

Description

The PD34063 is a monolithic switching regulator control circuit which contains the primary functions required for DC-DC converters. This device consists of internal temperature compensated reference, voltage comparator, controlled duty cycle oscillator with active current limit circuit, driver and high current output switch.

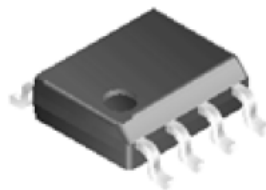
The PD34063 is specifically designed as a general DC-DC converter to be used in Step-Down, Step-Up and Voltage-Inverting applications with a minimum number of external components. The PD34063 is available in 2 packages: SOIC-8 and DIP-8.

Feature

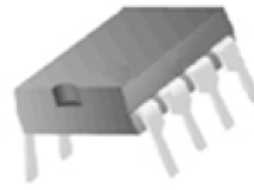
- Operation from 3.0V to 18V Input
- Low Standby Current
- Current Limiting
- Output Switch Current to 0.8A
- Output Voltage Adjustable
- Operation Frequency up to 100kHz
- Precision 2% Reference

Application

- Battery Chargers
- ADSL Modems
- Hubs
- Negative Voltage Power Supplier



SOIC-8



DIP-8

Figure 1. Package Types of PD34063

Pin Configuration

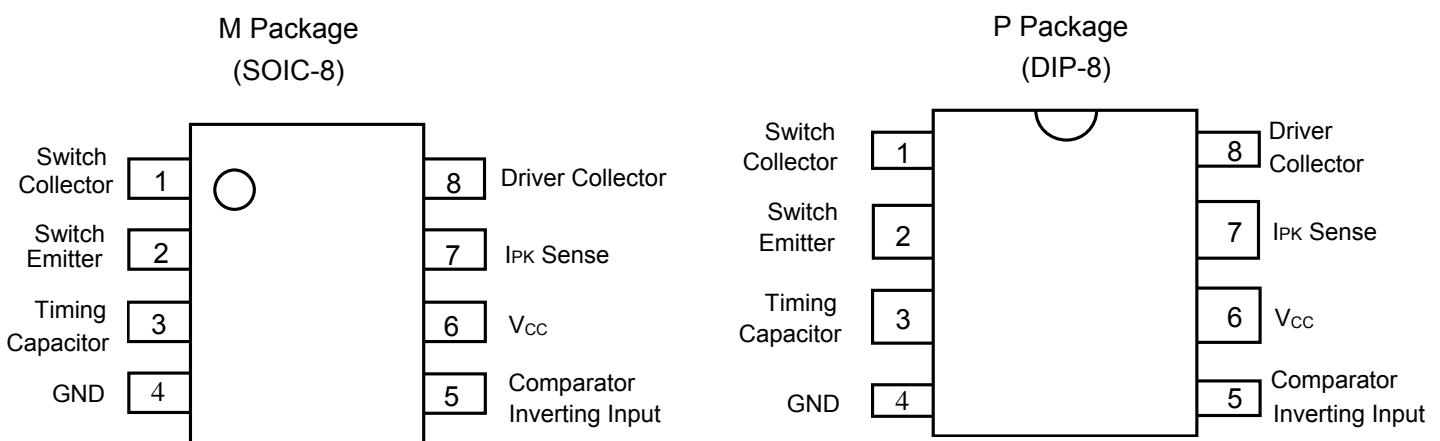


Figure 2. Pin Configuration of PD34063 (Top View)

Absolute maximum rating(Note 1)

Parameter	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	18	V
Comparator Input Voltage Range	V_{IR}	-0.3 to 18	V
Switch Collector Voltage	$V_C(\text{switch})$	18	V
Switch Emitter Voltage($V_{PIN1}=40V$)	$V_E(\text{switch})$	18	V
Switch Collector to Emitter Voltage	$V_{CE}(\text{switch})$	18	V
Driver Collector Voltage	$V_C(\text{driver})$	18	V
Driver Collector Current(Note 2)	$I_C(\text{driver})$	100	mA
Switch Current	I_{SW}	0.8	A
Power Dissipation($T_A=25^\circ\text{C}$)	DIP-8	P_D	1.25 W
	SOIC-8		625 mW
Thermal Resistance	DIP-8	θ_{JA}	100 °C/W
	SOIC-8		160
Operating Junction Temperature	T_J	150	°C
Lead Temperature(Soldering,10s)	T_{LEAD}	260	°C
Storage Temperature Range	T_{STG}	-65 to 150	°C

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Note 2: Maximum package power dissipation limits must be observed.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{CC}	3	18	V
Ambient Temperature	T_A	-40	85	°C

Electrical Characteristics

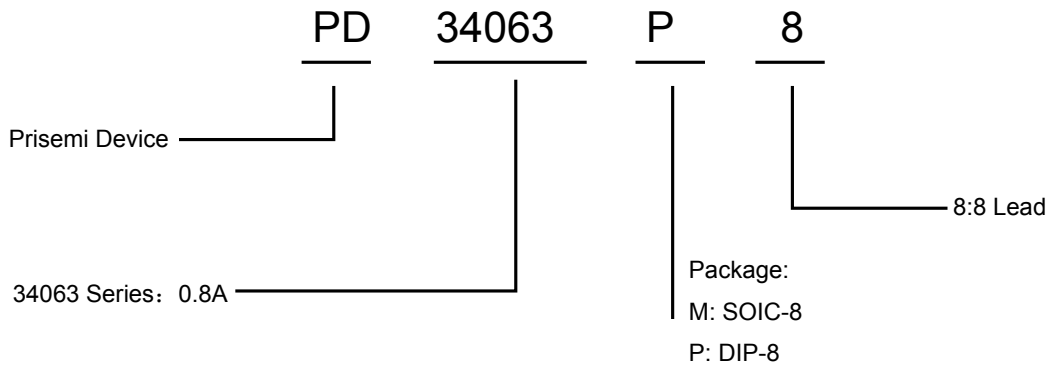
(V_{CC}=5.0V, T_A=-40 to 85°C, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Oscillator						
Frequency	f _{osc}	V _{PIN5} =0V, C _T =1.0nF T _A =25°C	17	33	42	KHz
Charge Current	I _{CHG}	V _{CC} =5.0V to 18V, T _A =25°C	20	35	42	μA
Discharge Current	I _{DISCHG}	V _{CC} =5.0V to 18V, T _A =25°C	140	220	260	μA
Discharge to Charge Current Ratio	I _{DISCHG} /I _{CHG}	Pin7 to V _{CC} , T _A =25°C	5.2	6.5	7.5	
Current Limit Sense Voltage	V _{IPK(sense)}	I _{CHG} =I _{DISCHG} , T _A =25°C	250	300	350	mV
Output Switch(Note 3)						
Saturation Voltage, Darlington Connection	V _{CE(sat)}	I _{SW} =0.8A, Pin1 and Pin8 connected, Common Emitter		1.0	1.3	V
Saturation Voltage(Note 4.)	V _{CE(sat)}	I _{SW} =0.8A, R _{PIN8} =82Ω to V _{CC} , Forced β=20, Common Emitter		0.45	0.7	V
DC Current Gain	h _{FE}	I _{SW} =0.8A, V _{CE} =5.0V, T _A =25°C	50	75		
Collector Off-State Current	I _{C(off)}	V _{CE} =18V		0.01	100	μA
Comparator						
Threshold Voltage	V _{TH}	T _A =25°C	1.225	1.250	1.275	V
		T _A =-40 to 85°C	1.21	1.250	1.29	
Threshold Voltage Line Regulation	R _{EGLINE}	V _{CC} =3.0V to 18V		1.4	6	mV
Input Bias Current	I _{IB}	V _{IN} =0V		-20	-400	nA
Total Device						
Supply Current	I _{CC}	V _{CC} =5.0V to 18V, C _T =1.0nF, V _{PIN7} =V _{CC} , V _{PIN5} >V _{TH} , V _{PIN2} =GND, other pins open			4	mA

Note 3: Low duty cycle pulse technique are used during test to maintain junction temperature as close to ambient temperature as possible.

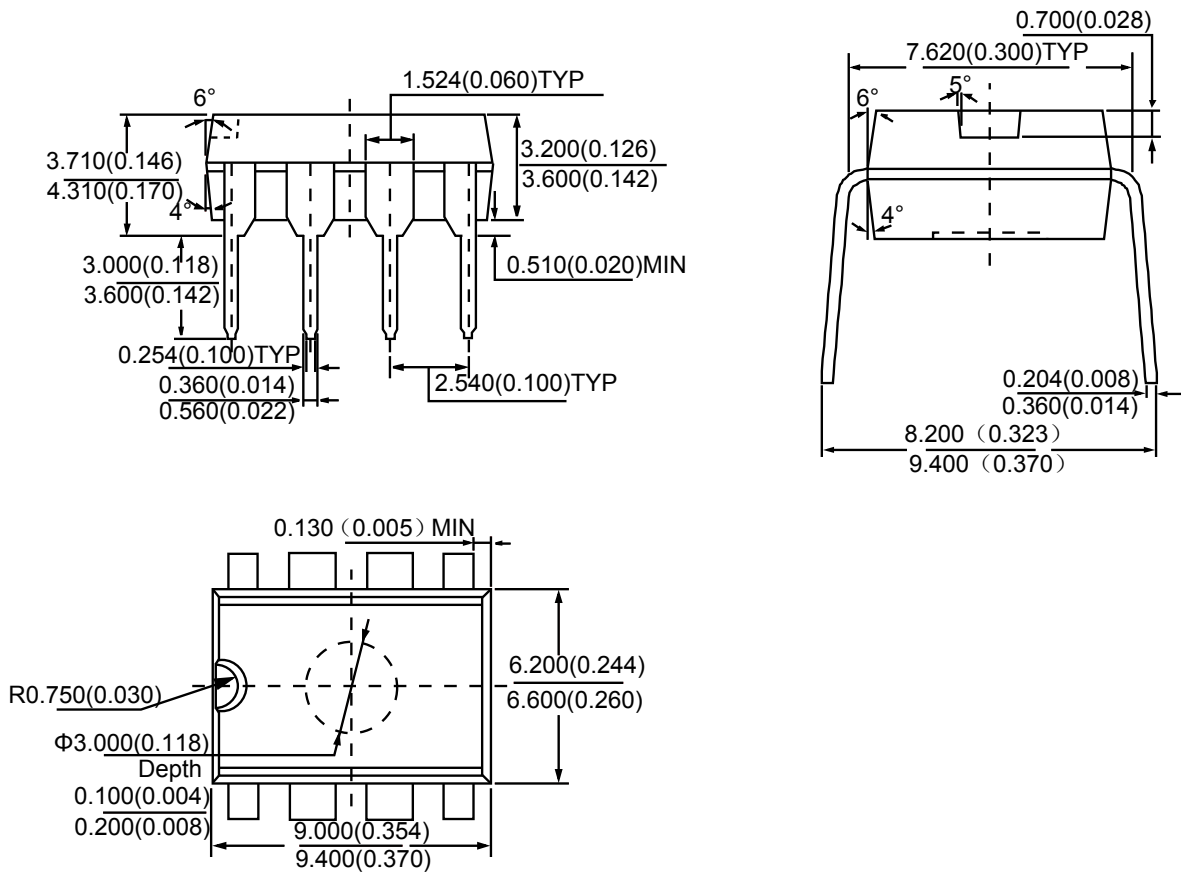
Note 4: If the output switch is driven into hard saturation (non-Darlington configuration) at low switch currents (≤300mA) and high driver currents (≥30mA), it may take up to 2.0μs for it to come out of saturation. This condition will shorten the off time at frequencies 30KHz, and is magnified at high temperatures. This condition does not occur with a Darlington configuration, since the output switch cannot saturate.

Naming Rule



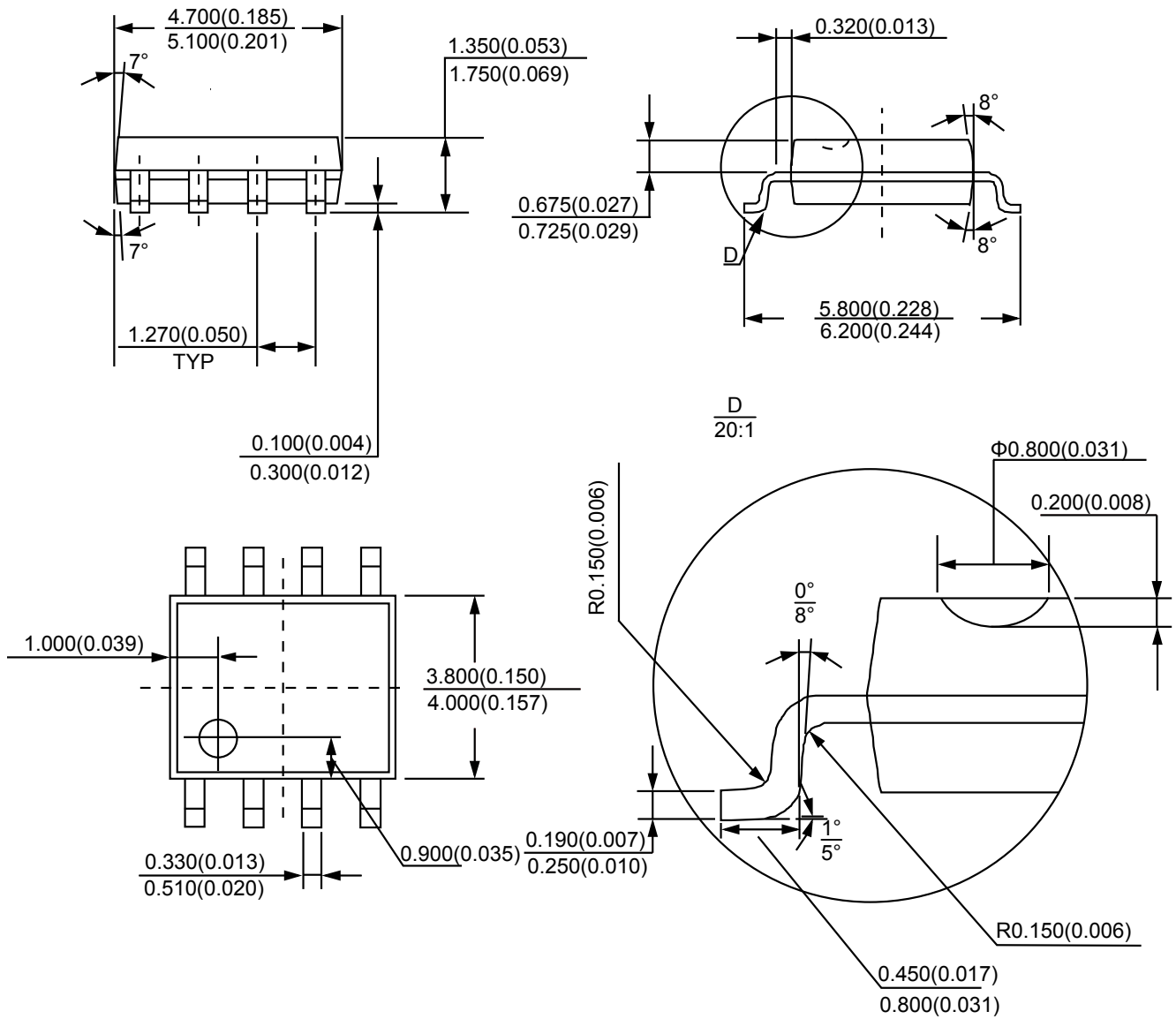
Product dimension (DIP-8)

Unit:mm(inch)




Product dimension (SOIC-8)

Unit:mm(inch)



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