

High Input Voltage Charger (OVP)

GENERAL DESCRIPTION

The PW2606B is a front-end over voltage and over current protection device. It achieves wide input voltage range from 2.5VDC to 40VDC. The over voltage threshold can be programmed externally or set to internal default setting. The low resistance of integrated power path nFET switch ensures better performance for battery charging system applications. It can deliver up to 1A current to satisfy the battery supply system. It integrates the over-temperature protection shutdown and auto-recovery circuit with hysteresis to protect against over current events.

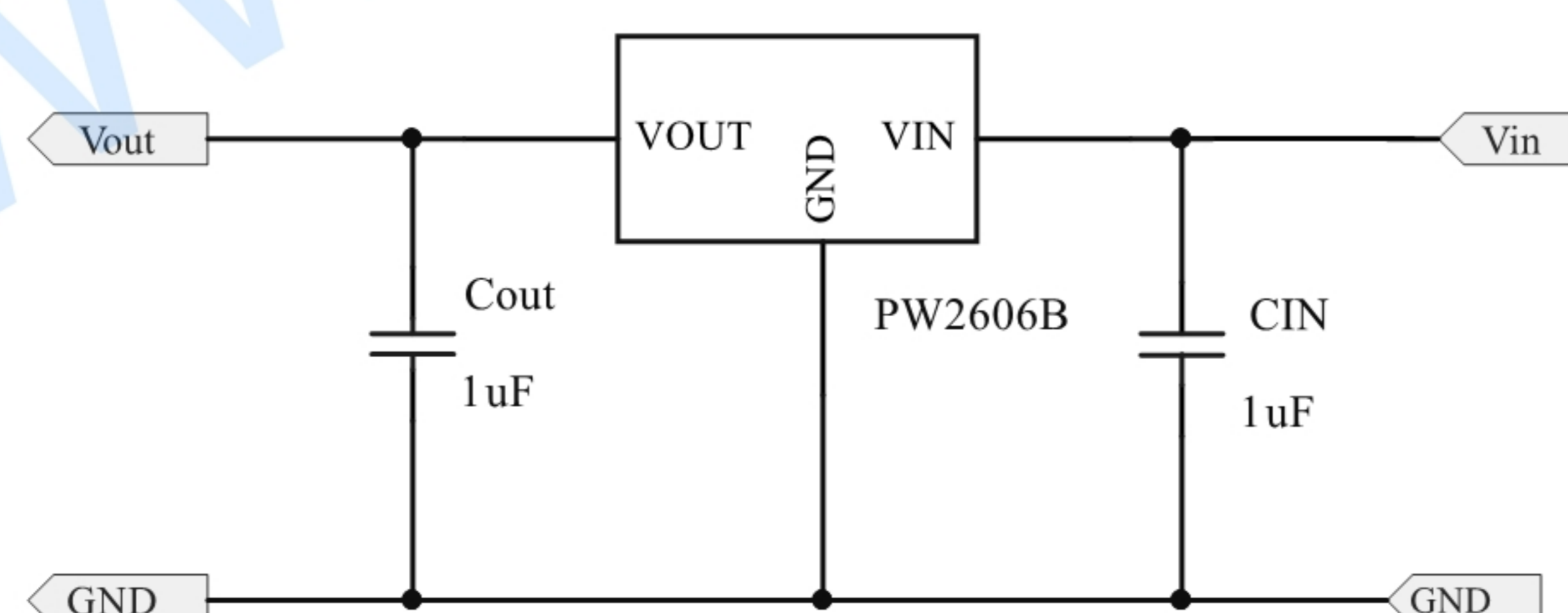
FEATURES

- Absolute maximum input voltage: 40V
- Maximum load current : 1A
- Low power path resistance : 350mΩ (Typ.)
- Fixed Internal OVP threshold :6.1 (Typ.)
- OVP response time : 50ns
- Internal 15- ms Start-Up or OVP Recovery Delay
- Compact package :SOT23-6L
- OVP: PW2605 (350mΩ); PW2609A (35mΩ)
- OVP+OCP: PW1558 (3V ~ 20V 5.8A); PW1515 (3.5V~6V 2A)
PW1605 (4V ~ 48V 5A)
- Programmable over voltage threshold : 4V to20V
- Internal soft start to prevent In-rush current
- Thermal shutdown protection & Auto recovery
- Output short-circuit protection
- RoHS compliant and Halogen free

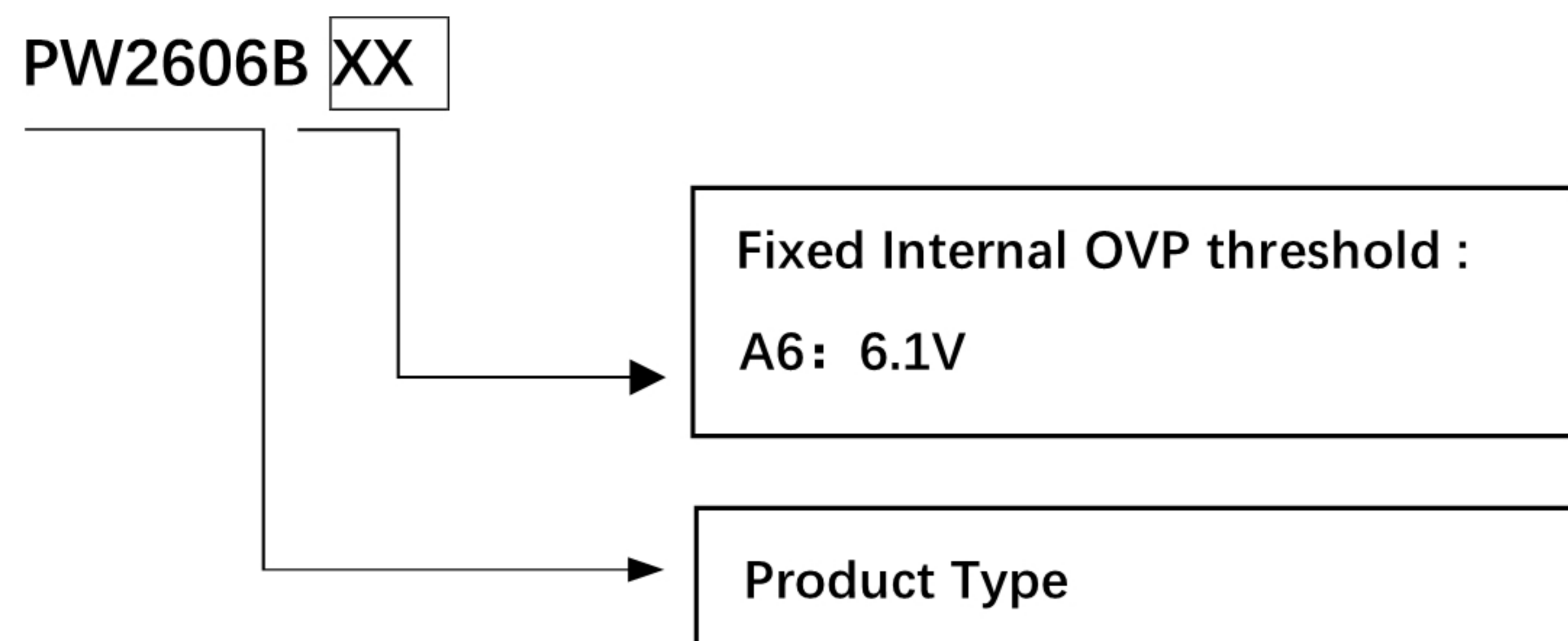
APPLICATIONS

- Smart Device
- Battery Supplied System
- Wearable Device

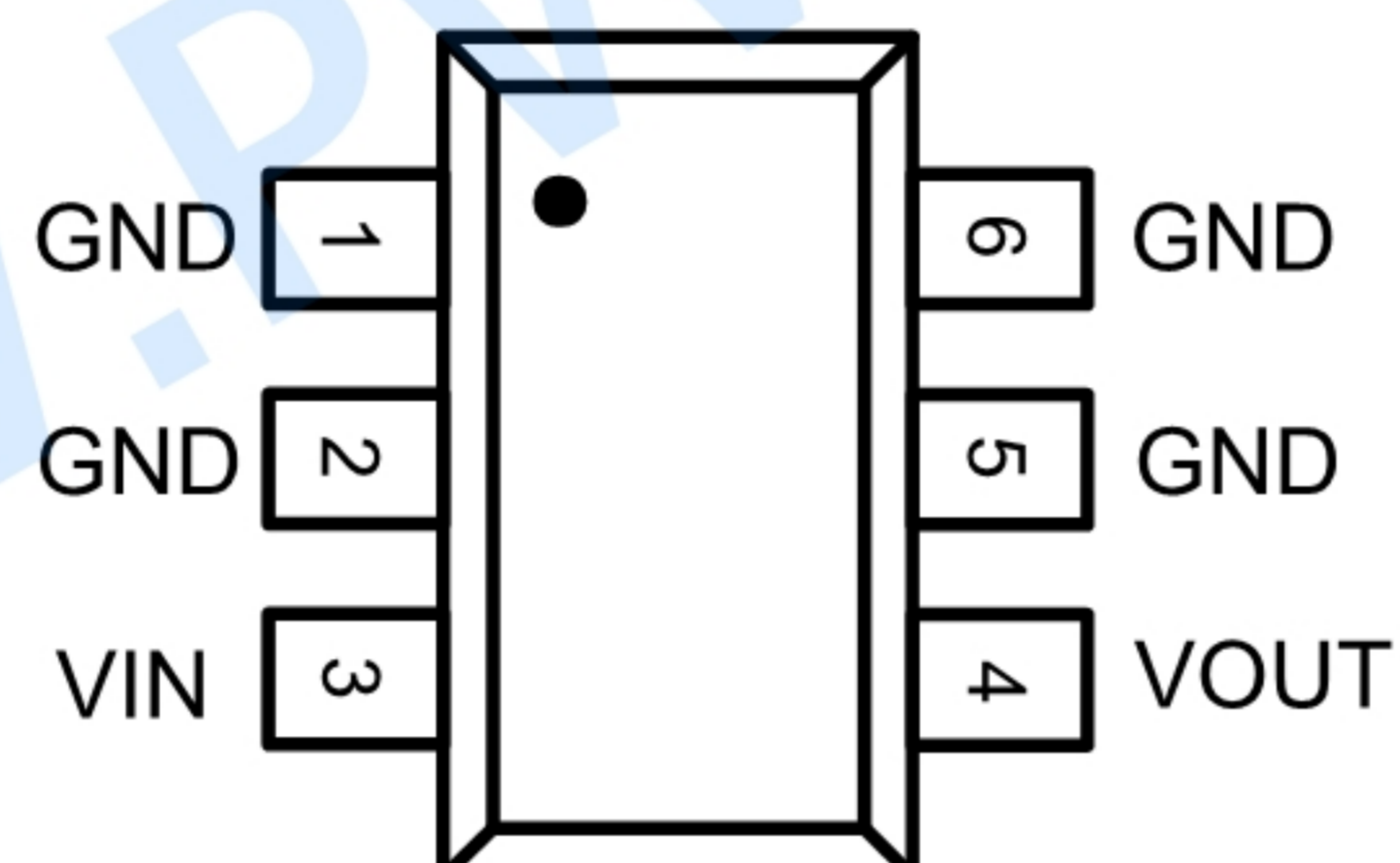
TYPICAL APPLICATION CIRCUIT



Selection Guide



PIN ASSIGNMENT/DESCRIPTION



Pin No	Pin Name	Functions
3	VIN	Power input pin. Decouple high frequency noise by connecting at least 0.1uF MLCC to ground.
4	VOUT	Output voltage pin. Source side of the internal nFET.
1,2,5,6	GND	Power ground pin.

Products

Reel /outer anti-static packaging	Product	
 <p>NO: 1. QR code content: WWW.PWCHIP.COM; 2. Product: PWCHIP product model name; 3. Lot No: wafer batch code/internal system production code (customers can send this code to support@pwchip.com to verify product information and confirm); 4. D/C: packaging cycle; 5. QTY: packaging quantity (box/disc); 6. Data: packaging time.</p>	PW2606BA6	
	Brand	Package
	平芯微/PWCHIP	SOT23-6L
	Specification	Qty per reel
	Taping & Reel	3000 PCS
	Marking	
GXXXX		
Device code: G; Lot number code: XXXX .		

RECOMMENDED OPERATING RANGE

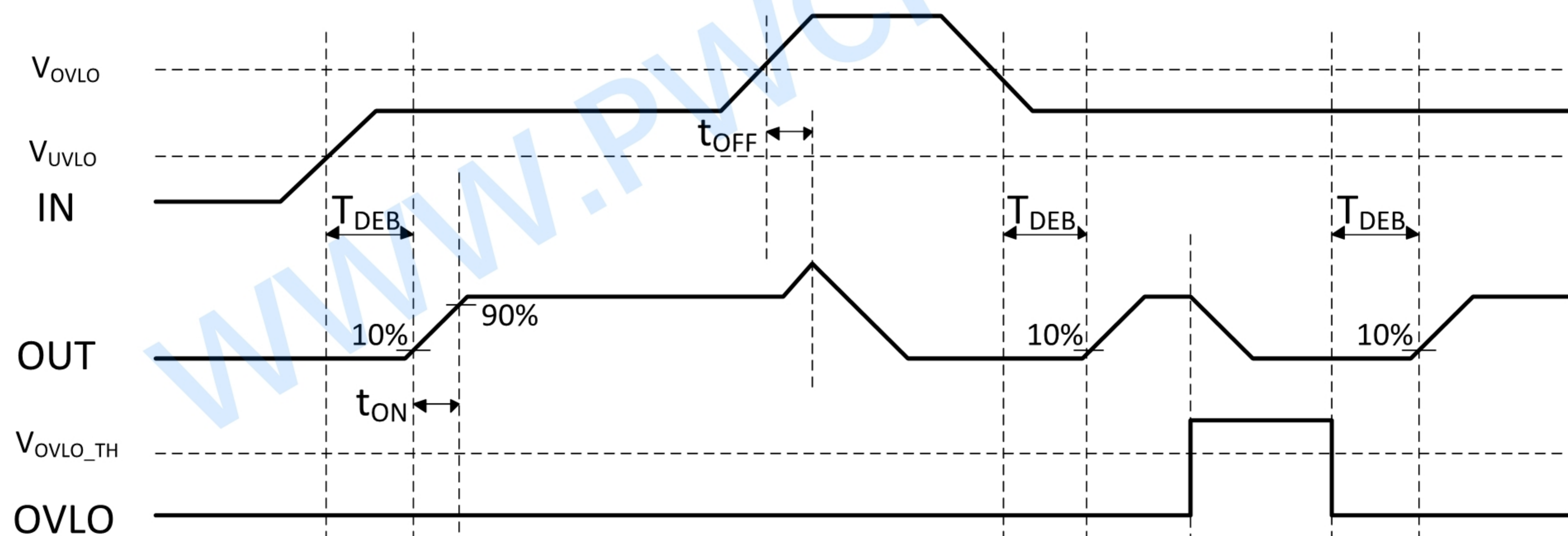
SYMBOL	ITEMS	VALUE	UNIT
VIN	Input Supply Voltage	2.5 to 20	V
VOUT	Output Voltage	< 15	V
IOUT	Continue Output Current	<1	A
VOVLO	OVLO Voltage	0 to 20	V
CIN	Input capacitance	1	uF
Cout	Output load capacitance	1	uF
TOPT	Operating Temperature	-40 to +85	°C

Absolute Maximum Ratings (note)

SYMBOL	ITEMS	VALUE	UNIT
VIN	Input Voltage	-0.3~40	V
Vout	Output Voltage	-0.3~15	V
VOVLO	OVLO Voltage	-0.3~20	V
IOMAX	Maximum Output Continues Load Current	1	A
RθJA	Thermal Resistance DFN-2x2-8L	118	°C/W
TJ	Junction Temperature	-40-150	°C
TSTG	Storage Temperature	-55 ~ +150	°C
TSOLDER	Package Lead Soldering Temperature (10s)	260	°C
ESD MM	Machine Mode	TBD	KV
ESD HBM	Human Body Mode	TBD	KV
ESD CDM		TBD	V

Note: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

TIMING DIAGRAM



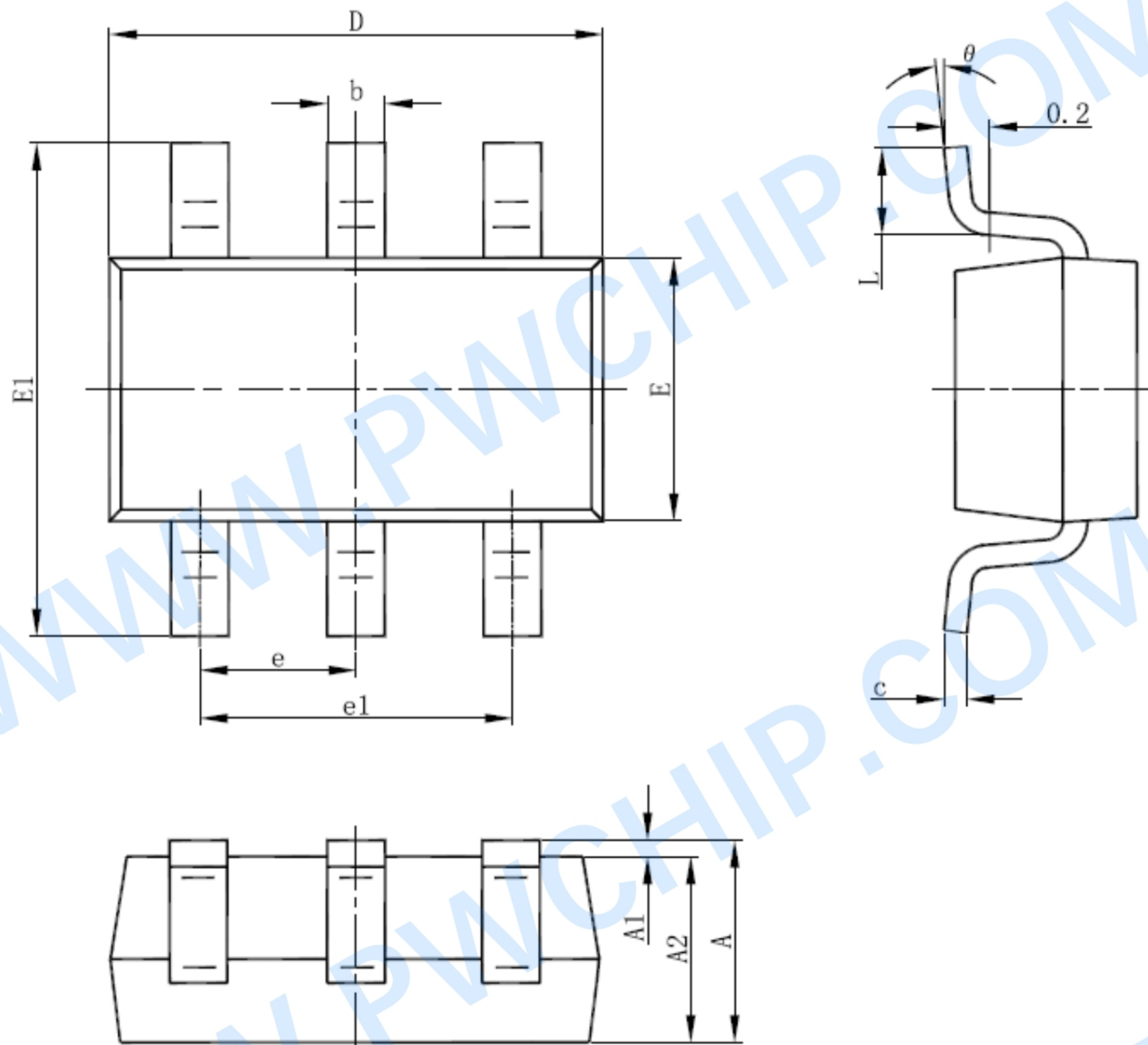
ELECTRICAL CHARACTERISTICS

($V_{IN} = 2.8V$ to $40V$, $C_{IN}=1\mu F$, $C_{OUT}=1\mu F$, $T_A=25\text{ }^\circ\text{C}$, unless otherwise noted.)

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	UNIT	
Input Voltage	V_{IN}		2.8		40	V	
Input UVLO Threshold	V_{UVLO}				2.4	V	
UVLO Hysteresis	V_{HYS}			100		mV	
Input Quiescent Current	I_Q	$V_{IN}=5V, V_{IN}<V_{OVLO}$		TBD		μA	
OVLO Input Leakage Current	I_{OVLO}	$V_{OVLO}=V_{OVLO_TH}$	-100		100	nA	
Internal Default OVP Threshold	V_{OVLO}	Rising	PW2606BA5	5.67	5.85	6.03	V
			PW2606BA6	5.8	6.1	6.4	
			PW2606BB6	6.6	6.8	7.0	
			PW2606BA0	10.0	10.5	11.0	
			PW2606BAD	13.5	14.0	14.5	
Internal OVP Hysteresis	V_{OVLO_HYS}	Falling		150		mV	
OVLO Preset Threshold	V_{OVLO_TH}	Rising	1.14	1.2	1.26	V	
OVLO Hysteresis		Falling		20		mV	
External OVLO Select Threshold	V_{OVLO_SEL}			0.2	0.28	V	
Programmable OVLO range	V_{OVPPR}		4		20	V	
On Resistance of power path	R_{ON}	$V_{IN}=5V, I_{OUT}=500mA$, from IN to OUT		350		$m\Omega$	
Startup or OVP Recovery Debounce Time	T_{DEB}	Time from $2.5V < V_{IN} < V_{OVLO}$ to $V_{OUT}=10\%$ of V_{IN}		15		mS	
Soft start Turn-On Time	t_{ON}	$V_{IN}=5V, R_L=100, C_{OUT}=100\mu F$; $V_{OUT}=10\%$ of V_{IN} to $90\% V_{IN}$		2		mS	
OVP Switch Turn-Off Time	t_{OFF}	$V_{IN} > V_{OVLO}$ to V_{OUT} stop rising		50	100	nS	
Output Discharge Resistance	R_{DISC}	OVP Triggered		200		Ω	
Thermal Shutdown Temperature	T_{SD}			150		$^\circ\text{C}$	
Thermal Shutdown Hysteresis	T_{HYS}			20		$^\circ\text{C}$	

PACKAGE DESCRIPTION

SOT23-6L



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.900	1.450
A1	0.000	0.150
A2	0.900	1.300
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°