



概述

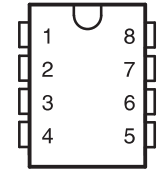
HMC33063ADR为一单片 DC-DC 变换集成电路，内含温度补偿的参考电压源(1.25V)、比较器、能有效限制电流及控制工作周期的振荡器，驱动器及大电流输出开关管等，外配少量元件，就能组成升压、降压及电压反转型 DC-DC 变换器。

该电路采用 DIP-8和SOP-8封装形式。

主要特点

- 工作电压范围宽 3.0V~32V
- 静态电流小
- 管脚排列图
- 具有输出电流限制功能,输出电流保护功能
- 输出开关极限电流达 1.2A
- 输出电压可调
- 工作频率可达 100kHz
- 内部基准参考电压精度 2%

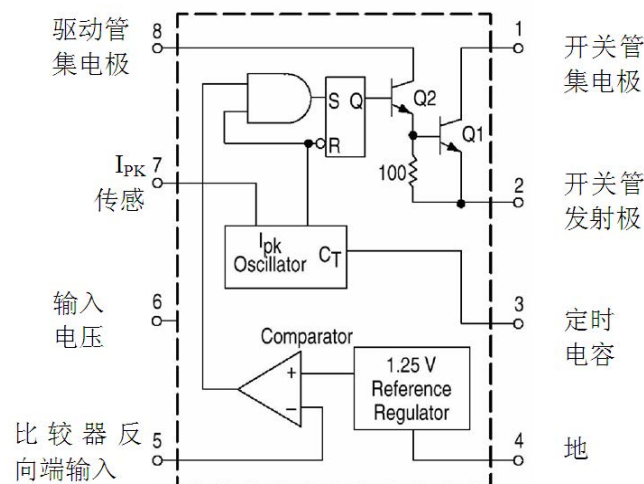
引脚排列



SOP/DIP-8

PIN脚位	符号	功能说明
1	SC	开关管集电极
2	SE	开关管发射极
3	CT	定时电容
4	GND	地
5	FB	比较器反向端输入
6	VCC	输入电压
7	I _{PK}	检测
8	V _{OUT}	驱动管集电极

功能框图





极限值

参数名称	符号	数值		单位
		最小	最大	
电源电压	V _{CC}		32	V
比较器输入电压范围	V _{IR}	-0.3	30	V
输出管集电极电压	V _{C(switch)}		32	V
输出管发射极电压 (V _{PIN1} =32V)	V _{E(switch)}		32	V
输出管集电极与发射极间的电压	V _{CE(switch)}		32	V
驱动管集电极电压	V _{C(driver)}		32	V
驱动管集电极电流	I _{C(driver)}		100	mA
输出电流	I _{SW}		1.2	A
功耗	PD		1.25	W
工作环境温度	T _A	0	+70	
贮存温度	T _{stg}	-65	+150	

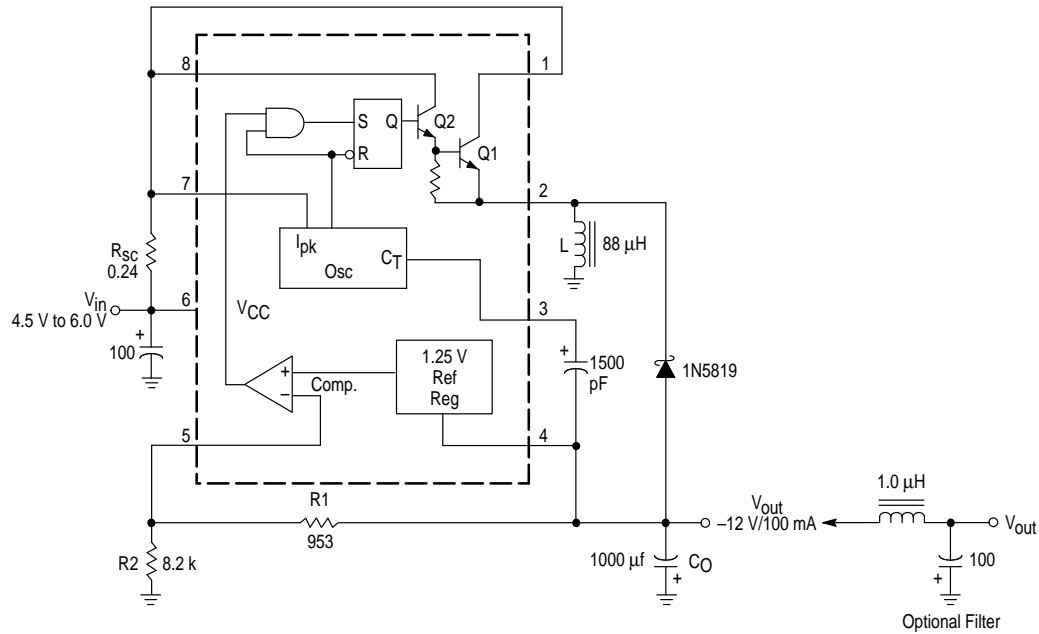
电特性 (V_{CC}=5.0V; T_A=0 ~70 除非另外规定)

特性条件	符号	规范值			单位
		最小	典型	最大	
振荡器部分					
振荡频率 (V _{PIN5} =0V, C _T =1.0F, T _A =25)	f _{osc}	24	33	42	KHz
充电电流 (V _{CC} =5.0V~32V, T _A =25)	I _{chg}	24	33	42	uA
放电电流 (V _{CC} =5.0V~32V, T _A =25)	I _{dischg}	140	200	260	uA
放电与充电电流之比 (V _{PIN7} =V _{CC} , T _A =25)	I _{dischg} /I _{chg}	5.2	6.2	7.5	--
电流限制器电压灵敏度 (I _{chg} =I _{dischg} , T _A =25)	V _{IPK}	250	300	350	mV
输出部分:					
饱和压降 (I _{SW} =1.0A, P _{IN1} , 连接)	V _{CE(sat)}	--	1.0	1.3	V
饱和压降 (I _{SW} =1.0A, R _{PIN8} =82到V _{CC})	V _{CE(sat)}	--	0.45	0.7	V
直流放大倍数 (I _{SW} =1A, V _{CE} =5V, T _A =25)	h _{fe}	50	120	--	--
集电极漏电流 (V _{CE} =30V)	I _{C(off)}	--	0.01	100	uA
比较器部分:					
阈值电压 (T _A =25) (T _A =0~70)	V _{th}	1.23 1.21	1.25 --	1.27 1.29	V
输入偏置电流 (V _{IN} =0V)	I _{IB}	--	-40	-400	nA
阈值电压线性调整率 (V _{CC} =3.0~30V)	Reg _{line}	--	1.4	5.0	mV
整体部分:					
电源电流 (V _{CC} =5.0V~30V, C _T =1.0nF, V _{PIN7} =V _{CC} , V _{PIN5} >V _{th} , V _{PIN2} =GND, 其余悬空)	I _{CC}	----	2.5	4.0	mA



应用电路图

HMC33063ADR 作反转式DC-DC 变换器

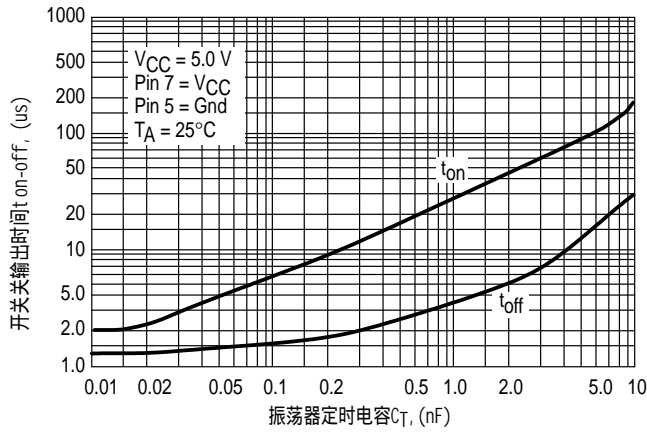


当加接LC 滤波器后,能进一步减小电压纹波及噪声,特性见下表

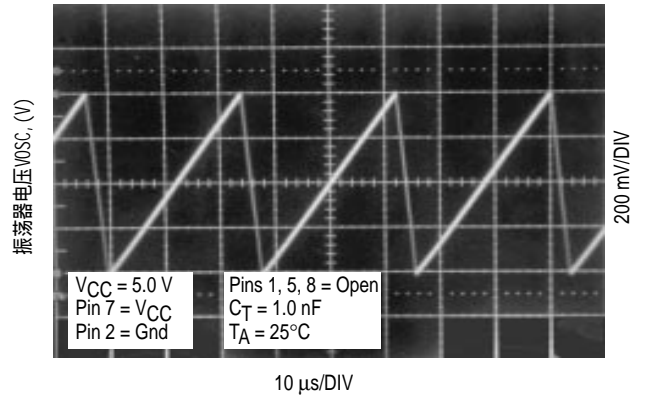
参数	测试条件	结果
线性调整率	V IN=4.5~6.0V, I _o =100m A	3.0mV=0.012%
负载调整率	V IN=5.0V, I _o =10~100m A	0.022V=+0.09%
输出纹波	V IN=5.0V, I _o =100m A	500mVpp
电路限制电流	V IN=5.0V, R L=0.1	910mA
效率	V IN=5.0V, I _o =100m A	64.5%
输出纹波	V IN=5.0V, I _o =100m A	70mVpp



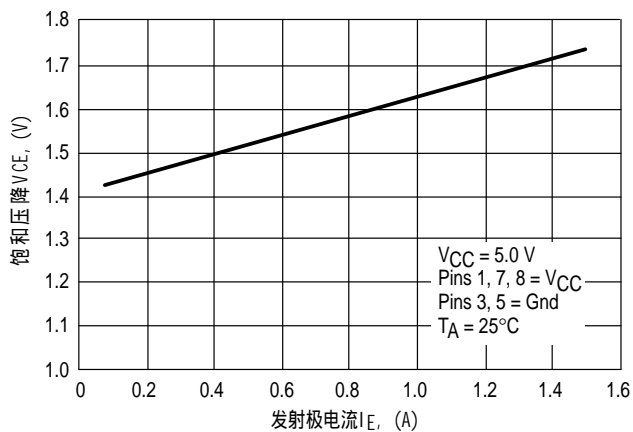
特性曲线



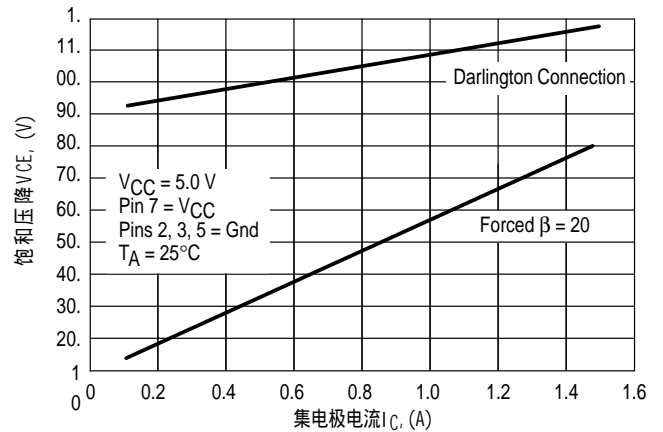
振荡器定时电容开关特性曲线



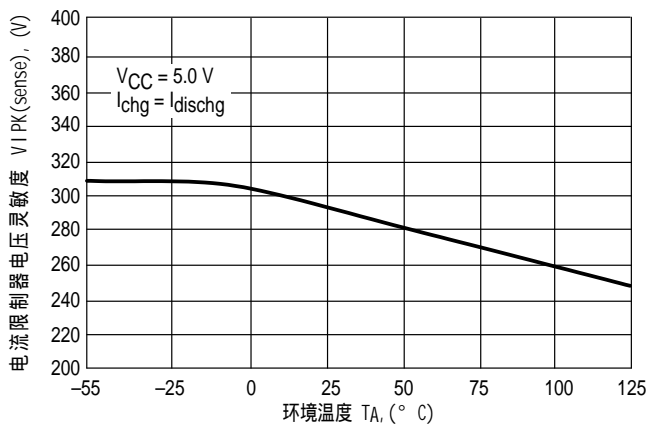
振荡器定时电容开关特性曲线



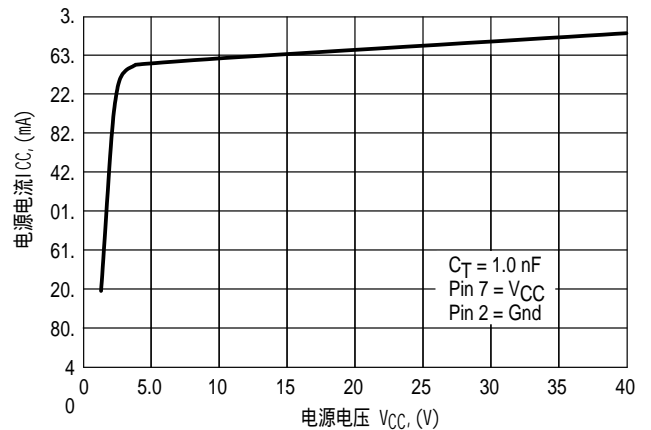
发射极输出饱和压降-发射极
电流特性曲线



共发射极开关输出饱和压降-
集电极电流特性曲线



静态工作电流-工作电压特性曲线

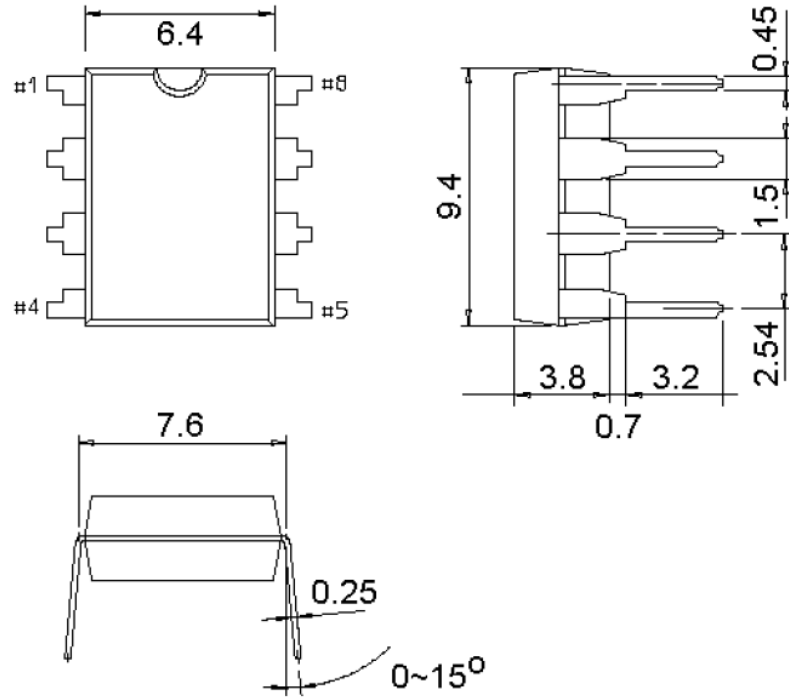


静态工作电流-工作电压特性曲线

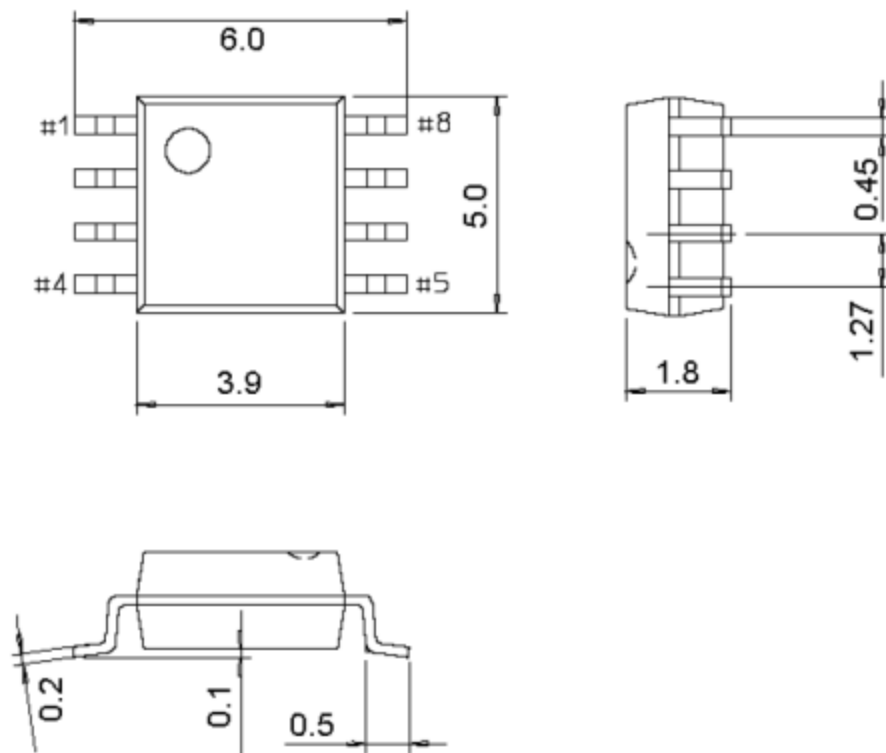


封装信息

DIP-8



SOP-8





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