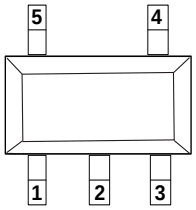
GENERAL DESCRIPTION

The HTPS763xxDBVR series is a set of low voltage differential (LDO) converters with a wide voltage input range of 3.0V to 10V, low voltage differential, low power consumption, and miniaturized packaging. The output voltage range is 3.0-5.0V, and the HTPS763xxDBVR has low static current characteristics as low as 8.0uA. The circuit also has a CE enable control port, which can put the circuit into sleep mode. It is particularly suitable for battery powered and long-term standby system equipment applications, helping to reduce standby power consumption of system equipment, effectively extending standby time and battery life.

PIN CONFIGURATION



SOT-23-5L

FEATURES

- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 10V
- Quiescent Current 8.0μA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 150mA

PIN DESCRIPTION

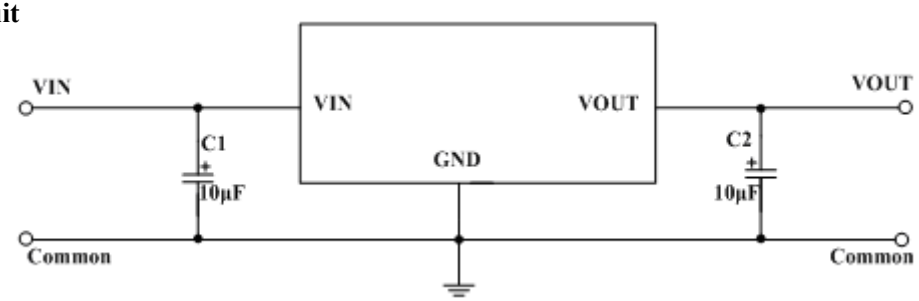
PIN No. SOT-23-5L	Name	Functions Description
1	V_{IN}	input
2	GND	ground
3	CE	ON / OFF
4	NC	No Connect
5	V_{OUT}	output

TYPICAL APPLICATIONS

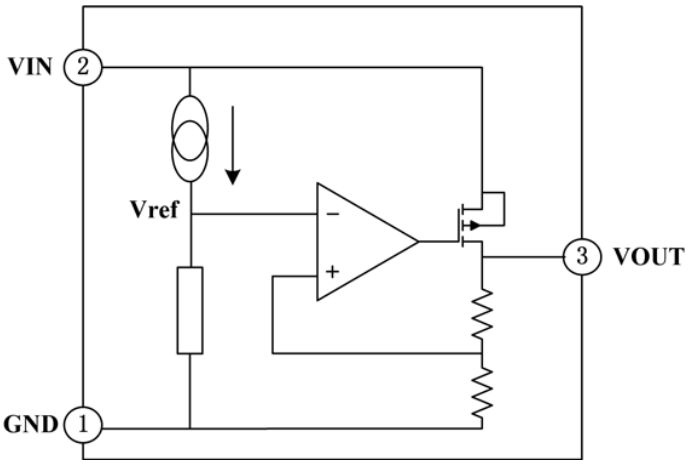
- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments
- Smart Battery Packs
- Smoke Detectors
- CO2 DETECTORS

TYPICAL APPLICATION CIRCUIT

Basic Circuit



FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Description	Symbol	Value range	Unit
Limit Power Voltage	V_{IN}	−0.3～+12	V
Storage Temperature Range	T_{STG}	−50～+125	℃
Operating Free-air Temperature Range	T_A	−30～+85	℃
Thermal resistance	θ_{JA}	500	℃/W
Power dissipation	P_W	200	mW

Note : 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.

DC CHARACTERISTICS (unless otherwise noted T_A =＋25°C)

(V_{IN}= V_{OUT}+2.0V，C_{IN}=C_L=10uF，Ta=25°C, unless otherwise noted)

Series +3.0V OUTPUT

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.94	3.00	3.06	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	—	150	—	mA
Load Regulation	△V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	30	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	—	50	100	mV
Quiescent Current	I_{SS}	No Load	—	8.0	11	μA
Line Regulation	△V_{OUT}/ V_{OUT}* △V_{IN}	V_{OUT}+1.0V≤V_{IN}≤10V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	10	V
Temperature Coefficient	△V_{OUT}/ △T_A*V_{OUT}	V_{IN}= V_{OUT}+2.0V， I_{OUT}=10mA， -40℃≤T_A≤85℃	—	100	—	ppm/℃

Note : When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DIF}=V_{IN}-V_{OUT}.

Series +3.3V OUTPUT

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	3.234	3.30	3.366	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	—	150	—	mA
Load Regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	40	80	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA，△V_{OUT}=2%	—	30	60	mV
Quiescent Current	I_{SS}	No Load	—	8.0	10	μA
Line Regulation	△V_{OUT}/ V_{OUT}* △V_{IN}	V_{OUT}+1.0V≤V_{IN}≤10V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	10	V
Temperature Coefficient	△V_{OUT}/ △T_A*V_{OUT}	V_{IN}= V_{OUT}+2.0V， I_{OUT}=10mA， -40℃≤T_A≤85℃	—	100	—	ppm/℃

Note : When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DIF}=V_{IN}-V_{OUT}.

Series +5.0V OUTPUT

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V ， I_{OUT}=10mA	4.9	5.0	5.1	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	—	200	—	mA
Load Regulation	$\triangle V_{OUT}$	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤70mA	—	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA，$\triangle V_{OUT}$=2%	—	25	55	mV
Quiescent Current	I_{SS}	No Load	—	8.0	10	μA
Line Regulation	$\triangle V_{OUT}$/ V_{OUT}* $\triangle V_{IN}$	V_{OUT}+1.0 V≤V_{IN}≤10V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	10	V
Temperature Coefficient	$\triangle V_{OUT}$/ $\triangle T_A$*V_{OUT}	V_{IN}= V_{OUT}+2.0V， I_{OUT}=10mA， -40℃≤T_A≤85℃	—	100	—	ppm/℃

Note : When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DIF}=V_{IN}-V_{OUT}.

FUNCTIONAL DESCRIPTION

HTPS763xxDBVR series are linear voltage regulator ICs withstanding 10V voltage.

The series IC consists of a voltage reference, an error amplifier, a current limiter and a phase compensationcircuit plus a driver transistor.

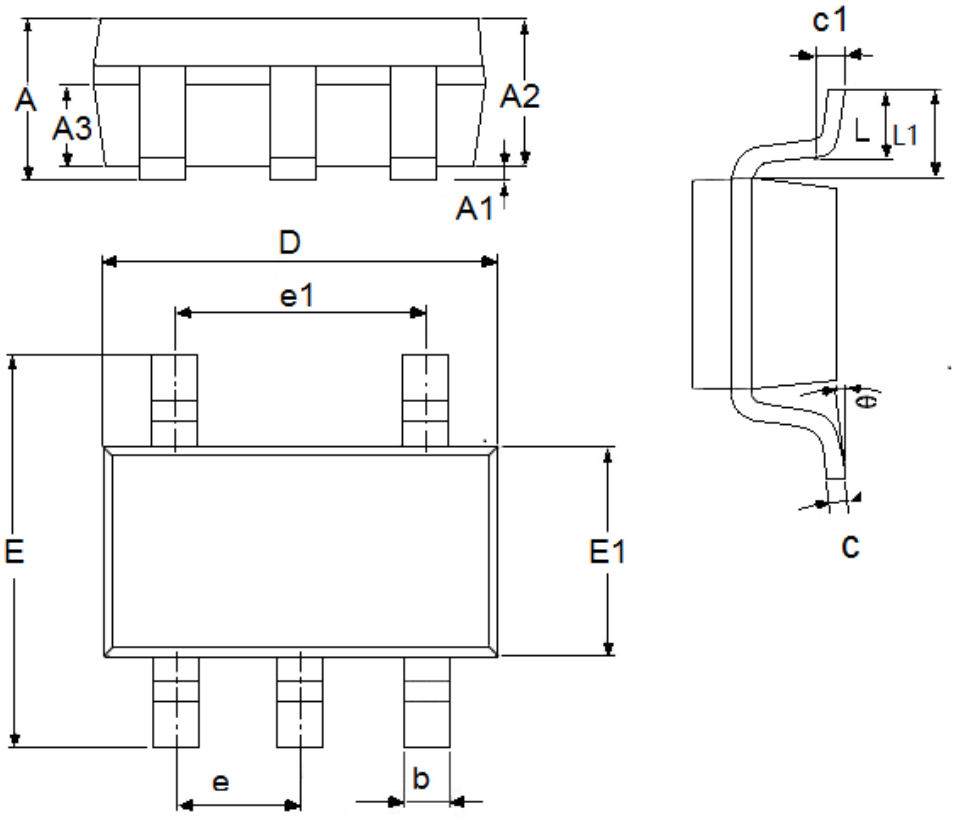
The output stabilization capacitor is also compatible with low ESR ceramic capacitors.

The over current protection circuit and the over voltage protection circuit are built-in.

The protection circuit will operate when the output current or input voltage reaches limit level.

PACKAGEIN FORMATION

- SOT-23-5L



Symbol	Dimensions in Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.05	1.45	0.0413	0.0571
A1	0	0.15	0.0000	0.0059
A2	0.9	1.3	0.0354	0.0512
A3	0.6	0.7	0.0236	0.0276
b	0.25	0.5	0.0098	0.0197
c	0.1	0.23	0.0039	0.0091
D	2.82	3.05	0.1110	0.1201
e1	1.9(TYP)		0.0748(TYP)	
E	2.6	3.05	0.1024	0.1201
E1	1.5	1.75	0.0512	0.0689
e	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232(TYP)	
θ	0	8°	0.0000	8°
c1	0.2(TYP)		0.0079(TYP)	

Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.