

500V breakdown voltage Full bridge driver IC SPF5104 (Positive driver system)

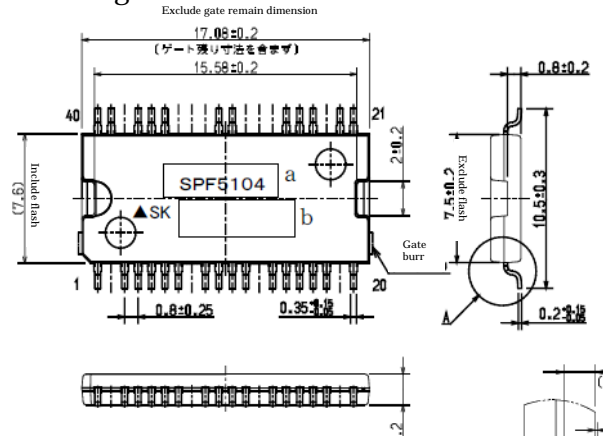
Features

- 500V breakdown voltage positive power supply drive system
- Adopt bootstrap circuit system
- Encapsulate MOSFET (4pieces) and a control MIC
- Compact type power surface mount package
- Suitable for inverter element for HID ballast unit

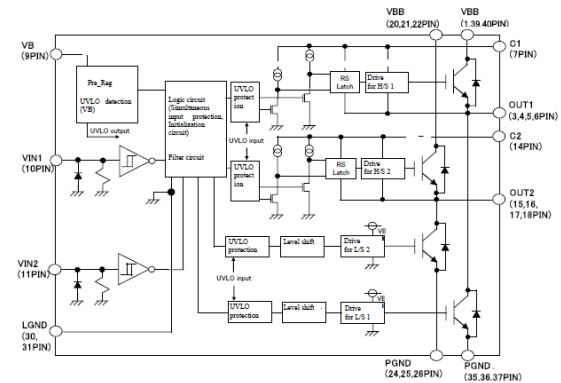
Absolute maximum ratings

No.	Item	Symbol	Unit	Rating	Conditions
1	Power supply voltage 1	VBB	V	-0.3 ~ 500	between VBB and GND
2	Input voltage	VIN1	V	-0.3 ~ 6	
		VIN2	V	-0.3 ~ 6	
3	Power supply voltage 2	VB	V	-0.3 ~ 20	
4	Floating power supply voltage	VC1	V	-0.3 ~ 520	
		VC2	V	-0.3 ~ 520	
5	Output voltage	VOUT1	V	-0.3 ~ C1-20	between VOUT1 and GND
		VOUT2	V	-0.3 ~ C2-20	between VOUT2 and GND
6	Output current	IOUT(DC)	A	7 *1	Ta=25 ,VB=VC 8V, VBB=10V
7	Total power dissipation	PD	W	27.2 *2	Tc=25
8	Storage temperature	Tstg		-40 ~ +150	
9	Junction temperature	Tj		150	

Package



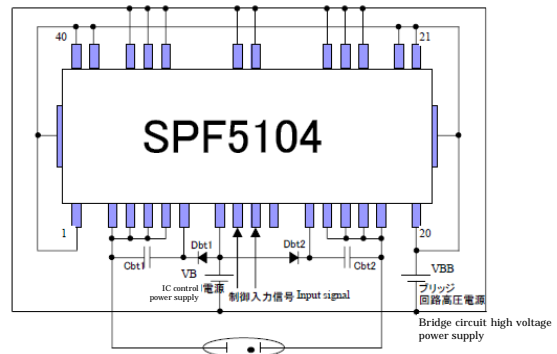
Circuit block diagram



Electrical characteristics

No.	Item	Symbol	Unit	Value			Conditions
				Min.	Typ.	Max.	
1	IGBT output breakdown voltage	BVOUT	V	500			*3 IOUT=100uA, Tj=-40 ~ 150
				570			IOUT=100uA
2	IGBT output leakage current	IOUT(off)	uA			100	VOUT=500V
3	IGBT output on-state voltage	VOUT(on)	V	1.2	1.5		IOUT=1A, VIN=5V
				1.8	2.4		IOUT=3A, VIN=5V
4	Circuit current	IB1	mA	2	5		Tj=25 ,VIN1=VIN2=0V
				2	5		Tj=-40 ~ 150 ,VIN1=VIN2=0V
		IB2	mA	2	6		Tj=25 ,VIN1=5V(0V), VIN2=0V(5V)
				2	6		Tj=-40 ~ 150 ,VIN1=5V(0V), VIN2=0V(5V)
5	Floating power supply leakage current to GND	ILK	uA			100	VCx=VOUTx=400V
6	Floating power supply leakage current to output	ICOLK	uA	100	200		VCx-VOUTx=10V
7	Input threshold voltage	VINthH	V	3.5			VB=7 ~ 20V, Tj=-40 ~ 150
		VINthL	V		1.0		
8	Input bias current	IINH	uA		250		VIN1=VIN2=5V
		IINL	uA	-1	1		VIN1=VIN2=0V
9	Delay time	High side	td(on)		0.40	0.50	VBB=42V, Io=0.8A VB=10V, VC=10V VIN=5V(Out Stage=ON) VIN=0V(Out Stage=OFF) td=H/S td(off) - L/S td(on) or L/S td(off) - H/S td(on)
				td(off)		1.60	
		Low side	td(on)		0.25	0.35	
			td(off)		1.10	1.60	
10	UVLO voltage	VUVLOH	V	3.6	4.1	4.6	Release voltage
		VUVLOL	V	3.4	3.9	4.4	Lockout voltage
11	UVLO start voltage hysteresis voltage	VUVLO	V	0.2	0.4		UVLO-VUOH-UVLOL
12	UVLO start voltage between C and O	VUVLOCO	V	3.0			There is no hysteresis.
13	Operating voltage	VB	V	6	20		Tj=-40 ~ +150

Typical connection diagram



Timing chart

