

High Input Voltage CMOS LDO Regulator

LR6275 Series

■ INTRODUCTION

The LR6275 series is a set of three-terminal high current low voltage regulator implemented in CMOS technology. They can deliver 150mA output current and allow an input voltage as high as 28V. They are available with several fixed output voltages ranging from 2.8V to 5V. CMOS technology ensures low voltage drop and low quiescent current.

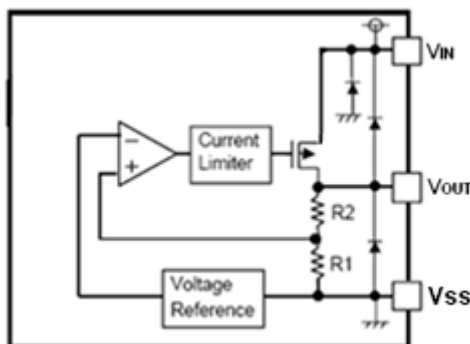
■ FEATURES

- Low power consumption
- Low voltage drop
- Output Voltage Range: 2.8V ~ 5V
- Low temperature coefficient
- High input voltage (up to 28V)
- Output current : 150mA(Typ.)
- Output voltage accuracy: $\pm 2\%$
- Ceramic Capacitor Compatible
- Package: TO-92, SOT-89-3 SOT23-3

■ APPLICATIONS

- Battery-powered equipment
- Audio/Video equipment
- Portable consumer equipments
- Communication equipment

■ BLOCK DIAGRAM



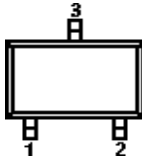
■ ORDER INFORMATION

LR6275①②③④

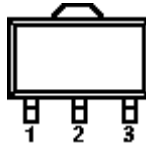
DESIGNATOR	SYMBOL	DESCRIPTION
①	A	Standard
②③	Integer	Output Voltage(2.8~5V) e.g:3.0V=②:3, ③:0
④	M	Package:SOT-23-3
	P	Package:SOT-89-3
	T	Package:TO-92

■ **PIN CONFIGURATION** (Pin output sequence can be ordered by customer)

SOT-23-3



SOT-89-3



TO-92



PIN NUMBER					PIN NAME	FUNCTION
SOT-23-3		SOT-89-3		TO-92		
M	MC	P	PT	T		
1	3	1	2	1	V_{SS}	Ground
2	2	3	1	3	V_{OUT}	Output
3	1	2	3	2	V_{IN}	Power input

■ **ABSOLUTE MAXIMUM RATINGS**

(Unless otherwise specified: $T_a = 25^{\circ}\text{C}$)

PARAMETER		SYMBOL	RATINGS	UNITS
Supply Voltage		V_{IN}	$V_{SS}-0.3\sim V_{SS}+30$	V
Output Voltage		V_{OUT}	$V_{SS}-0.3\sim V_{IN}+0.3$	V
Power Dissipation	SOT-23	P_d	250	mW
	SOT-89		500	mW
	TO-92		500	mW
Operating Temperature		T_{opr}	$-40\sim+85$	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	$-40\sim+125$	$^{\circ}\text{C}$
Soldering Temperature & Time		T_{solder}	$260^{\circ}\text{C}, 10\text{s}$	

■ **Electrical Characteristics**

LR6275A30 3.0V Output Type

(Unless otherwise specified: $T_a = 25^{\circ}\text{C}$)

PARAMETER	SYMBOL	V_{IN}	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}	5V	$I_{OUT}=10\text{mA}$	2.940	3.0	3.060	V
Output Current	I_{OUT}	5V		60	100		mA
Load Regulation	ΔV_{OUT}	5V	$1\text{mA}\leq I_{OUT}\leq 50\text{mA}$		30		mV
Dropout Voltage	V_{dif}	—	$I_{OUT} = 10\text{mA}$		100		mV
Current Consumption	I_{SS}	5V	No load		2.5	6	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN}\cdot V_{OUT}}$		$4\text{V}\leq V_{IN}\leq 28\text{V}$ $I_{OUT}=1\text{mA}$		0.1		%/V
Input Voltage	V_{IN}			—		28	V
Short Current	I_{Short}	5	$V_{OUT} = V_{SS}$		10		mA

LR6275A33 3.3V Output Type

(Unless otherwise specified: Ta = 25°C)

PARAMETER	SYMBOL	V _{IN}	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	V _{OUT}	5.3V	I _{OUT} =10mA	3.234	3.3	3.366	V
Output Current	I _{OUT}	5.3V		100	150		mA
Load Regulation	ΔV _{OUT}	5.3V	1mA≤I _{OUT} ≤50mA		30		mV
Dropout Voltage	V _{dif}	—	I _{OUT} = 10mA		100		mV
Current Consumption	I _{SS}	5.3V	No load		2.5	6	uA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$		4.3V≤V _{IN} ≤28V I _{OUT} =1mA		0.1		%/V
Input Voltage	V _{IN}			—		28	V
Short Current	I _{Short}	5.3V	V _{OUT} = V _{SS}		10		mA

LR6275A36 3.6V Output Type

(Unless otherwise specified: Ta = 25°C)

PARAMETER	SYMBOL	V _{IN}	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	V _{OUT}	5.6V	I _{OUT} =10mA	3.528	3.6	3.672	V
Output Current	I _{OUT}	5.6V		100	150		mA
Load Regulation	ΔV _{OUT}	5.6V	1mA≤I _{OUT} ≤50mA		30		mV
Dropout Voltage	V _{dif}	—	I _{OUT} = 10mA		100		mV
Current Consumption	I _{SS}	5.6V	No load		2.5	6	uA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$		4.6V≤V _{IN} ≤28V I _{OUT} =1mA		0.1		%/V
Input Voltage	V _{IN}			—		28	V
Short Current	I _{Short}	5.6V	V _{OUT} = V _{SS}		10		mA

LR6275A44 4.4V Output Type

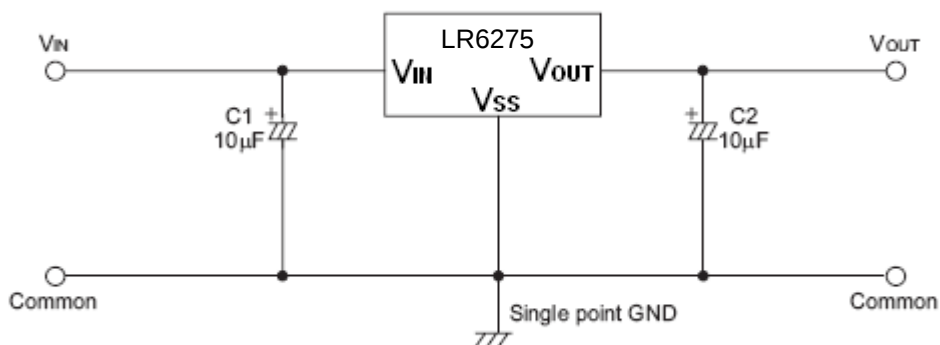
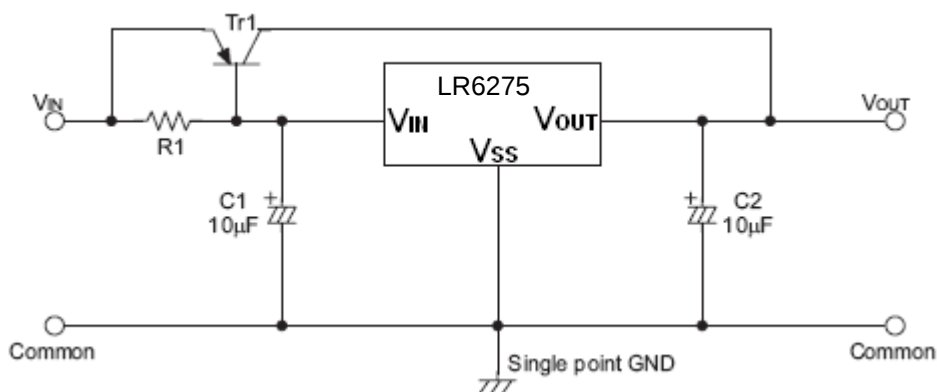
(Unless otherwise specified: Ta = 25°C)

PARAMETER	SYMBOL	V _{IN}	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	V _{OUT}	6.4V	I _{OUT} =10mA	4.312	4.4	4.488	V
Output Current	I _{OUT}	6.4V		100	150		mA
Load Regulation	ΔV _{OUT}	6.4V	1mA≤I _{OUT} ≤50mA		30		mV
Dropout Voltage	V _{dif}	—	I _{OUT} = 10mA		100		mV
Current Consumption	I _{SS}	6.4V	No load		2.5	6	uA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$		5.4V≤V _{IN} ≤28V I _{OUT} =1mA		0.1		%/V
Input Voltage	V _{IN}			—		28	V
Short Current	I _{Short}	6.4V	V _{OUT} = V _{SS}		10		mA

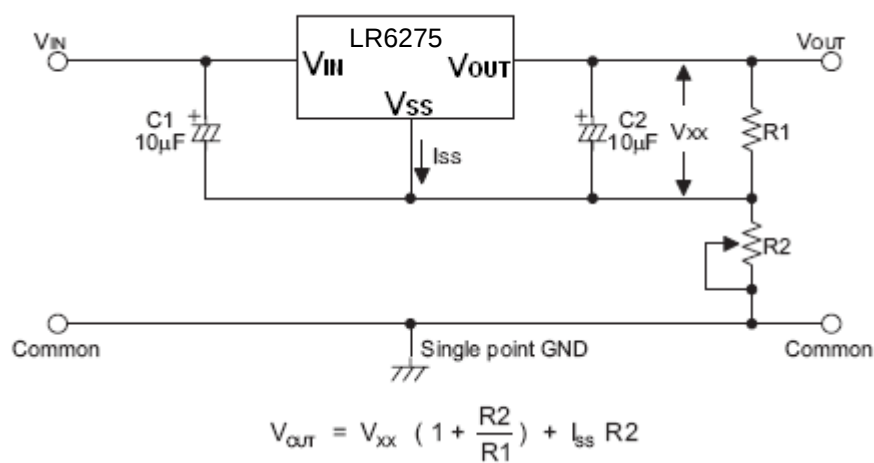
LR6275A50 5.0V Output Type

 (Unless otherwise specified: $T_a = 25^\circ\text{C}$)

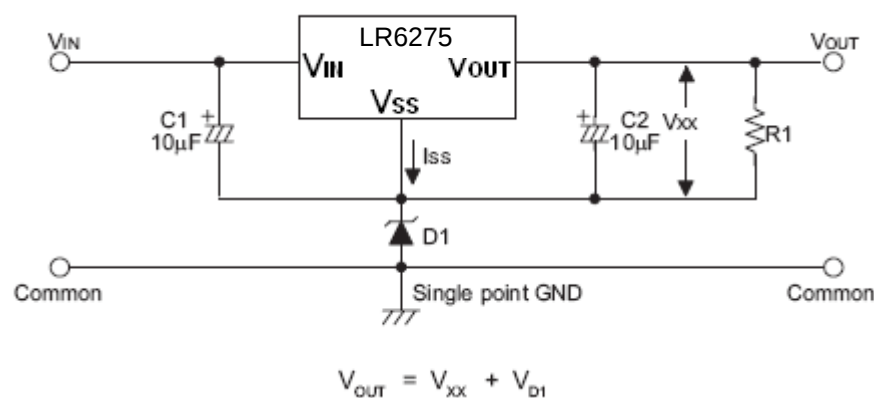
PARAMETER	SYMBOL	V_{IN}	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}	7.0V	$I_{OUT}=10\text{mA}$	4.90	5.0	5.10	V
Output Current	I_{OUT}	7.0V		100	150		mA
Load Regulation	ΔV_{OUT}	7.0V	$1\text{mA} \leq I_{OUT} \leq 50\text{mA}$		30		mV
Dropout Voltage	V_{dif}	—	$I_{OUT} = 10\text{mA}$		100		mV
Current Consumption	I_{SS}	7.0V	No load		2.5	6	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$		$6\text{V} \leq V_{IN} \leq 28\text{V}$ $I_{OUT}=1\text{mA}$		0.1		%/V
Input Voltage	V_{IN}			—		28	V
Short Current	I_{Short}	7.0V	$V_{OUT} = V_{SS}$		10		mA

■ Application Circuits
1. Basic Circuit

2. High Output Current Positive Voltage Regulator


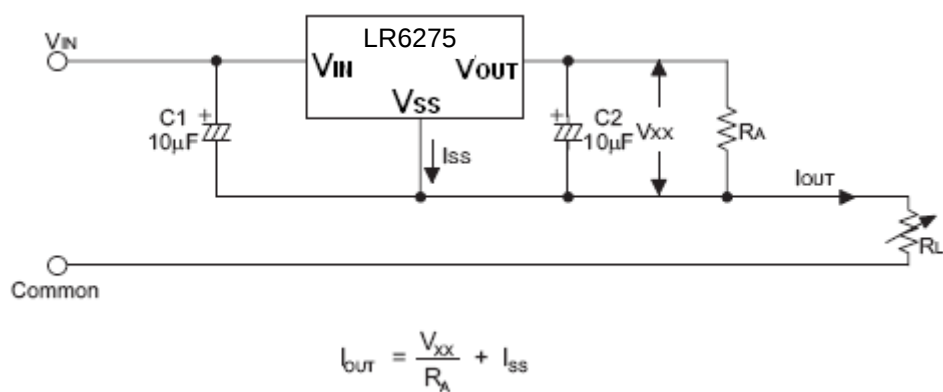
3. Circuit for Increasing Output Voltage



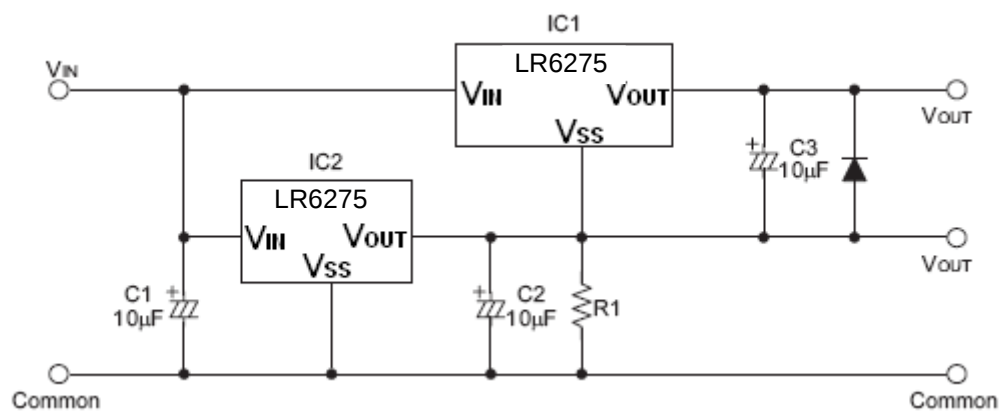
4. Circuit for Increasing Output Voltage



5. Constant Current Regulator

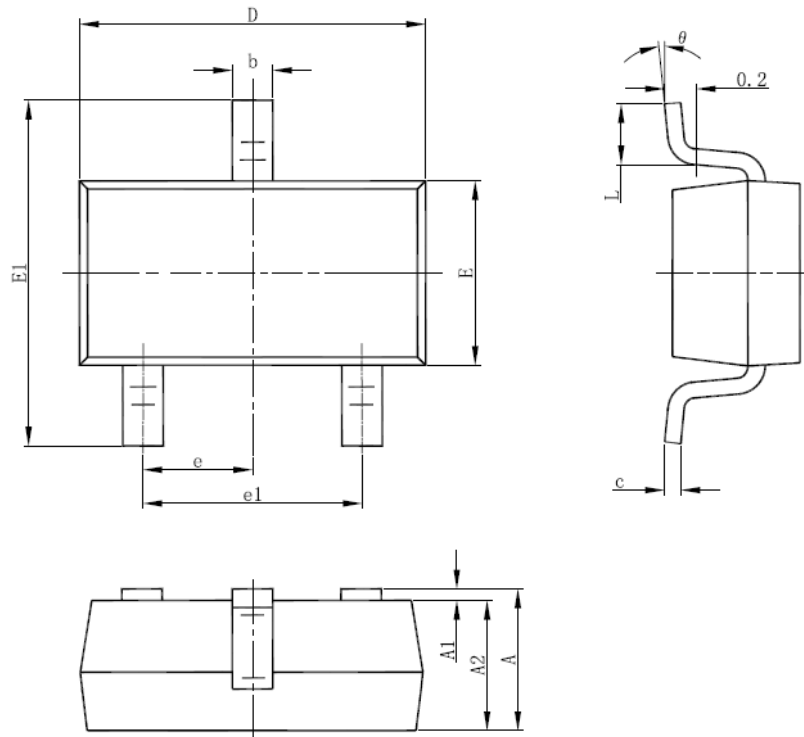


6. Dual Supply



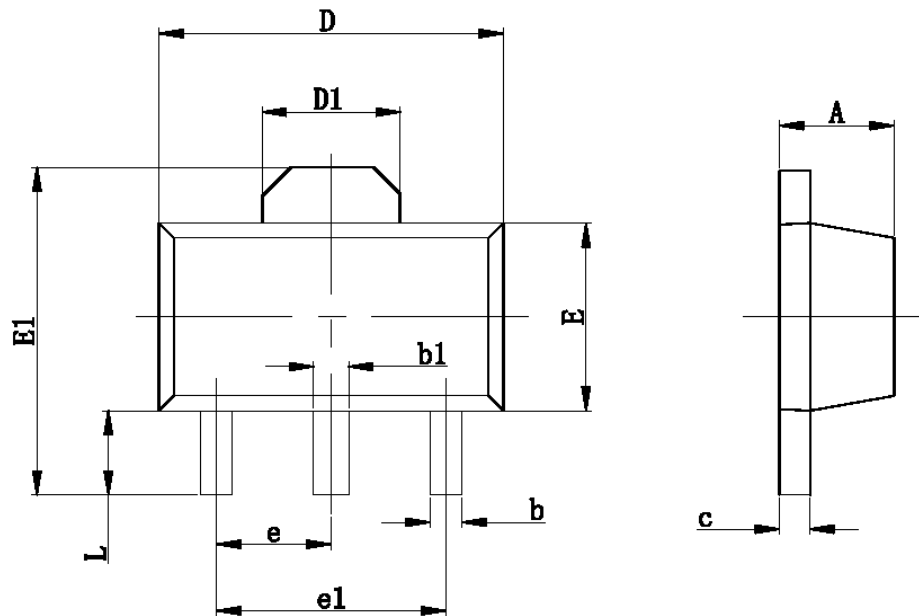
■ PACKAGE INFORMATION

● SOT-23-3 PACKAGE OUTLINE DIMENSIONS



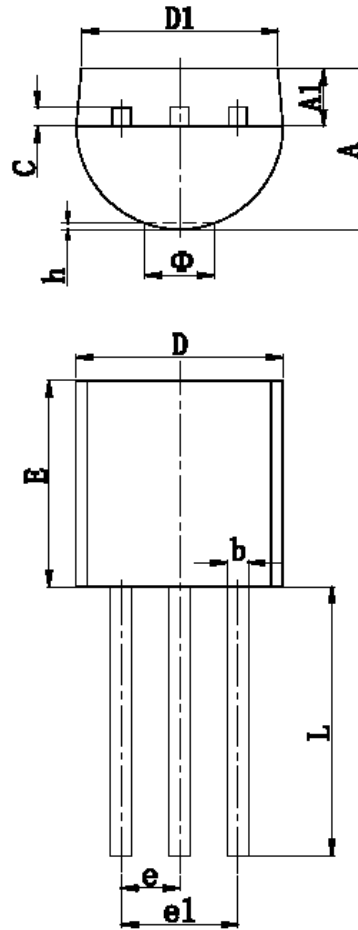
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

• SOT-89-3 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

• TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015