

500mA Fixed Output CMOS LDO

Features

- Very Low Dropout Voltage
- 500mA Output Current
- High Output Voltage Accuracy
- Standard or Custom Output Voltages
- Over Current and Over Temperature Protection

Applications

- Battery Operated Systems
- Portable Computers
- Medical Instruments
- Instrumentation
- Cellular/GSM/PHS Phones
- Linear Post-Regulators for SMPS
- Pagers

Device Selection Table

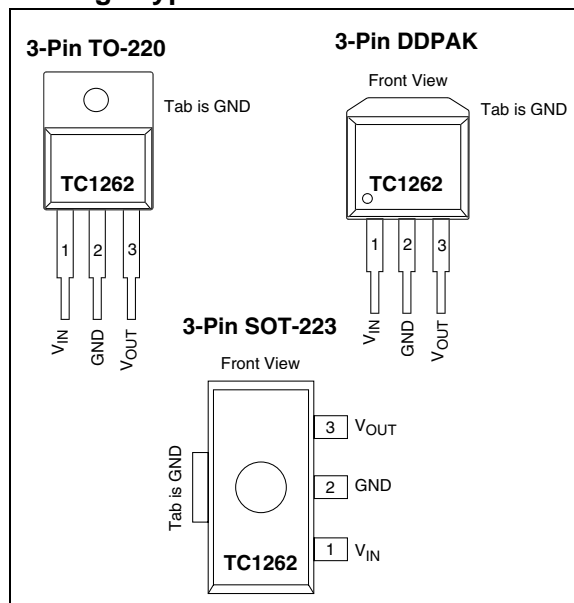
Part Number	Package	Junction Temp. Range
TC1262-xxVDB	3-Pin SOT-223	-40°C to +125°C
TC1262-xxVAB	3-Pin TO-220	-40°C to +125°C
TC1262-xxVEB	3-Pin DDPAK	-40°C to +125°C

NOTE: xx indicates output voltages.

Available Output Voltages: 2.5, 2.8, 3.0, 3.3, 5.0.

Other output voltages are available. Please contact Microchip Technology Inc. for details.

Package Type



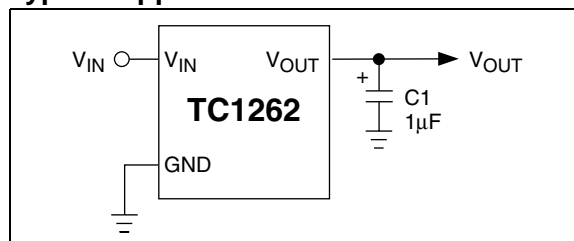
General Description

The TC1262 is a fixed output, high accuracy (typically $\pm 0.5\%$) CMOS low dropout regulator. Designed specifically for battery-operated systems, the TC1262's CMOS construction eliminates wasted ground current, significantly extending battery life. Total supply current is typically $80\mu\text{A}$ at full load (20 to 60 times lower than in bipolar regulators).

TC1262 key features include ultra low noise operation, very low dropout voltage (typically 350mV at full load), and fast response to step changes in load.

The TC1262 incorporates both over temperature and over current protection. The TC1262 is stable with an output capacitor of only $1\mu\text{F}$ and has a maximum output current of 500mA. It is available in 3-Pin SOT-223, 3-Pin TO-220 and 3-Pin DDPAK packages.

Typical Application



TC1262

1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings*

Input Voltage	6.5V
Output Voltage.....	(V _{SS} - 0.3V) to (V _{IN} + 0.3V)
Power Dissipation.....	Internally Limited (Note 6)
Maximum Voltage on Any Pin	V _{IN} +0.3V to -0.3V
Operating Temperature Range.....	-40°C < T _J < 125°C
Storage Temperature.....	-65°C to +150°C

*Stresses above 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 above those indicated in the operation sections of the specifications is not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect device reliability.

TC1262 ELECTRICAL SPECIFICATIONS

Electrical Characteristics: V _{IN} = V _{OUT} + 1V, I _L = 100μA, C _L = 3.3μF, T _A = 25°C, unless otherwise noted. Boldface type specifications apply for junction temperatures of -40°C to +125°C.						
Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
V _{IN}	Input Operating Voltage	2.7	—	6.0	V	Note 7
I _{OUTMAX}	Maximum Output Current	500	—	—	mA	
V _{OUT}	Output Voltage	— V_R - 2.5%	V _R ±0.5% —	— V_R + 2.5%	V	Note 1
ΔV _{OUT} /ΔT	V _{OUT} Temperature Coefficient	—	40	—	ppm/°C	Note 2
ΔV _{OUT} /ΔV _{IN}	Line Regulation	—	.003	0.35	%/V	(V _R + 1V) ≤ V _{IN} ≤ 6V
ΔV _{OUT} /I _{OUT}	Load Regulation	—	0.002	0.01	%/mA	I _L = 0.1mA to I _{OUTMAX} (Note 3)
V _{IN} -V _{OUT}	Dropout Voltage	—	20 60 200 350	30 130 390 650	mV	I _L = 100μA I _L = 100mA I _L = 300mA I _L = 500mA (Note 4)
I _{DD}	Supply Current	—	80	130	μA	I _L = 0
PSRR	Power Supply Rejection Ratio	—	64	—	dB	F _{RE} ≤ 1kHz
I _{OUTSC}	Output Short Circuit Current	—	1200	—	mA	V _{OUT} = 0V
ΔV _{OUT} /ΔP _D	Thermal Regulation	—	0.04	—	V/W	Note 5
eN	Output Noise	—	260	—	nV/√Hz	I _L = I _{OUTMAX} , F _{RE} = 10kHz

Note 1: V_R is the regulator output voltage setting.

Note 2: $TC V_{OUT} = \frac{(V_{OUTMAX} - V_{OUTMIN}) \times 10^6}{V_{OUT} \times \Delta T}$

- 3:** Regulation is measured at a constant junction temperature using low duty cycle pulse testing. Load regulation is tested over a load range from 0.1mA to the maximum specified output current. Changes in output voltage due to heating effects are covered by the thermal regulation specification.
- 4:** Dropout voltage is defined as the input to output differential at which the output voltage drops 2% below its nominal value measured at a 1V differential.
- 5:** Thermal Regulation is defined as the change in output voltage at a time T after a change in power dissipation is applied, excluding load or line regulation effects. Specifications are for a current pulse equal to I_{LMAX} at V_{IN} = 6V for T = 10 msec.
- 6:** The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction-to-air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation causes the device to initiate thermal shutdown. Please see Section 4.0 Thermal Considerations for more details.
- 7:** The minimum V_{IN} has to justify the conditions: V_{IN} ≥ V_R + V_{DROPOUT} and V_{IN} ≥ 2.7V for I_L = 0.1mA to I_{OUTMAX}.

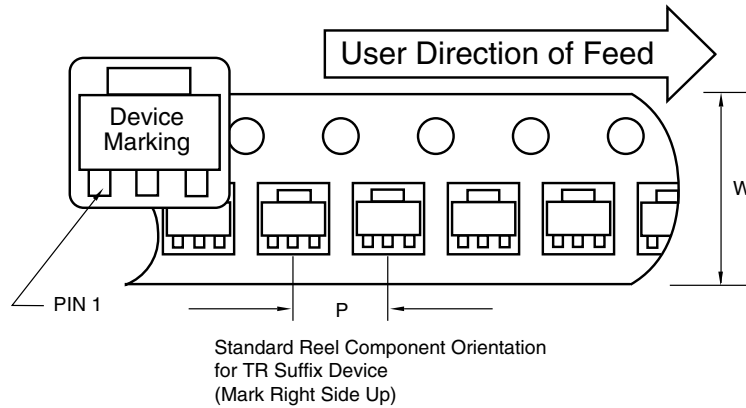
6.0 PACKAGING INFORMATION

6.1 Package Marking Information

Package marking data not available at this time.

6.2 Taping Form

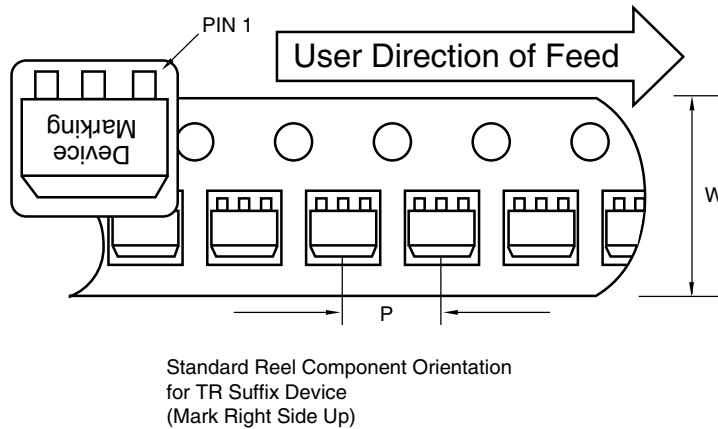
Component Taping Orientation for 3-Pin SOT-223 Devices



Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
3-Pin SOT-223	12 mm	8 mm	4000	13 in

Component Taping Orientation for 3-Pin DDPAK Devices

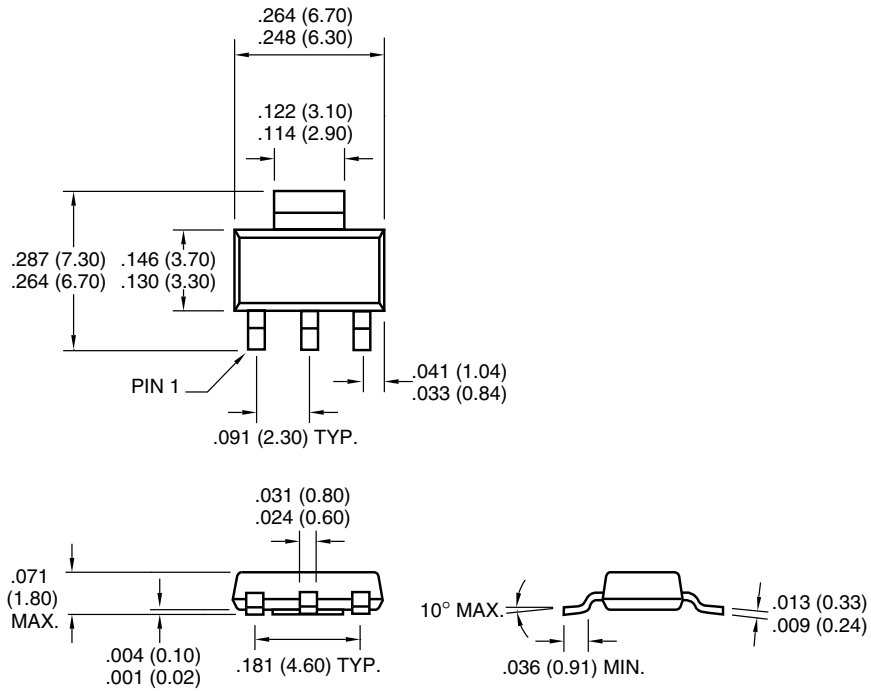


Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
3-Pin DDPAK	24 mm	16 mm	750	13 in

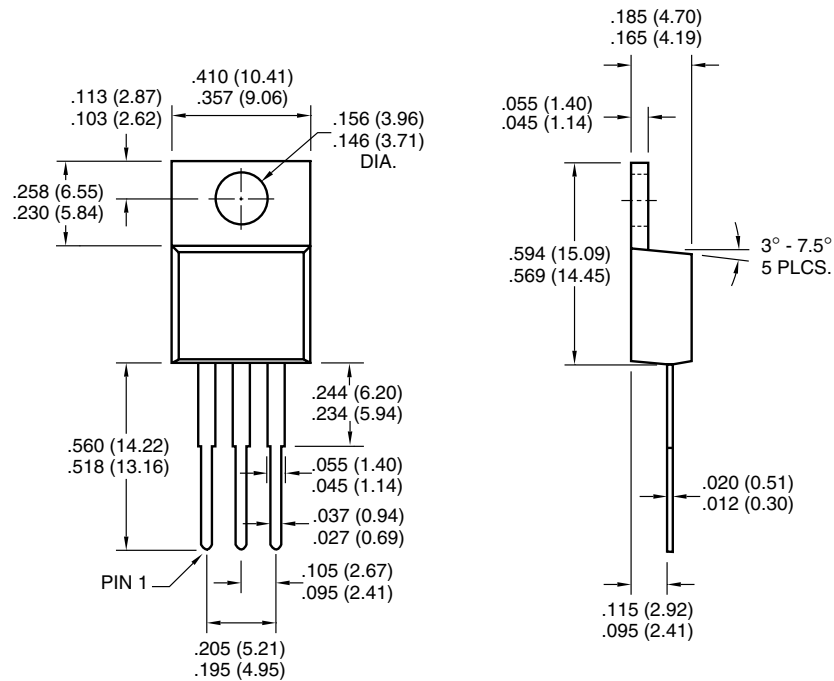
6.3 Package Dimensions

3-Pin SOT-223



Dimensions: inches (mm)

3-Pin TO-220



Dimensions: inches (mm)