

GENERAL DESCRIPTION

The ACP1263/ACP1263D is a general USB power switch with 0.4A to 2.5A programmable current limiting to protect the power source from over current and short circuit damage. It also integrates the over temperature protection. If the die temperature exceeds +150°C, thermal shutdown active to shut off the output MOSFET. Until the die temperature drops to +130°C, The output MOSFET then start turn on again. Otherwise the ACP1263D individually has built-in discharge function to release the output capacitor charge at the moment of shutdown. The devices also can block the current flowing from the output to the input in case of the output is pulled higher than the input voltage under the shutdown. Other features include input under voltage lockout and soft start functions. The device is available in common SOT25 package.

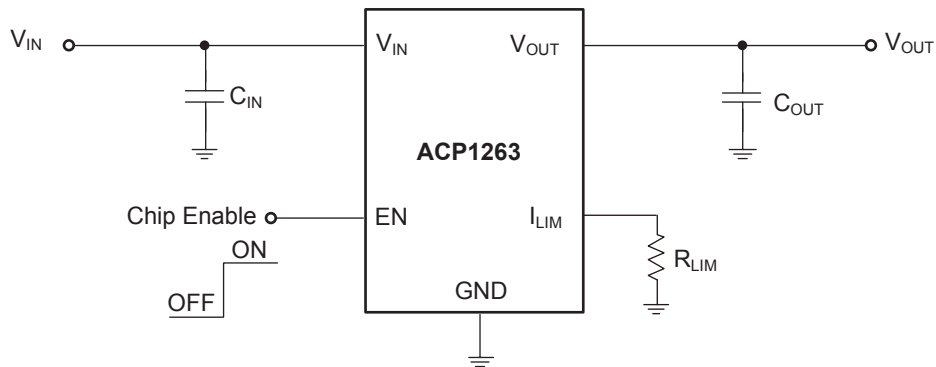
FEATURES

- 2.5V to 5.5V Input Voltage Range
- 0.4A to 2.5A Programmable Current Limit Range
- Maximum 35µA Quiescent Current
- Typical 0.1µA Shutdown Current
- Soft-Start Function
- Temperature Shutdown Protection
- Under Voltage Lockout Protection
- Reverse Blocking Function Internal
- Automatic Output Discharge
- In Common SOT25 Package

APPLICATION

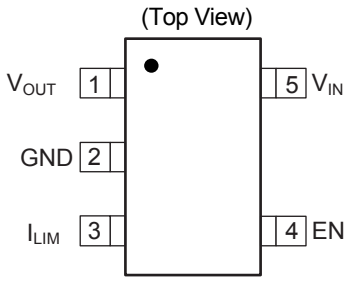
- USB Peripherals
- Mini PCI Accessories
- General Purpose Power Switching

APPLICATION CIRCUIT



Typical ACP1263 Application Circuit

▼ PIN CONFIGURATION

Pin Configuration	Pin Description		
	Pin#	Symbol	Function
 <p>(Top View)</p>	1	VOUT	Voltage Output
	2	GND	Ground
	3	I _{LIM}	Current Limit Set Pin, I _{LIM} (A)=6800/R _{LIM}
	4	EN	Chip Enable, Active high
	5	VIN	Power Input Voltage

▼ ORDERING INFORMATION

Standard Part NO.	Package	Packing	Min. Quantity
ACP1263-BAA	SOT25	Tape & Reel	3000PCS
ACP1263D-BAA (Note:Discharge)	SOT25	Tape & Reel	3000PCS

▼ ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
All Pins		6	V
Power Dissipation, T _A = +25°C	P _D	0.6	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _S	-65 to 150	
Lead Temperature	T _L	260	
Human Body Model	HBM	2000	V
Charged Device Model	CDM	1000	
Junction to Ambient	θ _{JA}	220	°C/W
Junction to Case	θ _{JC}	93	

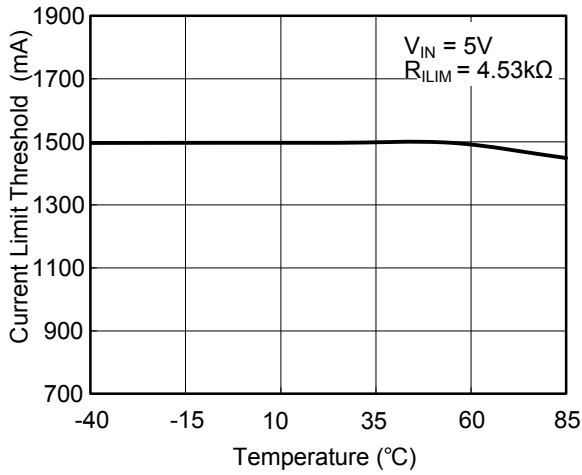
▼ RRECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Rating	Unit
Input Voltage	V _{IN}	2.5 to 5.5	V
Operating Ambient Temperature	T _A	-40 to 85	°C

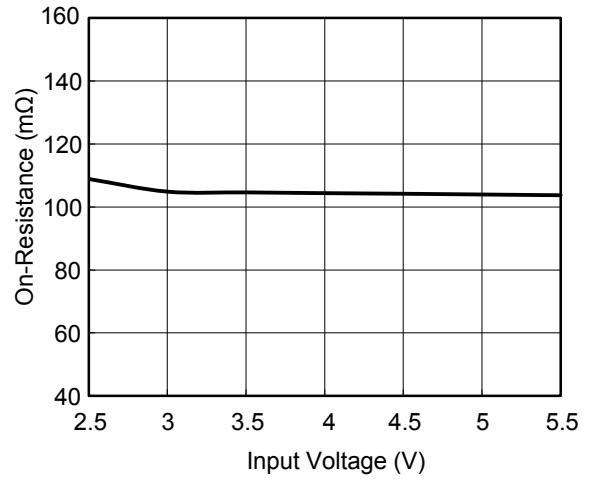
▼ ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		2.5		5.5	V
Quiescent Supply Current	I_Q	Switch on, $V_{OUT} = \text{Open}$			35	μA
Shutdown Supply Current	I_{SHDN}	Switch off, $V_{OUT} = \text{Open}$		0.1		
Output Leakage Current	$I_{LEAKAGE}$	Switch off, $V_{OUT} = 0\text{V}$		0.1		
Enable Input Threshold	V_{IH}	$V_{IN} = 2.5\text{V to } 5.5\text{V}$	1.8			V
	V_{IL}	$V_{IN} = 2.5\text{V to } 5.5\text{V}$			0.5	
Pull Down Resistor at EN Pin	R_{PULL_DOWN}			500		K Ω
Switch Resistance	$R_{DS(ON)}$	$V_{IN} = 5\text{V}, I_{OUT} = 500\text{mA}$		95		m Ω
Output Turn on Delay Time	$t_{D(ON)}$	$C_L = 1\mu\text{F}, R_L = 10\Omega$		2.3		ms
Output Turn off Delay Time	$t_{D(OFF)}$	$C_L = 1\mu\text{F}, R_L = 10\Omega$		26		μs
Current Limit Threshold	I_{LIMIT}	$R_{LIM} = 17\text{k}\Omega$		400		mA
		$R_{LIM} = 6.8\text{k}\Omega$		1000		
		$R_{LIM} = 4.53\text{k}\Omega$		1500		
		$R_{LIM} = 3.4\text{k}\Omega$		2000		
		$R_{LIM} = 2.7\text{k}\Omega$		2500		
Under Voltage Lockout Threshold	V_{UVLO}	V_{IN} Rising		2.2	2.3	V
Under Voltage Lockout Threshold Hysteresis				0.1		
V_{OUT} Shutdown Discharge Resistance(ACP1263 Only)	R_{DIS}	Switch off		50		Ω
Thermal Shutdown Threshold	T_{SHDN}	T_J Increasing		150		$^\circ\text{C}$
Thermal Shutdown Hysteresis	T_{HYS}			20		

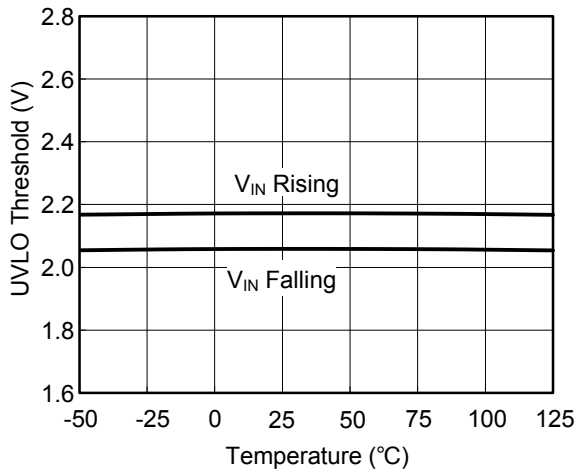
PERFORMANCE CHARACTERISTIC(Continued)



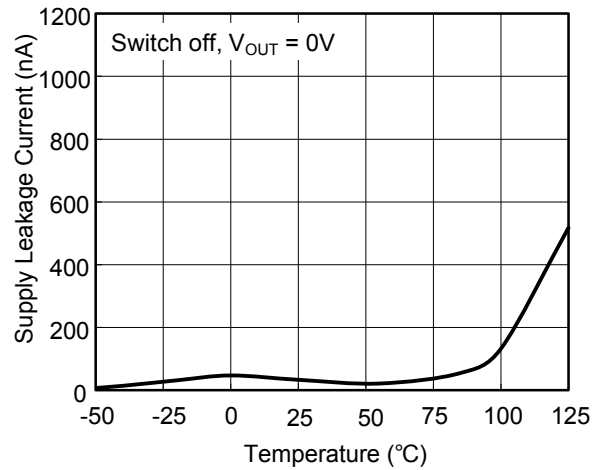
Current Limit Threshold vs. Temperature



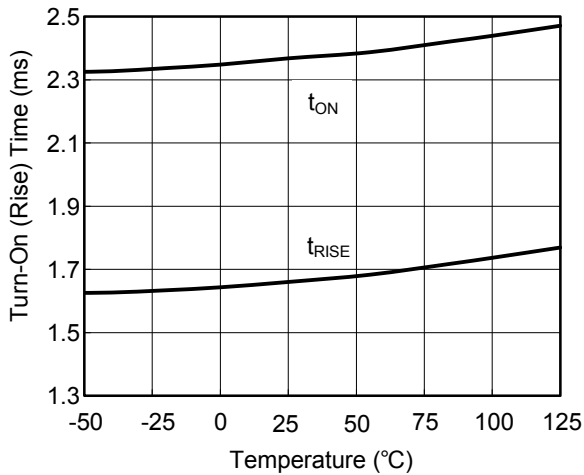
On-Resistance vs. Input Voltage



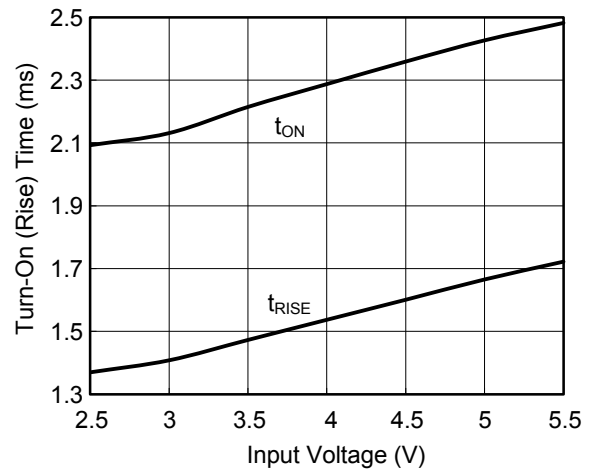
UVLO Threshold vs. Temperature



Supply Leakage Current vs. Temperature

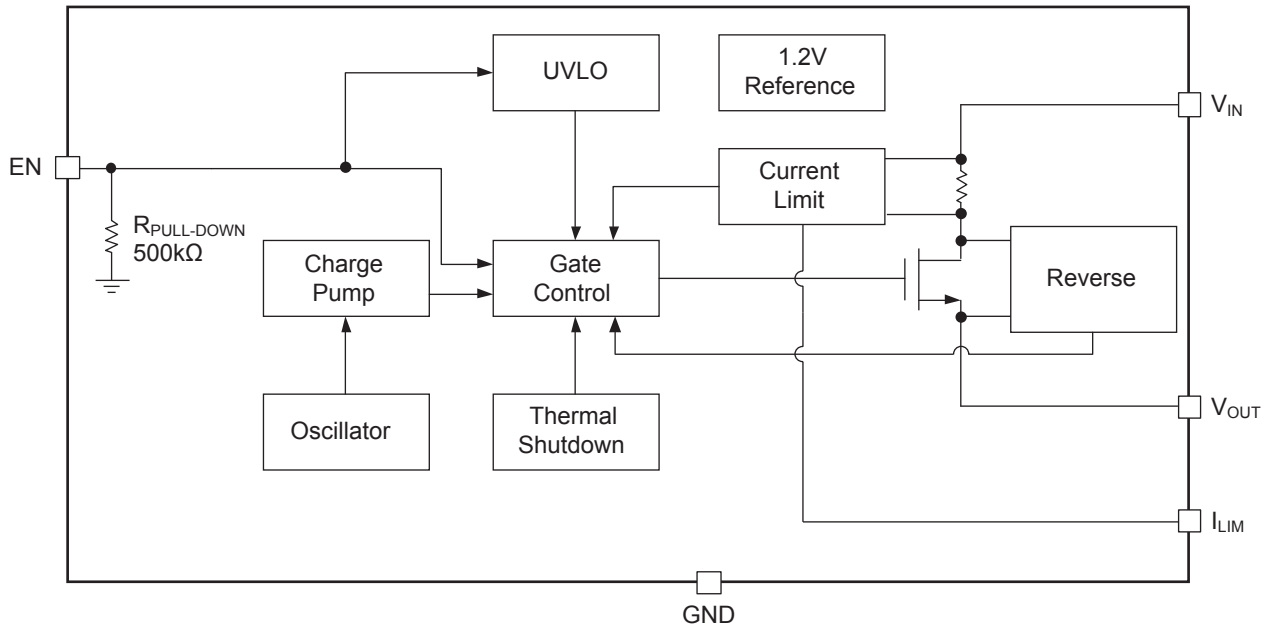


Turn-On (Rise) Time vs. Temperature

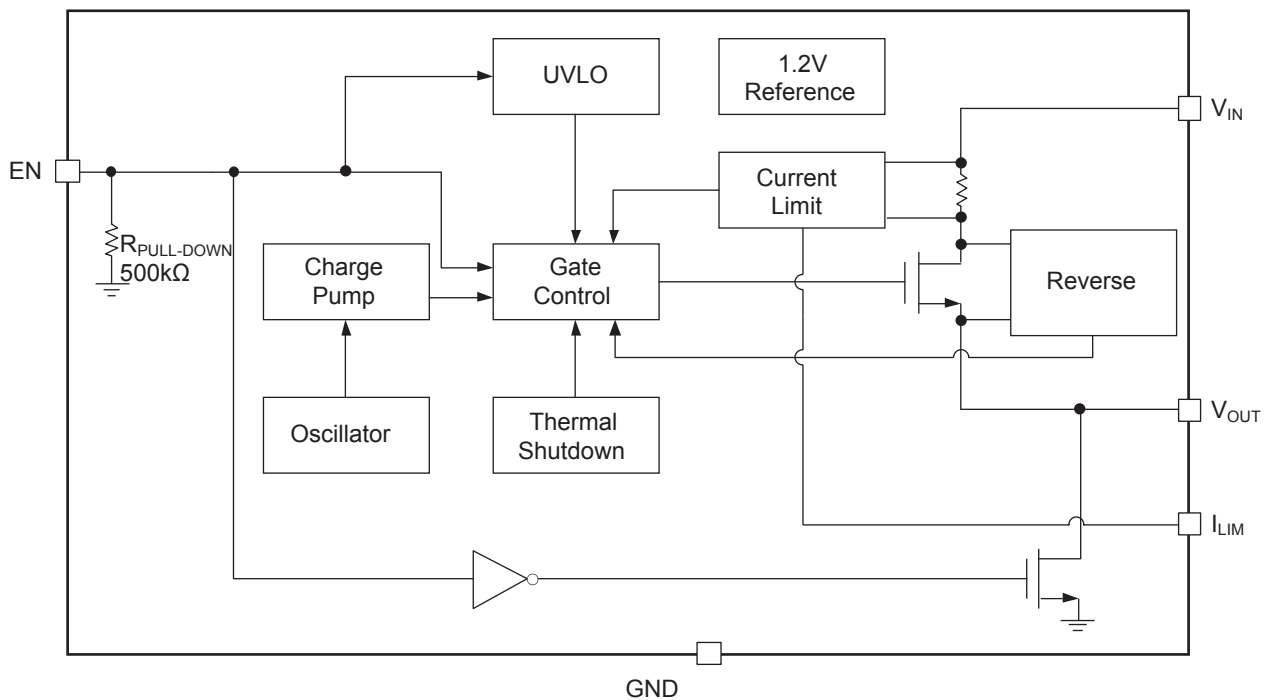


Turn-On (Rise) Time vs. Input Voltage

FUNCTION BLOCK



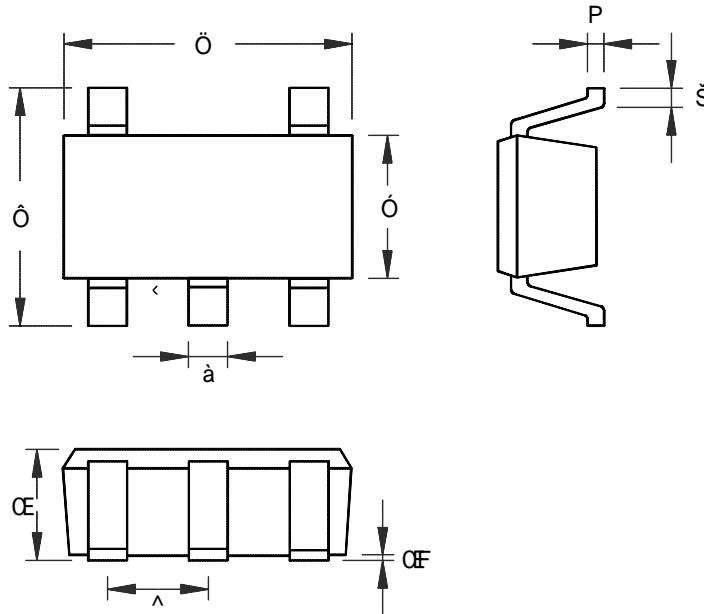
ACP1263D Functional Block Diagram



ACP1263D (With Discharge) Functional Block Diagram

PACKAGE INFORMATION

- SOT25



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024