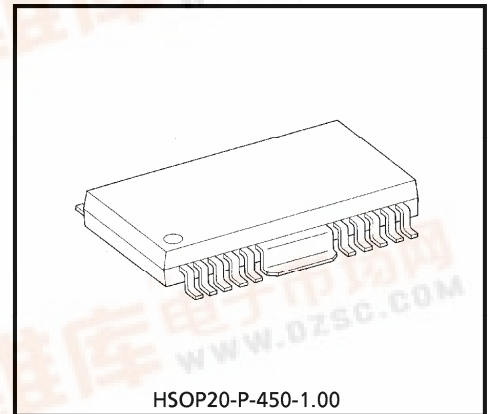
# TA8192F

## POWER DRIVER IC FOR CD PLAYER

TA8192F is a power driver IC developed for CD players. It controls the focus/tracking coil of a 3-beam pickup head, the disc motor and feed motor.

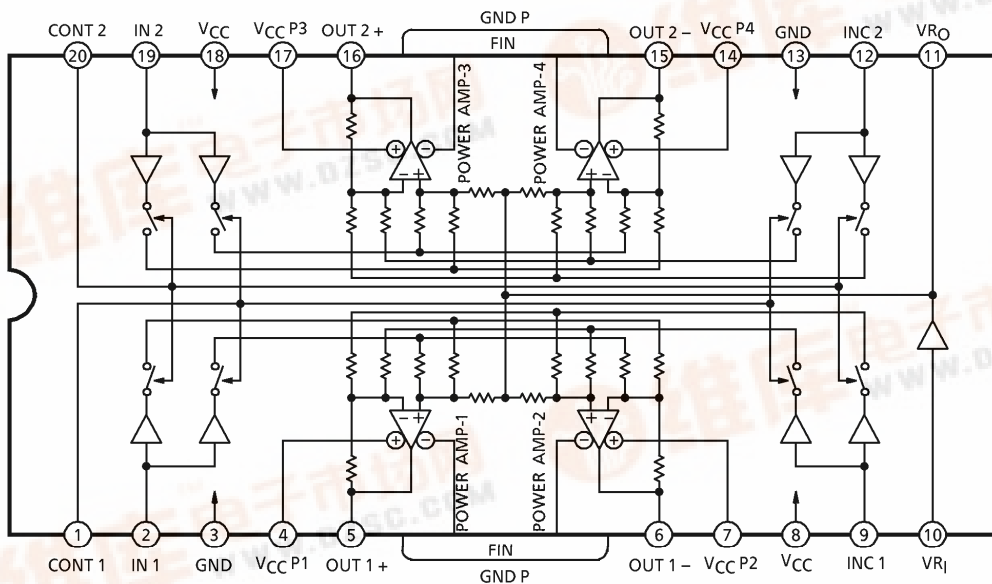
### FEATURES

- BTL power drivers for 2 channels.
- Circuits can reduce external components without utilizing a bootstrap technique.
- High output voltage.
- High output current :  $I_O$  (Typ.) = 0.5A
- Wide operating power supply voltage range :  $V_{CC} = 4\sim 12V$
- Gain switch / output off (VR fixed output) are possible.  
Gain selection : 2, 4, 6 times
- Built-in thermal shutdown circuit.
- 20 pin power flat package.



Weight : 0.8g (Typ.)

### BLOCK DIAGRAM / PIN CONNECTION



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### FUNCTION OF EACH PIN

PIN No.	SYMBOL	I/O	FUNCTION DESCRIPTION			REMARKS
			CONT 1	CONT 2	Gain	
1	CONT 1	I	Input terminal for gain switch.	0	0	VR fixed
20	CONT 2			1	0	2 times
				0	1	4 times
				1	1	6 times
2	IN 1	I	Control signal input terminal for power Amp-1 and 2.			
3	GND	—	Ground terminal.			
4	V <sub>CC</sub> P1	—	Power supply voltage terminal. (Power Amp-1)			
5	OUT 1+	O	Power Amp-1 output terminal.			
6	OUT 1-	O	Power Amp-2 output terminal.			
7	V <sub>CC</sub> P2	—	Power supply voltage terminal. (Power Amp-2)			
8	V <sub>CC</sub>	—	Power supply voltage terminal.			
9	INC 1	I	Control signal input terminal common to power Amp-1 and 2.			
10	VR <sub>I</sub>	I	Internal reference voltage terminal. Capacitor for filter is connected with GND.			
11	VR <sub>O</sub>	O	Reference voltage output terminal. VR <sub>O</sub> = VR <sub>I</sub>			
12	INC 2	I	Control signal input terminal common to power Amp-3 and 4.			
13	GND	—	Ground terminal.			
14	V <sub>CC</sub> P4	—	Power supply voltage terminal. (Power Amp-4)			
15	OUT 2-	O	Power Amp-4 output terminal.			
16	OUT 2+	O	Power Amp-3 output terminal.			
17	V <sub>CC</sub> P3	—	Power supply voltage terminal. (Power Amp-3)			
18	V <sub>CC</sub>	—	Power supply voltage terminal.			
19	IN 2	I	Control signal input terminal for power Amp-3 and 4.			
FIN	GND P	—	Heat sink and power ground terminal.			

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## MAXIMUM RATINGS (Ta = 25°C)

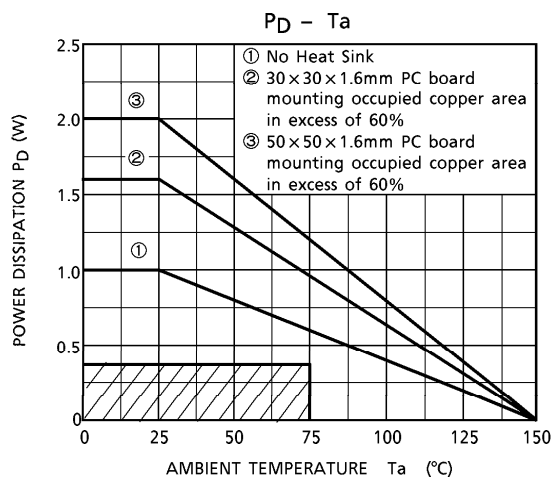
CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V <sub>CC</sub>	14	V
Output Current	I <sub>O</sub> (Typ.)	0.5	A
Power Dissipation	No Heat Sink	P <sub>D</sub>	W
	Heat Sink		
Operating Temperature	T <sub>opr</sub>	-25~75	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V<sub>CC</sub> = 5V, Ta = 25°C, BTL connection)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Operating Power Supply Voltage	V <sub>CC</sub>	—	V <sub>CC</sub> , V <sub>CC</sub> P1 - V <sub>CC</sub> P4	4	5	12	V	
Power Supply Current	I <sub>CCQ</sub>	—	IN 1 = IN 2 = 2.1V INC 1 = INC 2 = 2.1V	2 times	16	30	mA	
				4 times	10			16
				6 times	18			
Input Offset Current	I <sub>IO</sub>	—	IN 1 - INC 1, IN 2 - INC 2	—	10	100	nA	
Input Bias Current	I <sub>IB</sub>	—	IN 1, INC 1, IN 2, INC 2 terminals	—	500	1600	nA	
Output Offset Voltage	V <sub>OS</sub>	—	IN 1 = IN 2 = 2.1V INC 1 = INC 2 = 2.1V	V <sub>CC</sub> = 5V	10	30	mV	
				V <sub>CC</sub> = 8V	—	50		
				V <sub>CC</sub> = 12V	—	100		
Output Voltage	V <sub>O</sub>	—	f = 1kHz, R <sub>L</sub> = 5Ω	4.5	5.0	—	V <sub>p-p</sub>	
Voltage Gain	G <sub>V</sub>	—	f = 1kHz, R <sub>L</sub> = 5Ω V <sub>in</sub> = 100mV <sub>rms</sub>	2 times	4.5	5.0	6.5	dB
				4 times	10.5	11.0	12.5	
				6 times	14.5	15.0	16.5	
Frequency Band Range	f <sub>c</sub>	—	R <sub>L</sub> = 5Ω V <sub>in</sub> = 100mV <sub>rms</sub>	2 times	—	220	kHz	
				4 times	—	180		
				6 times	—	150		
Total Harmonic Distortion	THD	—	f = 1kHz, R <sub>L</sub> = 5Ω V <sub>in</sub> = 100mV <sub>rms</sub> V <sub>O</sub> = 4V <sub>p-p</sub>	2 times	—	-46	dB	
				4 times	—	-49		
				6 times	—	-51		
Slew Rate	SR	—	R <sub>L</sub> = 5Ω, V <sub>O</sub> = 2V <sub>p-p</sub>	2 times	—	1.5	V / μs	
				4 times	—	1.2		
				6 times	—	1.0		
Output Noise Voltage	V <sub>ON</sub>	—	R <sub>g</sub> = 10kΩ DIN AUDIO	2 times	—	15	μV <sub>rms</sub>	
				4 times	—	25		
				6 times	—	30		

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Cross-talk	CT	—	f = 1kHz, R <sub>L</sub> = 5Ω V <sub>O</sub> = 1V <sub>rms</sub>	—	2 times	-88	dB
					4 times	-86	
					6 times	-80	
Ripple Rejection Ratio	RR	—	f <sub>R</sub> = 100Hz, 77.5mV <sub>rms</sub> (-20dBm)	—	2 times	-70	dB
					4 times	-66	
					6 times	-60	
Reference Output Voltage	V <sub>RO</sub>	—	V <sub>RO</sub> terminal, V <sub>RO</sub> = (V <sub>CC</sub> - V <sub>BE</sub> ) / 2	—	2.1	—	V
Input Voltage	"H" level	V <sub>IH</sub>	CONT 1, CONT 2 terminals	—	2.0	—	V
	"L" level	V <sub>IL</sub>			—	0.3	
Thermal Shutdown Operation Temperature	T <sub>ON</sub>	—		—	165	—	°C

HSOP 20 POWER DISSIPATION



(Note) In case of normal use, power dissipation of IC only is oblique line portion.

TEST CIRCUIT / APPLICATION CIRCUIT

