

HIC05-AA-01

Halfbridge Inverter Driver IC

(SEM2005)



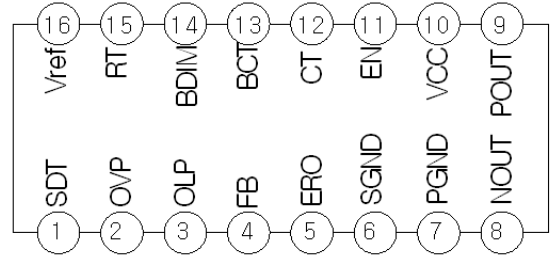
SAMSUNG
ELECTRO-MECHANICS

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Halfbridge Inverter Driver IC (SEM2005)

■ FEATURES

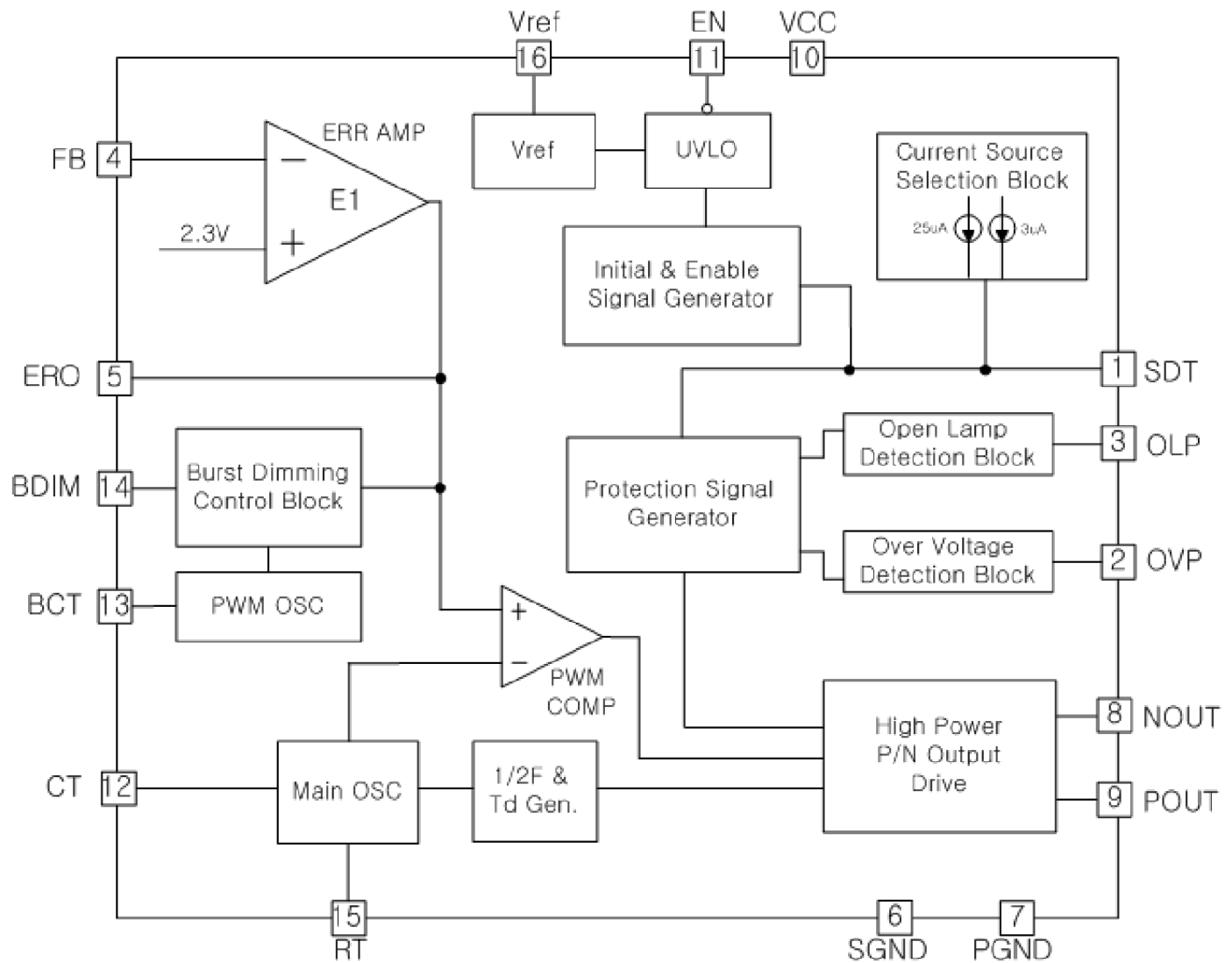
- High Frequency Voltage Mode PWM Control
- Latched Mode Protection
- Totem Pole Output
- Built-In Low Frequency PWM Generator
- Built-In UVLO function
- Adjustable Shut-down time
- Easy Burst Dimming Control
- Variable Protection function



■ PIN DESCRIPTION

Pin No	Symbol	I/O	Description
1	SDT	I	Shut Down Timing Capacitor 연결단자
2	OVP	I	Over Voltage Detection Input
3	OLP	I	Open Lamp Detection Input
4	FB	I	Error Amplifier의 Inverting Input
5	ERO	O	Error Amplifier의 Output
6	SGND	I/O	Signal Ground
7	PGND	I/O	Power Ground
8	NOUT	O	N-type MOSFET Driver Output
9	POUT	O	P-type MOSFET Driver Output
10	VCC	I	Power Supply
11	EN	I	On/Off Control 단자
12	CT	I/O	Oscillator Timing Capacitor 연결단자
13	BCT	I/O	Burst Dimming용 OSC Timing Cap. 연결단자
14	BDIM	I	Burst Dimming Input
15	RT	I	Oscillator Timing Resistor 연결단자
16	Vref	O	5V/10mA Reference Voltage Output

■ **BLOCK DIAGRAM**



■ **ORDERING INFORMATION**

Device	Package	Operating Temperature
SEM2005	16-SOP	-25 ~ 85°C

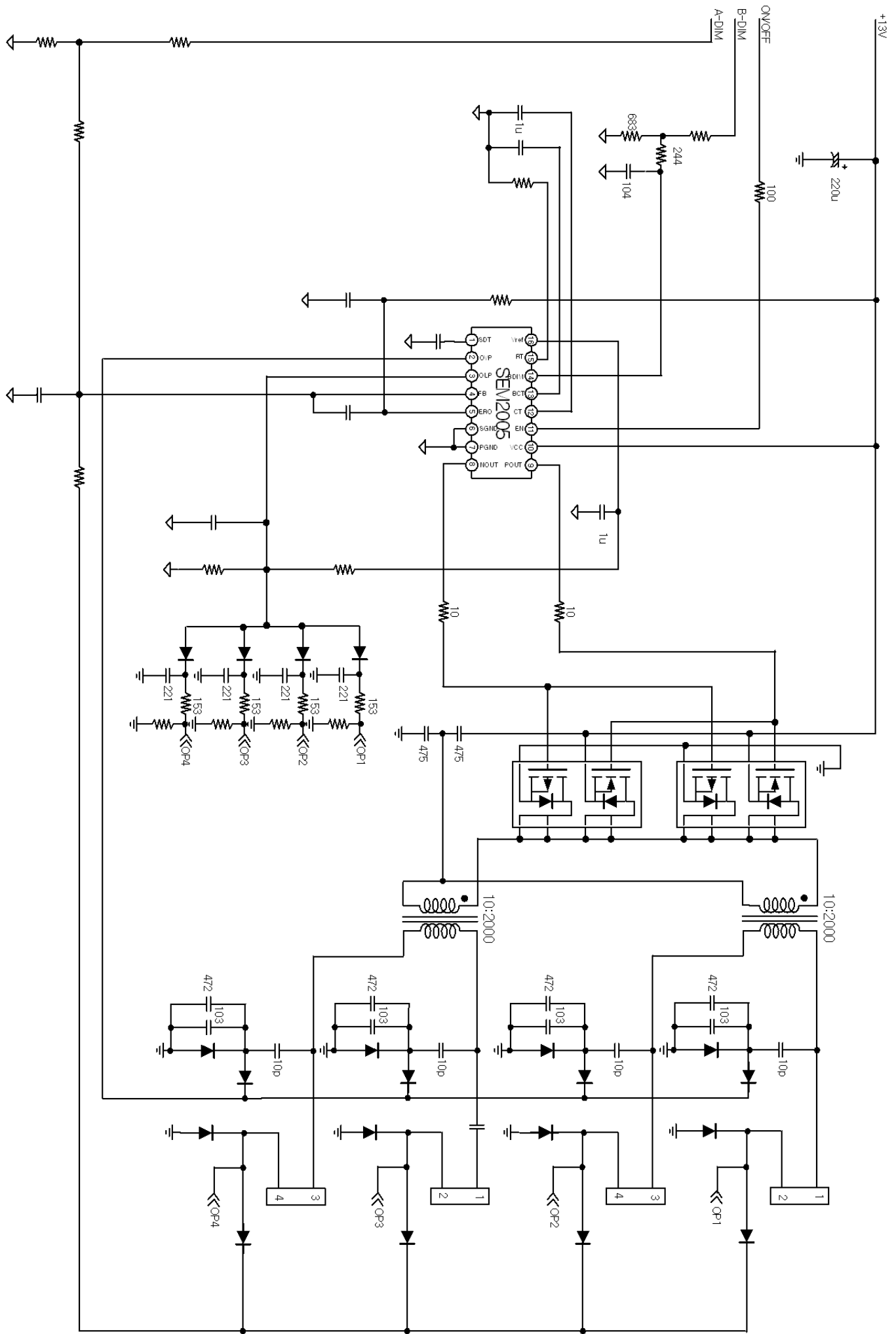
■ **ABSOLUTE MAXIMUM RATINGS**

Characteristic	Symbol	Value	Ut
Supply Voltage	Vcc	32	V
Operating Temperature	Topr	-25 ~ 85	°C
Storage Temperature	Tstg	-55 ~ 125	
Power Dissipation	Pd	1.0	W
Maximum Junction Temperature	Tjmax	125	°C

■ ELECTRICAL CHARACTERISTICS (V_{cc}=15V, T_j=25°C ; unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Ut
▶ OVERALL SECTION						
Start Threshold Voltage	V _{th(st)}	-	7.0	7.5	8.0	V
Start-Up Current	I _{st}	V _{cc} = 7.0V	-	0.1	0.2	mA
Operating Supply Current	I _{op}	V _{cc} ≤ 24V	-	6	9	mA
Enable On Voltage	V _{en(on)}	-	2.0	-	-	V
Enable Off Voltage	V _{en(off)}	-	-	-	1.0	V
▶ REFERENCE SECTION						
Reference Output Voltage	V _{ref}	T _j =25°C, I _{ref} =1mA	4.80	5.00	5.20	V
Line Regulation (8~24V)	ΔV _{ref1}	V _{cc} =8V~24V	-	5	20	mV
Load Regulation (0~10mA)	ΔV _{ref2}	I _{ref} =1mA~10mA	-	5	20	mV
▶ MAIN OSCILLATOR SECTION						
Main Oscillation Frequency	F _{osc}	T _j =25°C, C _T =120pF	40	44	48	kHz
Starting Frequency	F _{hf}	V _{sdt} >0.3V, V _{olp} <1.5V	60	68	76	kHz
▶ FEEDBACK SECTION						
FB Input Voltage	V _{fb}	-	2.1	2.3	2.5	V
▶ PWM OSCILLATOR SECTION						
Burst Oscillation Frequency	F _{bosc}	T _j =25°C, BCT=5.5nF	300	330	360	Hz
▶ PROTECTION SECTION						
SDT Pin Current 1	I _{sdt1}	V _{sdt} < V _{init}	23	28	33	uA
SDT Pin Current 2	I _{sdt2}	V _{sdt} > V _{enb}	1	3	5	uA
Initial Threshold Voltage	V _{init}	-	0.25	0.3	0.35	V
Protection Enable Voltage	V _{enb}	-	0.6	0.7	0.8	V
Over Current Protection	V _{olp}	-	1.3	1.5	1.7	V
Over Voltage Protection	V _{ovp}	-	2.25	2.5	2.75	V
SDT Threshold Voltage	V _{sdt}	V _{olp} <1.5V or V _{ovp} >2.5V	2.7	3.0	3.3	V
▶ OUTPUT SECTION						
Nout Output Voltage	V _{on}	T _j =25°C, C _{load} =2nF	10.0	11.0	-	V
Nout Rise Time	T _{rn}		-	100	-	ns
Nout Fall Time	T _{fn}		-	100	-	ns
Pout Output Voltage	V _{op}		-10.0	-11.0	-	V
Pout Rise Time	T _{rp}		-	100	-	ns
Pout Fall Time	T _{fp}		-	100	-	ns

APPLICATION EXAMPLE



■ PACKAGE DIMENSION

16-SOP-225

Dimensions in millimeters/inches

