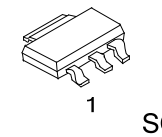
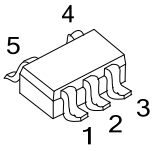
SUPER LOW ON RESISTANCE / LOW VOLTAGE 1A LDO



SOT-223



SOT-25

■ DESCRIPTION

The UTC **LR9272** is a typical LDO (linear regulator) with the features of high output voltage accuracy, low supply current, low ON-resistance, super low dropout, 1A output current capability, and high ripple rejection.

During operation of the UTC **LR9272**, the dropout voltage is very low, Even the output voltage is set at 1.5V, on resistance of internal FET is typically 0.32Ω. Therefore, applications that require a large current at small dropout are suitable for the UTC **LR9272** series. Low input voltage is acceptable and low output voltage can be set. The minimum input voltage is 1.4V, and the lowest set output voltage is 0.8V, and the response of line transient and load transient are very well.

Internally, there're many functions of UTC **LR9272** which can be seen in the block figure. There are a voltage reference unit, an error amplifier, resistor-net for voltage setting, a current limit circuit, and a chip enable circuit in each UTC **LR9272**.

The UTC **LR9272** can be used as an ideal of the power supply for hand-held communication equipment, such as: power source for portable communication equipment, power source for electrical appliances, for example, cameras, VCRs and camcorders and power source for battery-powered equipment.

■ FEATURES

* Low standby current (TYP=0.1μA)
* Ultra-Low supply current (TYP=60μA)
* Output current (MIN=1A@V_{IN}=V_{OUT}+1.0V)
* Output voltage accuracy (±2.0%)
* Input voltage range (1.4V~6.0V)
* Output voltage (0.8V~5.0V)
* Dropout voltage (TYP=0.18V@V_{OUT}=3.0V, I_{OUT}=1A)
* Ripple rejection (TYP=70dB @ V_{OUT}=3.0V)
* Line regulation (TYP=0.05%/V)
* Low temperature-drift coefficient of output voltage
* Built-in thermal shuntdown circuit
* Built-in inrush current limit circuit
* Built-in fold-back protection circuit
* Built-in auto discharge function

■ ORDERING INFORMATION

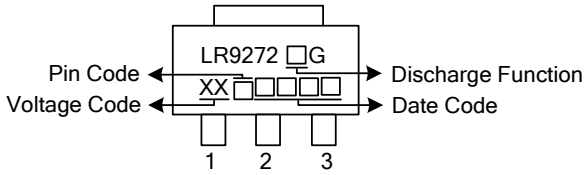
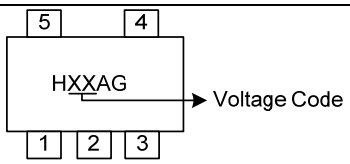
Ordering Number	Package	Pin Assignment				Packing
		Pin Code	1	2	3	
LR9272G-xx-AA3-C-R	SOT-223	C	G	I	O	Tape Reel
LR9272G-xx-AF5-R	SOT-25	Refer to PIN CONFIGURATION				Tape Reel

Note: xx: Output Voltage, refer to Marking Information.

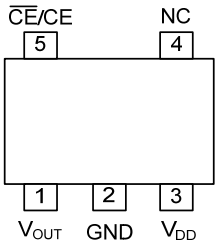
LR9272xG-xx-AA3-C-R
- (1)Packing Type
- (2)Pin Assignment
- (3)Package Type
- (4)Output Voltage Code
- (5)Green Package
- (6)Discharge Function

(1) R: Tape Reel
(2) refer to Pin Assignment
(3) AA3: SOT-223, AF5: SOT-25
(4) xx: refer to Marking Information
(5) G: Halogen Free and Lead Free
(6) A: "L" active, without auto discharge function at off state
B: "H" active, without auto discharge function at off state

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-223	25: 2.5V 33: 3.3V 50: 5.0V	
SOT-25		

■ PIN CONFIGURATION(For SOT-25)

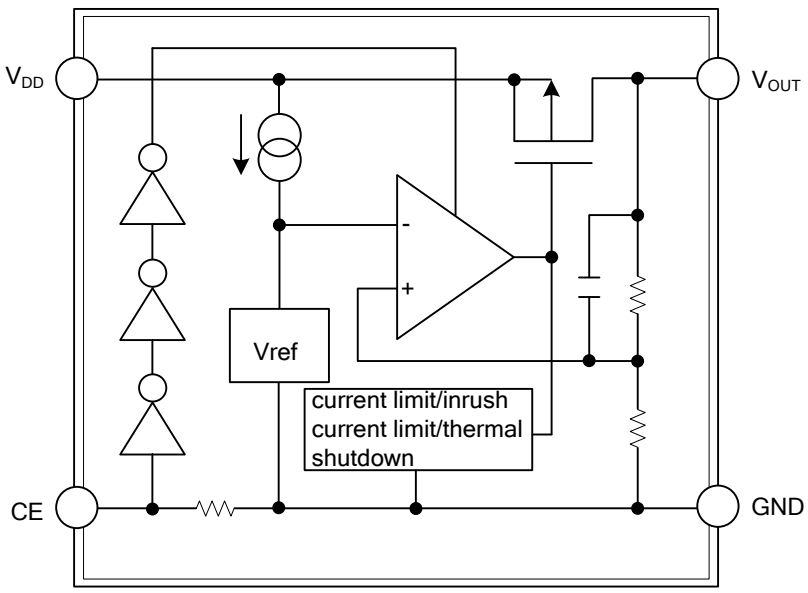


■ PIN DESCRIPTION(For SOT-25)

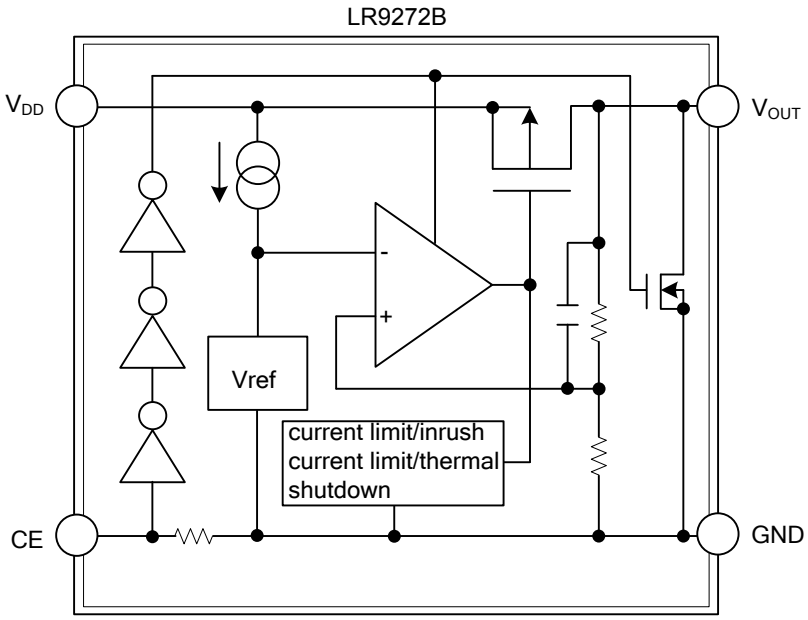
PIN NO.	PIN NAME	DESCRIPTION
1	V_{OUT}	Voltage regulator output pin
2	GND	Ground pin
3	V_{DD}	Input pin
4	NC	No connection
5	$\overline{CE}$ or CE	Chip enable pin

■ BLOCK DIAGRAM

LR9272A



LR9272B



■ ABSOLUTE MAXIMUM RATING (T_A= 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	6.5	V
Input Voltage($\overline{CE}$ or CE Input Pin)	V_{CE}	-0.3~6.5	V
Output Voltage	V_{OUT}	-0.3~V_{IN}+0.3	V
Power Dissipation	P_D	420	mW
Operating Temperature	T_{OPT}	-40~85	°C
Storage Temperature	T_{STG}	-55~125	°C

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

■ ELECTRICAL CHARACTERISTICS (T_A= 25°C, unless otherwise specified)

LR9272A/B-xx

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}			1.4		6.0	V
Supply Current	I_{SS}	V_{IN}-V_{OUT}=1.0V, V_{IN}=V_{CE}, I_{OUT}=0A			60	100	μA
Standby Current	I_{STB}	V_{IN}=6.0V, V_{CE}=0V			0.1	1.0	μA
Output Voltage	V_{OUT}	V_{IN}-V_{OUT}=1.0V, I_{OUT}=100mA	V_{OUT}>1.5V	x0.98		x1.02	V
			V_{OUT}≤1.5V	-30		+30	mV
Load Regulation	$\Delta V_{OUT}/\Delta I_{OUT}$	V_{IN}-V_{OUT}=0.3V, 1mA≤I_{OUT}≤300mA, If V_{OUT}≤1.1V, then V_{IN}=1.4V		-15	15	30	mV
		V_{IN}-V_{OUT}=0.3V, 1mA≤I_{OUT}≤1A, If V_{OUT}≤1.1V, then V_{IN}=1.7V			50		mV
Dropout Voltage	V_{DIF}	0.8≤V_{OUT}<0.9	I_{OUT}=300mA		0.33	0.57	V
			I_{OUT}=1A		0.72		V
		0.9≤V_{OUT}<1.0	I_{OUT}=300mA		0.22	0.47	V
			I_{OUT}=1A		0.64		V
		1.0≤V_{OUT}<1.5	I_{OUT}=300mA		0.18	0.32	V
			I_{OUT}=1A		0.56		V
		1.5≤V_{OUT}<2.6	I_{OUT}=300mA		0.10	0.15	V
			I_{OUT}=1A		0.32		V
		2.6≤V_{OUT}	I_{OUT}=300mA		0.05	0.10	V
			I_{OUT}=1A		0.18		V
Line Regulation	$\Delta V_{OUT}/\Delta V_{IN}$	I_{OUT}=100mA, V_{OUT}+0.5V≤V_{IN}≤6.0V, If V_{OUT}≤0.9V, 1.4V≤V_{IN}≤6.0V			0.05	0.20	%/V
Ripple Rejection	RR	f=1kHz, (V_{OUT}≤4.0V)			70		dB
		f=1kHz, (V_{OUT}>4.0V), Ripple 0.5Vp-p, V_{IN}-V_{OUT}=1.0V, I_{OUT}=100mA, If V_{OUT}≤1.2V, V_{IN}-V_{OUT}=1.5V, I_{OUT}=100mA			60		dB
Output Voltage Temperature Coefficient	$\Delta V_{OUT}/\Delta T_{OPT}$	I_{OUT}=100mA, -40°C≤T_{OPT}≤ 85°C			±100		ppm /°C
Output Current	I_{LIM}	V_{IN}-V_{OUT}=1.0V			1		A
Short Current Limit	I_{SC}	V_{OUT}=0V			500		mA
Pull-Down resistance for CE pin	R_{PD}			1.9	5.0	15.0	MΩ
CE Input Voltage “H”	V_{CEH}			1.0		6.0	V
CE Input Voltage “L”	V_{CEL}			0		0.4	V
Thermal Shutdown Temperature	T_{TSD}	Junction Temperature			150		°C
Thermal Shutdown Released Temperature	T_{TSR}	Junction Temperature			120		°C
Output Noise	en	BW=10Hz~100kHz			30		μVrms

■ TYPICAL APPLICATION CIRCUIT