

# 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°C
6	Total Power Dissipation	PD	W	4 *1	Ta=25°C
				20	Tc=25°C
7	Storage Temperature	Tstg	°C	-40 ~ +150	
8	Junction Temperature	Tj	°C	-40 ~ +150	

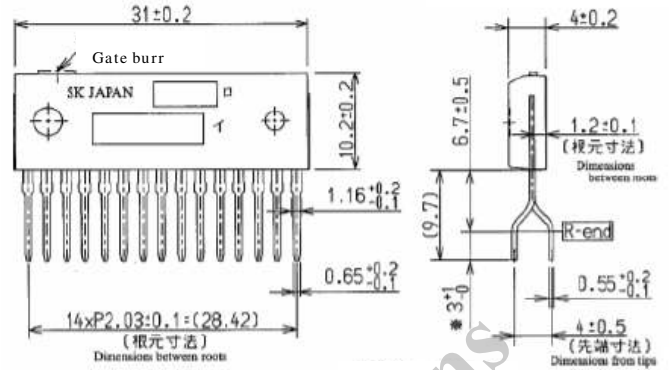
## ■ Electrical characteristics

No.	Item	Symbol	Unit	Value			Conditions							
				Min.	Typ.	Max.								
1	IGBT Output Breakdown Voltage	BVOUT	V	* 500			IOUT=100μ A, Tj=-40 ~ 150°C							
				570			IOUT=100μ A, Tj=25°C							
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°C							
				4.5			Vcc=9 ~ 15V, VM=VIN=0V, Ta=-40 ~ 125°C							
				4.0			Vcc=10V, VM=400V, VIN=0V, Ta=25°C							
				7.0			Vcc=9 ~ 15V, VM=400V, VIN=0V, Ta=-40 ~ 125°C							
5	Operating Circuit Current	Icc3	mA	4.0			Vcc=10V, VM=400V, VIN1(or VIN2)=10V, Ta=25°C							
				7.0			Vcc=9 ~ 15V, VM=400V, VIN1(or VIN2)=10V, Ta=125°C							
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			Vcc=9 ~ 15V							
8	Delay time	td	μ s	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						
					Low side	td(on)	0.3	1.2		2.0				
						td(off)	0.5	1.5		2.5				
										Δtd	1.0	3	Δtd=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	Δ UVLO	V	0.1	0.2	0.4	Δ UVLO=VUVLOH-VUVLOL							
11	Operating Voltage	VCC	V	9	15		Ta=-40 ~ +105°C							

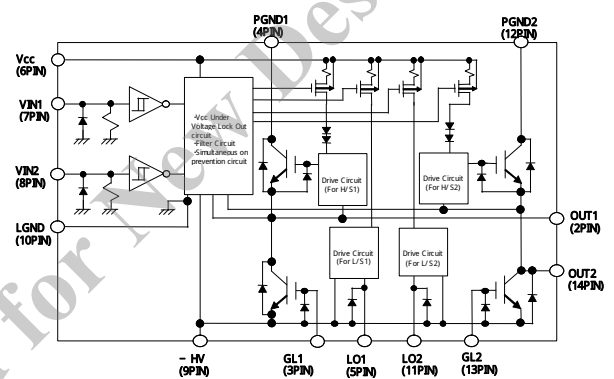
## Recommended operation

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

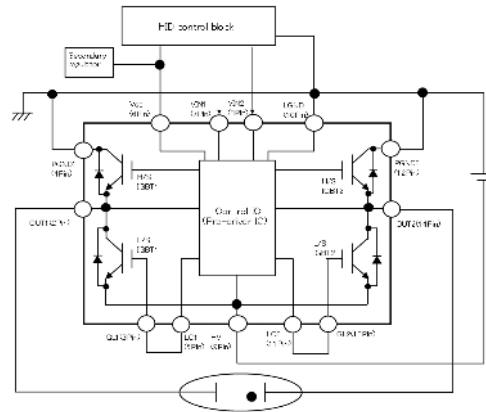
## ■ Package



## ■ Circuit block diagram



## ■ Typical connection diagram



## ■ Timing chart

