500V breakdown voltage Full bridge driver IC　SMA2417M (Negative drive system)

■Features

- ●500V breakdown voltage negative power supply drive system
- ●Encapsulate IGBT (4pieces) and a control MIC
- ●Sanken original ZIP package
- ●Suitable for inverter element for HID ballast unit

■Absolute maximum ratings

No.	Item	Symbol	Unit	Ratings	Conditions
1	Power Source Voltage	VM	V	500	Between Power GND and －HV
2	Input Voltage	VIN	V	15	
3	Operating Voltage	Vcc	V	15	
4	Output Voltage	VOUT	V	500	
5	Output Current	IOUT(DC)	A	7	Ta=25℃
6	Total Power Dissipation	PD	W	4 *1	Ta=25℃
				20	Tc=25℃
7	Storage Temperature	Tstg	℃	-40～+150	
8	Junction Temperature	Tj	℃	-40～+150	

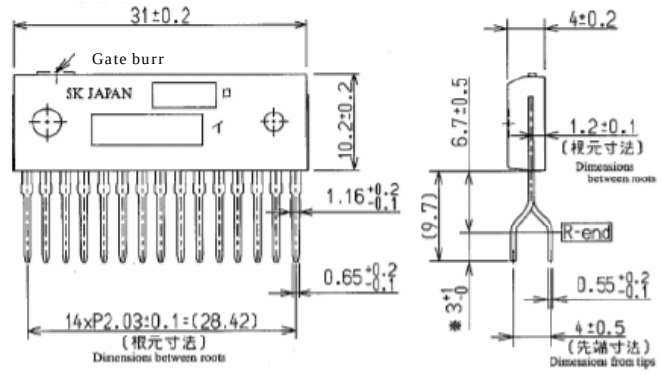
■Electrical characteristics

No.	Item		Symbol	Unit	Value Min.	Value Typ.	Value Max.	Conditions
1	IGBT Output Breakdown Voltage		BVOUT	V	*500			IOUT=100μA, Tj=-40～150℃
					570			IOUT=100μA, Tj=25℃
2	IGBT Output Leakage Current		IOUT(off)	μA			100	VOUT=500V
3	IGBT Output On-State Voltage		VOUT(on)	V		1.0	1.2	IOUT=0.4A, VIN(orVGL)=10V
						1.3	1.8	IOUT=2.0A, VIN(orVGL)=10V
4	Quiescent Circuit Current		Icc1	mA			3.0	Vcc=10V, VM=VIN=0V, Ta=25℃
							4.5	Vcc=9～15V, VM=VIN=0V, Ta=-40～125℃
			Icc2	mA			4.0	Vcc=10V, VM=400V, VIN=0V Ta=25℃
							7.0	Vcc=9～15V, VM=400V, VIN=0V Ta=-40～125℃
5	Operating Circuit Current		Icc3	mA			4.0	Vcc=10V, VM=400V VIN1(orVIN2)=10V, Ta=25℃
							7.0	Vcc=10V, VM=400V VIN1(orVIN2)=10V, Ta=125℃
6	Input Threshold Voltage		VIH	V	0.8・Vcc			Vcc=9～15V
			VIL	V			0.2・Vcc	
7	Lowside IGBT Gate Drive Voltage		VGL	V	0.8・Vcc		20	Vcc=9～15V
8	Delay time	High side	td(on)	μs	0.3	1.2	2.0	VM=85V, IO=0.41A VCC=9～15V VIN=10V(Out Stage=ON) VIN=0V(Out Stage=OFF)
			td(off)		0.5	1.5	2.5	
		Low side	td(on)		0.3	1.2	2.0	
			td(off)		0.5	1.5	2.5	
			⊿td				1.0 *3	⊿td=H/S td(off) – L/S td(on) or L/S td(off) – H/S td(on)
9	Low voltage protection operation start voltage		VUVLOH	V	5.7	6.2	6.7	
			VUVLOL	V	5.3	6.0	6.6	
10	Low voltage protection operation start voltage Hysteresis width		ΔUVLO	V	0.1	0.2	0.4	ΔUVLO=VUVLOH-VUVLOL
11	Operating Voltage		VCC	V	9		15	Ta=-40～+105℃

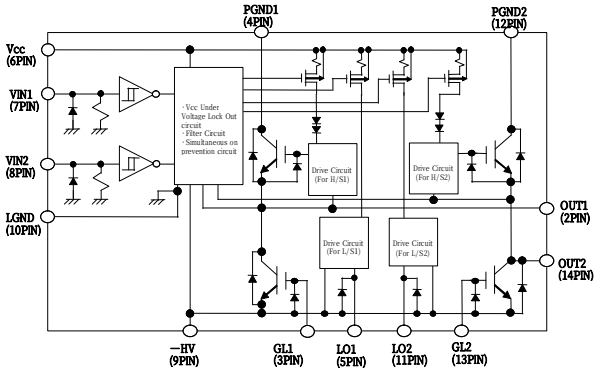
Recommended operation

No.	Item	Symbol	Unit	Value Min.	Value Typ.	Value Max.	Conditions
1	Stability operation dV/dt	dV/dt	V/μs			2	Ta=25℃, Vcc=10V, VM=400V
2	Recommended Dead time	td	μs	1.0			Ta=－40～150℃

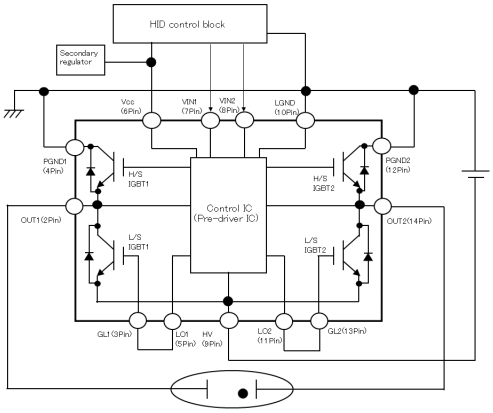
■Package



■Circuit block diagram



■Typical connection diagram



■Timing chart