200mA Low Power CMOS LDO

■ *DESCRIPTION*

The UP73XX-1 series is a set of three-terminal low power high voltage implemented in CMOS technology. They can deliver 200mA output current and allow an input voltage as high as 30V. They are available with several fixed output voltages ranging from 2.1V to 5.5V. CMOS technology ensure low voltage drop and low quiescent current

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents

■ *FEATURE*

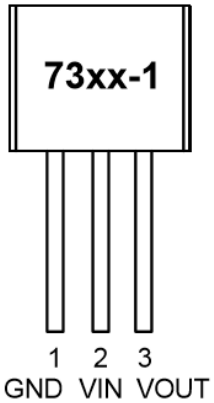
- ***Low power consumption***
- ***Low voltage drop***
- ***Low temperature coefficient***
- ***High input voltage 30V***
- ***Quiescent current 2.5uA***
- ***High output current 200mA***
- ***Output voltage accuracy : tolerance 3%***
- ***SOT89, TO92, SOT23-5 packages***

■ *APPLICATIONS*

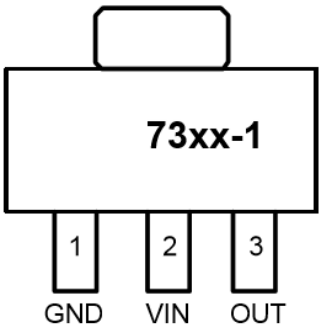
- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

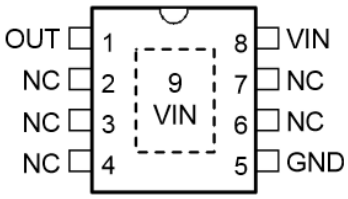
■ *PIN CONFIGURATION*

TO-92



SOT89-3





8 SOP-A
(Exposed Pad)

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■ PART NUMBER INFORMATION

UP73XXA-1-BBC	XX=Voltage A=Package Code S: SOT89 T: TO92 s:SOT23-5L BB=Handing Code TR: Tape&Reel C=Lead Plating Code G: Green Product

■ ORDERING INFROMATION

Part Number	Output Voltage	Package	Marking
UP7350S-1-TRG	5.0	SOT89	1000EA / T&R
UP7350T-1-TRG	5.0	TO92	500EA / BAG
UP7350s-1-TRG	5.0	SOT23-5L	3000EA / T&R

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ Unless otherwise noted)

Symbol	Parameter	Typical	Unit
$V_{IN(MAX)}$	Supply Voltage	35	V
T_J	Operation Junction Temperature	150	℃
T_{STG}	Storage Temperature Range	-55~+150	℃
T_P	Operation Temperature	-40~+80	℃

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied

■ THERMAL DATA

Symbol	Parameter	Package	Max	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	SOT23-3L	500	℃/W
		SOT89	200	℃/W
		TO92	200	℃/W
P_D	Power Dissipation	SOT23-3L	0.2	W
		SOT89	0.5	W
		TO92	0.5	W

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■ *ELECTRICAL CHARACTERISTICS(T_A=25℃ Unless otherwise noted)*

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_{IN}	Input Voltage				30	V
V_{OUT}	Output Voltage	$V_{IN}=V_{OUT}+2V$, $I_{OUT}=10mA$	$V_{OUT}*0.97$		$V_{OUT}*1.03$	V
I_{OUT}	Output Current	$V_{IN}=V_{OUT}+2V$	180	200		mA
ΔV_{OUT}	Load Regulation	$V_{IN}=V_{OUT}+2V$, $1mA \le I_{OUT} \le 50mA$		25	60	mV
V_{DIF}	Dropout Voltage	$I_{OUT}=1mA, \Delta V_{OUT}=2\%$		30	100	mV
I_{SS}	Quiescent Current	No Load		2.2	4.0	uA
$\Delta V_{OUT}/\Delta V_{IN}*V_{OUT}$	Line Regulation	$V_{OUT}+1V \le V_{IN} \le 30V$, $I_{OUT}=1mA$			0.2	%V

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at $V_{IN}=V_{OUT}+2V$ with a fixed load

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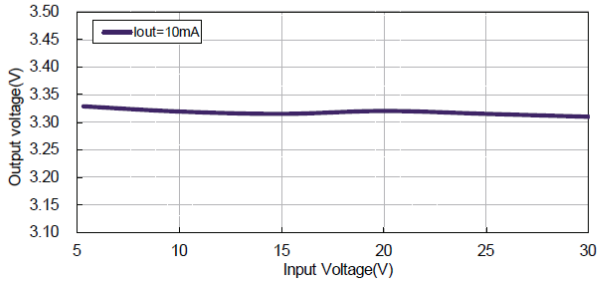
■ *TYPICAL PERFORMANCE CHARACTERISTICS*

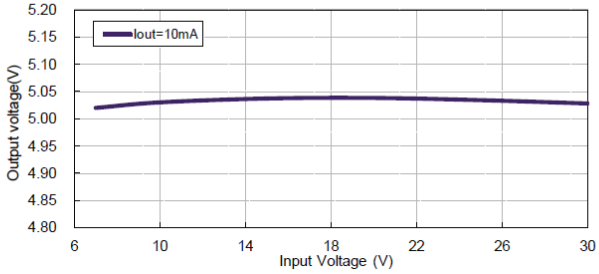
Test Condition : $V_{IN}=V_{OUT}+2V$, $I_{OUT}=10mA$, $T_J=25℃$, unless otherwise noted

Output Voltage vs Input Voltage

UP7333-1

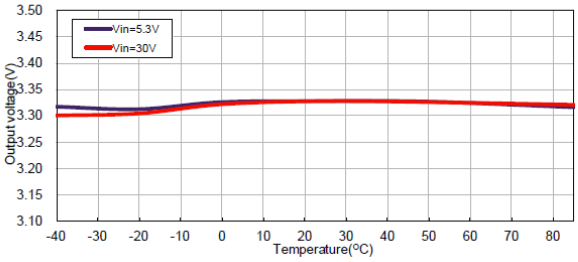


UP7350-1



Output Voltage vs Temperature

UP7333-1



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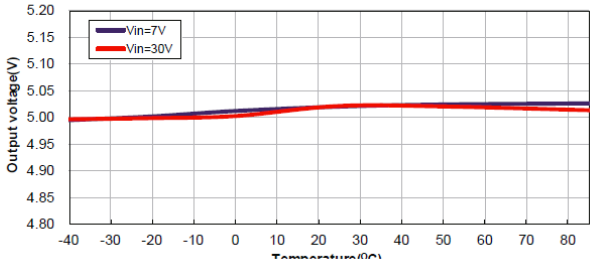
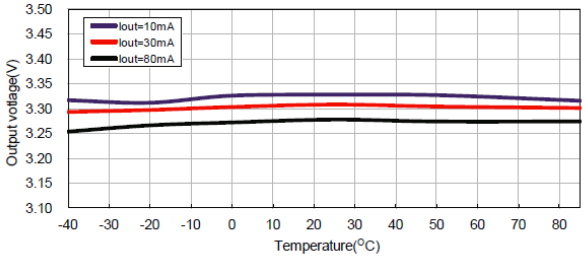


Output Voltage vs Temperature

UP7333-1



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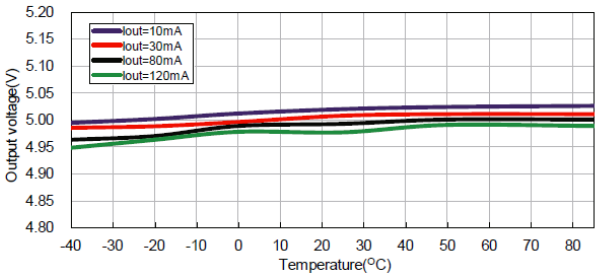
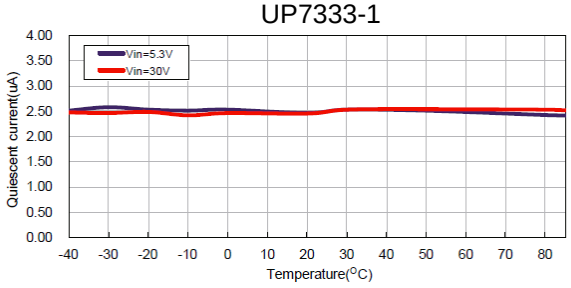


Quiescent current (Iout=0mA) vs Temperature

UP7333-1



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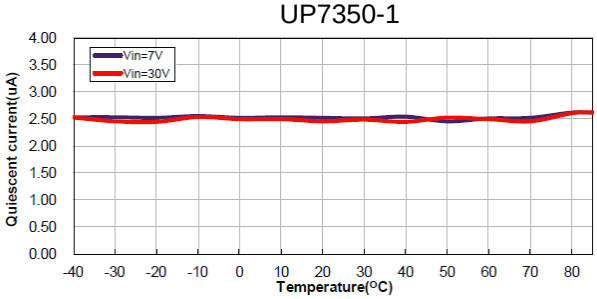

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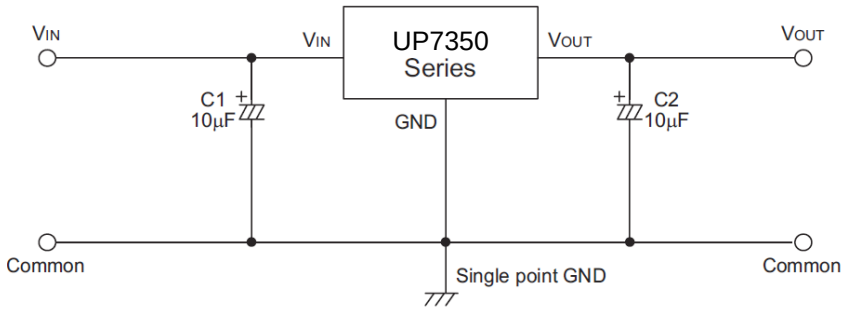
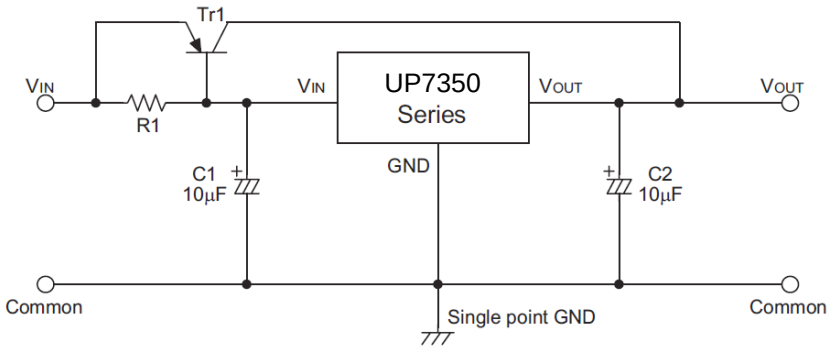
■ *APPLICATION CIRCUITS*

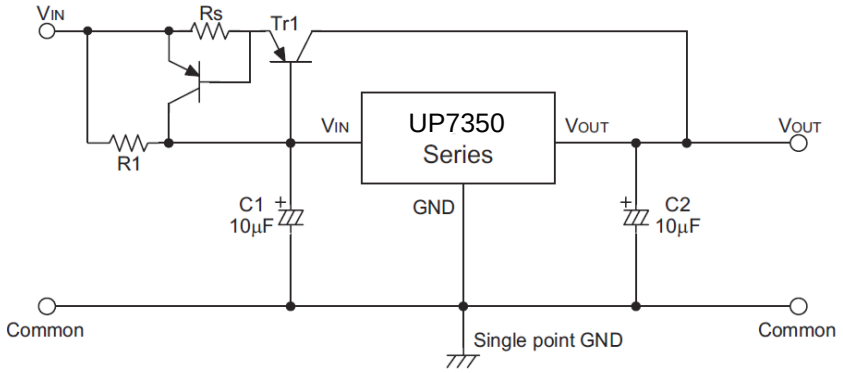
Basic Circuit



High Output Current Positive Voltage Regulator



Short-Circuit Protection for Tr1



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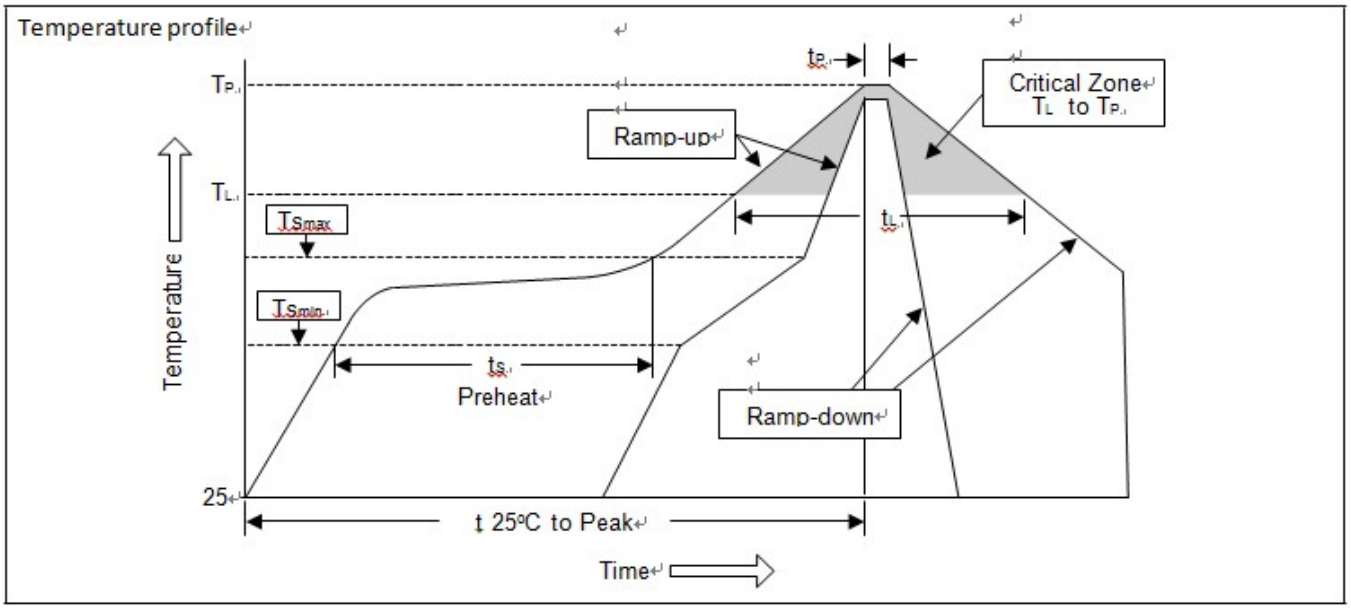
■ *SOLDERING METHODS FOR UNIVERCHIP*

Storage environment Temperature=10℃~35℃ Humidity=65%±15%

Reflow soldering of surface mount device



Profile Feature	Sn-Pb Eutectic Assembly	Pb free Assembly
Average ramp-up rate (T_L to T_P)	<3℃/sec	<3℃/sec
Preheat -Temperature Min (Ts_{min}) -Temperature Max (Ts_{max}) -Time (min to max) (ts)	 100℃ 150℃ 60~120 sec	 150℃ 200℃ 60~180 sec
Tsmax to T_L -Ramp-up Rate	<3℃/sec	<3℃/sec
Time maintained above -Temperature (T_L) -Time (t_L)	 183℃ 60~150 sec	 217℃ 60~150 sec
Peak Temperature (T_P)	240℃+0/-5℃	260℃+0/-5℃
Time within 5℃ of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6℃/sec	<6℃/sec
Time 25℃ to Peak Temperature	<6 minutes	<6 minutes

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Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245℃±5℃	5sec±1sec
Pb-Free device	260℃+0/-5℃	5sec±1sec

This integrated circuit can be damaged by ESD UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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