

# 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 20	Ta=25 Tc=25
7	Storage Temperature	Tstg		-40 ~ +150	
8	Junction Temperature	Tj		-40 ~ +150	

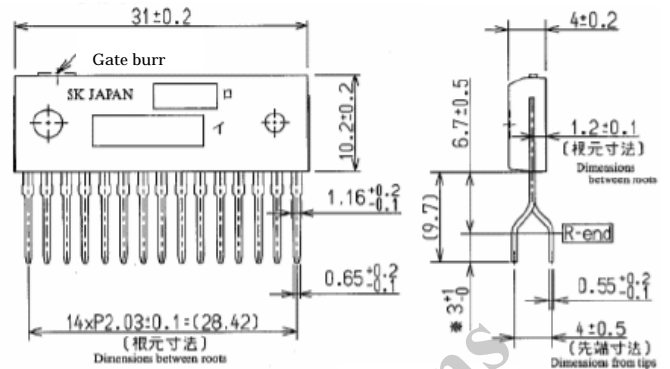
## Electrical characteristics

No.	Item	Symbol	Unit	Value			Conditions		
				Min.	Typ.	Max.			
1	IGBT Output Breakdown Voltage	BVOUT	V	500			IOUT=100 μ A, Tj=-40 ~ 150		
				570			IOUT=100 μ A, Tj=25		
2	IGBT Output Leakage Current	IOUT(off)	μ A			100	VOUT=500V		
3	IGBT Output On-State Voltage	VOUT(on)	V	1.0	1.2		IOUT=0.4A, VIN(or VGL)=10V		
				1.3	1.8		IOUT=2.0A, VIN(or VGL)=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(or VIN2)=10V, Ta=25		
						7.0	Vcc=9 ~ 15V, VM=400V, VIN1(or VIN2)=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)		0.3	1.2	2.0	VM=85V, Ig=0.41A Vcc=9 ~ 15V VIN=10V(Out Stage=ON) VIN=0V(Out Stage=OFF)	
				td(off)		0.5	1.5		2.5
						0.3	1.2		2.0
		Low side	td(on)		0.3	1.2	2.0		
				td(off)		0.5	1.5		2.5
					td		1.0		
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	UVLO	V	0.1	0.2	0.4	UVLO=VUVLOH-VUVLOL		
11	Operating Voltage	VCC	V	9		15	Ta=-40 ~ +105		

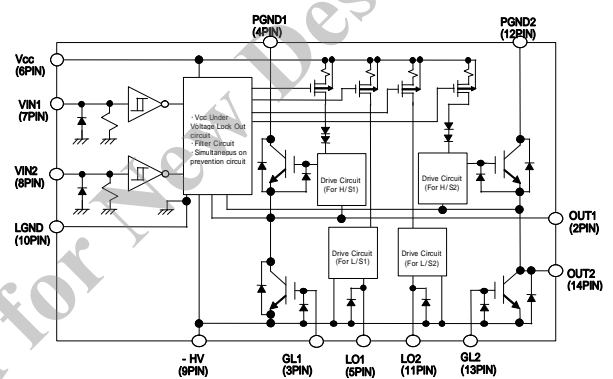
## Recommended operation

No.	Item	Symbol	Unit	Value			Conditions
				Min.	Typ.	Max.	
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

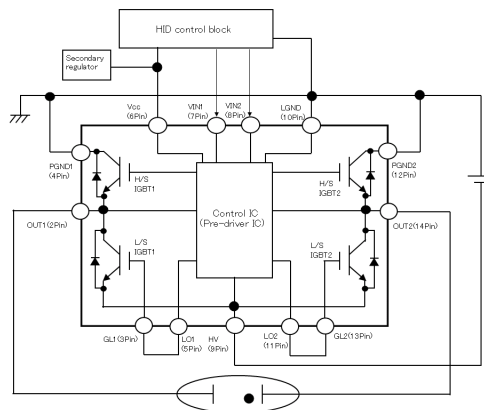
## Package



## Circuit block diagram



## Typical connection diagram



## Timing chart

