STRUCTURE Silicon Monolithic Integrated Circuit

NAME OF PRODUCT DC-AC Inverter Control IC

TYPE **ＢＤ９２７５Ｆ**

FUNCTION

- Using 20V process / 1ch control with Push-Pull
- Accuracy of drive output frequency : 3.5% (IC Only/Built-in CT Capacitor)
- High accuracy timer latch current(±15%)
- Built-in FAIL function
- Adjustable latch timing
- Adjustable slow start time
- Lamp current and voltage sense feedback control
- Mode-selectable the operating or stand-by mode by STB pin (Typ.=0uA)

○Absolute Maximum Ratings (Ta = 25℃)

Parameter	Symbol	Limits	Unit
Supply Voltage	Vcc	20	V
OUTPUT PIN Voltage	N1, N2	20	V
Operating Temperature Range	Topr	-40～+85	℃
Storage Temperature Range	Tstg	-55～+150	℃
Maximum Junction Temperature	Tjmax	+150	℃
Power Dissipation	Pd	SOP18:562*	mW

*1Pd derate at -4.5mW/℃ for temperature above Ta = 25℃ (When mounted on a PCB 70.0mm×70.0mm×1.6mm)

○動作範囲

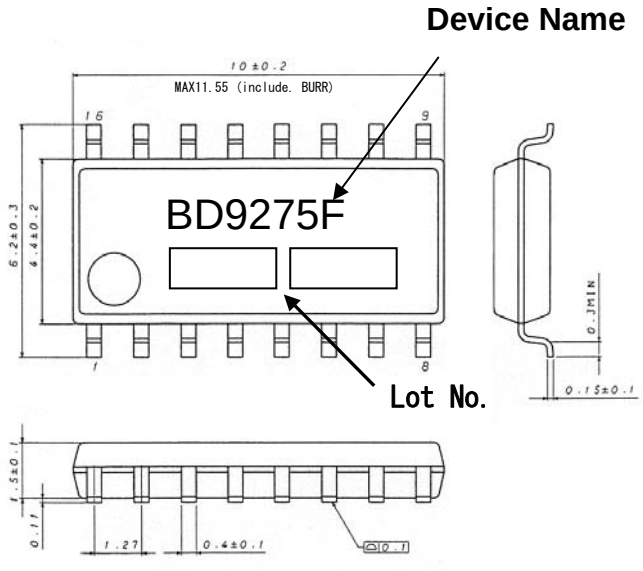
項目	記号	範囲	単位
Supply voltage	VCC	8.0 ～ 18.0	V
Input Frequency Ratio PWM_IN PIN	F_PWM_IN	0.060～0.5	kHz
DRIVER frequency	F_OUT	20 ～ 90	kHz

○Electric Characteristics (Ta=25℃、VCC=12V、STB=3.0V)

Item	SYMBOL	LIMIT MIN.	LIMIT TYP.	LIMIT MAX.	UNIT	CONDITION
((WHOLE DEVICE))						
Operating current	Icc1	—	2.0	4.0	mA	RT=100kΩ, FB=GND, IS=1.5V
Stand-by current	Icc2	—	0	20	μA	VSTB=0V
((STAND BY CONTROL))						
Stand-by voltage H	VSTBH	2	-	VCC	V	System ＯＮ
Stand-by voltage L	VSTBL	-0.3	-	0.8	V	System ＯＦＦ
STB PIN pull down resistor	RSTB	180	375	750	kΩ	VSTB=2V
((VCC UVLO BLOCK)))						
Operating voltage	VCC_UVLO	7.2	7.5	7.8	V	VCC=6V→8V sweep
Hesteresis width	⊿UVLO_HYS	0.3	0.5	0.7	V	VCC=8V→6V sweep
((OSC BLOCK))						
RT pin Voltage	VRT	1.300	1.500	1.700	V	RT=100kΩ
SRT ON resistance	RSRT	—	75	150	Ω	VSRT=0.1V
((PWM Dimming Block))						
PWM_IN PIN voltage H	VPWMIN_H	2.4	-	5	V	VPWM_IN=0V⇒3.0V
PWM_IN PIN voltage L	VPWMIN_L	-0.3	-	0.8	V	VPWM_IN=3.0V⇒0V
PWM_IN PIN pull down resistor	R_PWMIN	1000	2000	4000	kΩ	VPWM_I=5V
((FEED BACK BLOCK))						
IS threshold voltage	VIS	1.225	1.250	1.275	V	
VS threshold voltage	VVS	1.200	1.250	1.300	V	
IS source current	IIS	16	20	24	μA	IS=1.0V
IS COMP detect voltage	VISCOMP	0.565	0.625	0.685	V	IS=1.3V→0.5V
((SLOW START BLOCK))						
SS term END Voltage	VSS	2.400	2.500	2.600	V	VSS=0V⇒3V
Soft start current	ISS	1.7	2.0	2.3	μA	VSS=1.0V IS=1.5V
((COMP BLOCK))						
COMP over voltage detect voltage	VCOMPH	1.900	2.000	2.100	V	VSS＞2.5V VCOMP=1.5V→2.5V
Hysterisis width (COMP)	⊿VCOMPH	0.100	0.200	0.300	V	VSS＜2.0V VCOMP=2.5V→1.5V
COMP PIN pull down resistor	RCOMP	1000	2000	4000	kΩ	COMP=5V
FAIL ON resistance	RFAIL	—	75	150	Ω	VFAIL=0.1V
((OUTPUT BLOCK))						
N1,N2 PIN output sink resistance	RsinkN	1.5	3.0	6.0	Ω	IIN=100mA
N1,N2 PIN output source resistance	RsourceN	4.5	9	18	Ω	IIN=-100mA
MAX DUTY	MAX DUTY	45	47.0	49.5	%	FOUT=50kHz
Drive output frequency	FOUT	48.25	50	51.75	kHz	RT=100kΩ
((TIMER BLOCK))						
Timer Latch setting voltage	VCP	2.900	3.000	3.100	V	VCP=0V⇒3.2V
Timer Latch setting current	ICP	1.7	2.0	2.3	μA	CP=1.0V IS=1.5V COMP=3.0V

(This product is not designed to be radiation-resistant.)

○Package Dimensions



SOP-16 (Unit:mm)

○PIN No. ・PIN NAME・FUNCTION

BD9275F					
No.	PIN	Function	No.	PIN	Function
1	VCC	Supply voltage input	16	N1	NMOS FET driver
2	STB	Stand-by switch	15	N2	NMOS FET driver
3	SRT	External resistor from SRT to RT for adjusting the triangle oscillator	14	PGND	Ground for FET drivers
4	RT	External resistor from SRT to RT for adjusting the triangle oscillator	13	PWM_IN	Dimming pulse signal input pin
5	GND	GROUND	12	SS	External capacitor from SS to GND for Soft Start Control
6	FB	Error amplifier output	11	CP	External capacitor from CP to GND for Timer Latch
7	IS	Error amplifier input	10	FAIL	Error signal output pin
8	VS	Error amplifier input	9	COMP	Over voltage detect pin