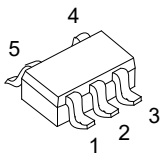
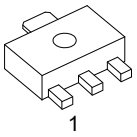
LR9284

CMOS IC

ULTRALOW QUIESCENT CURRENT, 500mA, CMOS LINEAR REGULATOR



SOT-25



SOT-89

■ DESCRIPTION

The UTC **LR9284** is a typical LDO (linear regulator) with the features of high output voltage accuracy, ultralow supply current, low ON-resistance. Internally, there're many functions of UTC **LR9284** 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 **LR9284**.

The output voltage of these ICs is fixed with high accuracy.

■ FEATURES

* Supply current (TYP=0.3μA)
* Output voltage accuracy (±1.5%)
* Input voltage range (2V~7V)
* Dropout voltage (TYP=220mV @ 200mA, V_{OUT}=3.3V)
* Line regulation (TYP=0.1%/V)
* Built-in fold-back protection circuit (TYP=90mA)
  (Current at short mode)

■ ORDERING INFORMATION

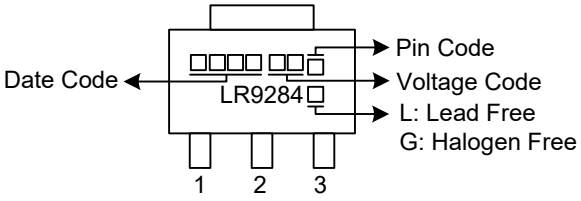
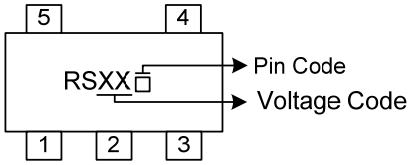
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LR9284L-xx-AB3-C-R	LR9284G-xx-AB3-C-R	SOT-89	Tape Reel
LR9284L-xx-AF5-K-R	LR9284G-xx-AF5-K-R	SOT-25	Tape Reel

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

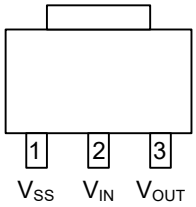
LR9284G-xx-AB3-C-R

(1) Packing Type	(1) R: Tape Reel
(2) Pin Code	(2) refer to PIN CONFIGURATION
(3) Package Type	(3) AB3: SOT-89, AF5: SOT-25
(4) Output Voltage Code	(4) xx: Refer to Marking Information
(5) Green Package	(5) G: Halogen Free and Lead Free, L: Lead Free

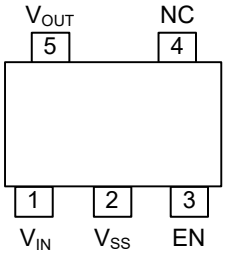
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	15: 1.5V 18: 1.8V 20: 2.0V 22: 2.2V 28: 2.8V 30: 3.0V 33: 3.3V 36: 3.6V 40: 4.0V	
SOT-25		

■ PIN CONFIGURATION



SOT-89

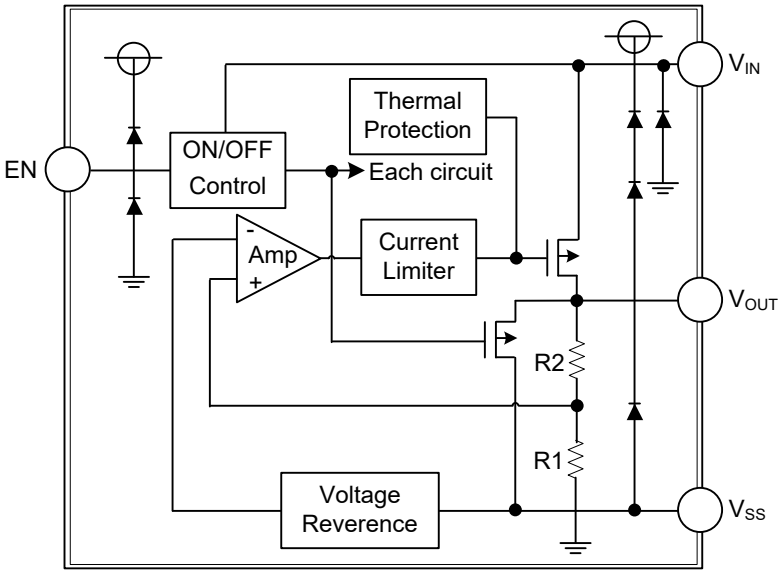


SOT-25

■ PIN DESCRIPTION

PIN NO		PIN NAME	DESCRIPTION
SOT-89	SOT-25		
2	1	V_{IN}	Positive power supply input voltage.
1	2	V_{SS}	Ground
-	3	EN	Chip Enable
-	4	NC	No Connection
3	5	V_{OUT}	Regulated output voltage.

■ BLOCK DIAGRAM



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

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{IN}	9	V
Output Current		I_{OUT}	600	mA
Power Dissipation	SOT-89	P_D	500	mW
	SOT-25		300	mW
Operating Temperature		T_{OPT}	-40 ~ +125	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

Notes: 1. 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.
2. Device mounted on PCB.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	θ_{JA}	200	°C/W
	SOT-25		333	°C/W
Junction to Case	SOT-89	θ_{JC}	50	°C/W
	SOT-25		90	°C/W

Note: Device mounted on PCB.

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT} =1μF, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Input Voltage	V_{in}			2		7	V
DC Output Accuracy	A_{CC}	I_{OUT}=1mA		-1.5		1.5	%
Dropout Voltage	V_{DIF}	I_{OUT}=200mA, V_{OUT}=3.3V			220	250	mV
Supply Current	I_{SS}	I_{OUT}=0mA			0.3	0.7	μA
Shutdown current	ISHDN	V_{EN}=0V				0.1	μA
Load Regulation	ΔV_{OUT}	1mA ≤I_{OUT}≤100mA			10		mV
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT}*\Delta V_{IN}}$	I_{OUT}=1mA V_{OUT}+0.5V≤V_{IN} ≤7V			0.1	0.15	%/V
Output Current Limit	I_{LIM}				550		mA
Short Current	I_{SC}	V_{OUT}=0V			90		mA
EN “High” Voltage	V_{EN} “H”			1.2		V_{IN}	V
EN “Low” Voltage	V_{EN} “L”					0.4	V
Power Supply Rejection Ratio	PSRR	I_{OUT}=100mA	f=200Hz		-72		dB
			f=1kHz		-70		dB
			f=10Hz		-65		dB
Thermal shutdown temperature	T_{SD}				160		°C
Thermal shutdown hysteresis	HYS_{TSD}				20		°C

■ TYPICAL APPLICATION CIRCUIT